We have great pleasure in publishing the proceedings of the 12th International ePortfolio and Identity Conference, an event attended in London 9-10-11 July 2014 by practitioners from 18 countries.

This year was marked with a lively debate between Alfie Kohn and Daniel T. Hickey on the issue of intrinsic vs extrinsic motivation (how the second tends to destroy the first) and its implication on Open Badge Practice.

The videos are accessible on YouTube:
- Alfie Kohn keynote: www.youtube.com/watch?v=p_98XcxJqkw
- Daniel T. Hickey responds to Alfie Kohn: www.youtube.com/watch?v=-IaB8N6P4lc

The keynote addresses of Gill White, from the Chartered Institute of Personal and Development (CIPD), the leading professional body for human resources professionals, and Richard Speight, from Unison Cymru Wales, the leading public sector union in Wales demonstrated the potential for ePortfolios and Open Badges to have a positive impact on the world of work.

During the last plenary session, Stephen Downes, from the National Research Council of Canada, addressed a burning subject: Beyond Assessment - Recognizing Achievement in a Networked World.

You will find that these proceedings reflect the diversity and richness of ePortfolio and Open Badge initiatives happening at local, regional and national levels across all sectors of initial and continuing education.

They are organised in two main parts:
- the papers accepted for publication
- the abstracts of the contributions submitted to the conference

We hope that you will find in the proceedings the information you need to inform your actual and future projects.

We would like to thank again all the authors and presenters who came to London from across the globe, to share their enthusiasm and experience and make the ePortfolio and Open Badges a truly international community!

Serge Ravet and the ePIC Team
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   - Helen Barrett
2. **The future of learning**
   - Gill White
3. **Open Badges and lifelong learning in the workplace: A trade union perspective**
   - Richard Speight
4. **mPortfolios (using mobile devices to support reflection)**
   - Helen Barrett
5. **ePortfolios to replace standardized assessments**
   - Helen Barrett

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7. **Open Badges and ePortfolios: "We Don't Need No Stinking Co-Curricular Records"**
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MOODLE ME: An ePortfolio community of learning for the graphic design student

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Telling the Whole Story: Using ePortfolios to Assure Quality Learning

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Beyond Assessment: Recognizing Achievement in a Networked World

Stephen Downes
# Conference Programme

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<td>8:30</td>
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| 9:30  | **S1.1A: Balancing the two faces of ePortfolios** - Vanguard Classroom - QA165 - Chair: Helen Barrett  
Balancing the two faces of ePortfolios: emphasis on process/learning or product/evidence?  
Helen Barrett, Independent consultant, United States of America | **S1.1B: Create your Open Badge** - Victory Classroom  
- QA175 - Chair: Don Presant - Chair: Eric Rousselle |
| 11:00 | Coffee Break                                                                                   | QA 163, 170, 177                              |
| 11:30 | **P1: Opening Plenary Session** - Royal George Lecture - QA180  
Welcome Address: Serge Ravet, ADPIOS, Europortfolio  
The future of learning, Gill White, CIPD, United Kingdom  
Open Badges and lifelong learning in the workplace: A trade union perspective, Richard Speight, Unison Cymru Wales, United Kingdom |  
**Lunch**                                                                                      |
| 12:45 | Lunch - Circulation Area - QA 163, 170, 177                                                   |  
Thematic tables are meeting points for delegates desiring to address a specific issue. Suggest a theme and join a theme using the panel situated next to the registration desk. |
| 14:00 | **S1.2A: mPortfolios** - Vanguard Classroom - QA165 - Chair: Helen Barrett  
mPortfolios (using mobile devices to support reflection)  
Helen Barrett, Independent consultant, United States of America | **S1.2B: Open Badge for Competency Recognition** - Victory Classroom  
- QA175 - Chair: Don Presant - Chair: Eric Rousselle |
| 15:30 | Coffee Break                                                                                   |  
**S1.3A: ePortfolios to replace standardized assessments** - Vanguard Classroom - QA165 - Chair: Helen Barrett  
ePortfolios to replace standardized assessments  
Helen Barrett, Independent consultant, United States of America | **S1.3B: Open Badges: Beyond Institutional Boundaries** - Victory Classroom  
- QA175 - Chair: Don Presant & Tim Riches |
| 16:00 |  
**S1.3B: Open Badges: Beyond Institutional Boundaries** - Victory Classroom - QA175 - Chair: Don Presant & Tim Riches  
The objective of this session is to explore Open Badge initiatives going beyond institutional barriers like Badge the UK or Cities of Learning: what benefits? How to proceed? |  
**Coffee Break**                                                                                   |
| 17:00 | Close                                                                                          |  
**Close**                                                                                      |

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| 9:00  | **S21A: Open Badges Track** - Vanguard Classroom - QA165  
What have we learned from Open Badge Factory statistics and user feedback?  
Eric Rousselle, Heli Karjalainen  
Discendum Oy, Finland  
Open Badges and ePortfolios: "We Don't Need No Stinking Co-Curricular Records"  
Don Presant  
Learning Agents, Canada  
Wikifolios, Peer Endorsement, Peer Promotion, and Open Badges for Engagement and Achievement in a Big Open Online Course  
Daniel Thomas Hickey, Rebecca Itow  
Indiana University, United States of America | **S21B: Assessment** - Victory Classroom - QA175  
ePortfolio as a tool for formative assessment of knowledge and skills  
Tanja Rupnik Vec, Leonida Novak  
National Education Institute Slovenia (NEIS), Slovenia  
Learning Reflective Behaviors in Web-based Portfolio Assessment  
Chi-Cheng Chang, Cheng-Chuan Chen  
National Taiwan Normal University, Taiwan  
What will we need to learn, and have evidence for?  
Simon Grant  
University of Bolton, United Kingdom | **S21C: Parallel Session** - Edinburgh room - QA075  
Electronic portfolio to support career growth throughout the continuum  
Joshua Jacobs  
Association of American Medical Colleges, United States of America  
Let's Connect: ePortfolio's, competence data & labour market data in the Southeast of the Netherlands  
Maartje Geenen⁴, Marius Monen²  
1: Provincie Limburg, The Netherlands; 2: Brainport Development  
21st century Competencies and Communities in Higher Education  
Penelope Jane Lister, Charlotte Fregona  
London Metropolitan University, United Kingdom |
<p>| 10:30 | Coffee Break                                                                                   | QA 163, 170, 177                              |</p>
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<td>11:00</td>
<td>S22A: Open Badges Track - Vanguard Classroom - QA165&lt;br&gt;Show Me Your Badge: Using Open Badges to Provide Career and Educational Pathways for Pre-Service Blue Light Professionals&lt;br&gt;Bryan Donald Eldridge&lt;br&gt;High5U, United States of America&lt;br&gt;Harnessing informal learning for accreditation: using open resources and personal learning portfolios for academic and professional development&lt;br&gt;Charlotte May Fregona, Pen Lister&lt;br&gt;London Metropolitan University, United Kingdom&lt;br&gt;Connecting Recognition, Assessment, and Motivation around ePortfolios with Open Badges&lt;br&gt;Rebecca Itow, Daniel Thomas Hickey&lt;br&gt;Indiana University, United States of America</td>
<td>S22B: Identity - Victory Classroom - QA175&lt;br&gt;ePortfolios, Integrative Learning, and Identity in a Senior Capstone Seminar&lt;br&gt;Susan Kahn, Karen Ramsay Johnson&lt;br&gt;Indiana University-Purdue University Indianapolis, United States of America&lt;br&gt;Authenticity: An Essential Characteristic of Evidence for Digital Myself&lt;br&gt;Janice Smith(^1), Shoji Kajita(^2)&lt;br&gt;1: Three Canoes LLC, United States of America; 2: Kyoto University, Japan&lt;br&gt;Dynamics of the learning process and specificities of the digital being in the university&lt;br&gt;Samuel Nowakowski(^1), Manuel Schneeewege(^2), Isabelle Houot(^3), Nathalie Issenmann(^4)&lt;br&gt;1: Université de Lorraine, LORIA, MSH Lorraine France; 2: MSH Lorraine; 3: Université de Lorraine, LISEC; 4: Université de Lorraine, Service Universitaire d’Ingénierie et d’Innovation Pédagogique</td>
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<td>12:30</td>
<td>Lunch - Circulation Area - QA 163, 170, 177</td>
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<td>14:00</td>
<td>P2: Plenary Session - Royal George Lecture - QA180 - Chair: Don Presant&lt;br&gt;Followed by a conversation with Daniel T. Hickey, Indiana University, author of the contribution Connecting Recognition, Assessment, and Motivation around ePortfolios with Open Badges</td>
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<td>Coffee Break - Circulation Area - QA 163, 170, 177</td>
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<td>16:00</td>
<td>S23A: Europass/ Open Badges Workshop - Vanguard Classroom - QA165&lt;br&gt;Europass and Open Badges&lt;br&gt;Dik van der Wal, Erik van den Broek&lt;br&gt;DUO / Europass, The Netherlands</td>
<td>S23B: Parallel Session - Victory Classroom - QA175&lt;br&gt;Evidence-Based Learning – Organisation of ePortfolio in Academic Education and further Education at the West Saxony University of Zwickau&lt;br&gt;Eric Forkel, Christian-Andreas Schumann&lt;br&gt;West Saxony University of Zwickau, Germany&lt;br&gt;Student Engagement: An evaluation of the effectiveness of explicit and implicit Learning Analytics&lt;br&gt;Ed de Quincey, Ray Stoneham&lt;br&gt;University of Greenwich, United Kingdom&lt;br&gt;Ensuring Evidence in Research-Based Learning via ePortfolio&lt;br&gt;Petra Muckel, Birte Heidkamp, David Kergel, Sebastian Hartong, Stefanie Brunner&lt;br&gt;University of Oldenburg, Germany</td>
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<td>17:30</td>
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<td>19:00</td>
<td>Soc: Social Dinner</td>
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| 9:30  | **S31A: Parallel Session** - Vanguard Classroom - QA165  
Enhancing Evidence-Based eLearning  
Performance by Teaching eFolio Thinking  
Competencies  
Bruno Kappes, Mi Cao  
University of Alaska Anchorage, United States of America  
The learning outcomes-based ePortfolio implementation: a three-year journey  
Barbara Anne Nicolls  
Buckinghamshire New University, United Kingdom  
ePortfolio Practice: From Tertiary Classrooms to the Workplace  
Dominique-Alain Jan  
Gymnase de Nyon, Switzerland  |
|       | **S31B: Parallel Session** - Victory Classroom - QA175  
ePortfolio and badges for job applications – insights from the German qualification program “Credit Points”  
Iiona Buchem  
Beuth University of Applied Sciences Berlin, Germany  
MOODLE ME: An ePortfolio community of learning for the graphic design student  
David Lewis Sinfield  
Auckland University of Technology, New Zealand  
Identity construction: a personal portfolio and e-branding plan for an academic purpose  
ANA MARÍA BELMONTE JIMÉNEZ  
MALAGA UNIVERSITY, Spain  |
|       | **S31C: Parallel Session** - Princess Caroline Classroom - QA220  
Telling the Whole Story: Using ePortfolios to Assure Quality Learning  
Romy Lawson  
University of Wollongong, Australia  
Monitoring student progress and enhancing student engagement in a flexible environment with eportfolio blogs in a postgraduate medical sonography course: A case study from the University of South Australia  
Nayana Anupam Parange  
University of South Australia, Australia  
Eportfolio for Program assessment is not only a powerful tool for Program evaluation and external accreditation but also a useful reflective process for Program improvement. A case study from the Postgraduate medical sonography Programs, University of South Australia  |
| 11:00 | **Coffee Break** - Circulation Area - QA 163, 170, 177                                                                  |
| 11:30 | **P3: Plenary Session** - Royal George Lecture - QA180  
Beyond Assessment: Recognizing Achievement in a Networked World  
Stephen Downes  
National Research Council of Canada, Canada  |
| 12:30 | **Lunch** - Circulation Area - QA 163, 170, 177  
Thematic tables are meeting points for delegates desiring to address a specific issue. Suggest a theme and join a theme using the panel situated next to the registration desk. |
| 14:00 | **Europortfolio Open Workshop** - Vanguard Classroom - QA165 - Chair: Serge Ravet  
The aim of the workshop is to encourage participants to contribute to the reflection on technologies and educational changes, through a critical review of the "Open Badges and ePortfolio Maturity Matrix."  
Strategies for Educational Changes: What can we learn from the Development of ePortfolios & Open Badges?  
Serge Ravet  
Europortfolio / ADPIOS, France  |
| 15:00 | **Open Discussion around a Closing Cocktail** - Circulation Area - QA 163, 170, 177                                    |
| 16:30 | **Close**                                                                                                              |
Proceedings — Papers
Beyond Assessment - Recognizing Achievement in a Networked World

Stephen Downes, National Research Council, Canada

Abstract

ePortfolios and Open Badges are only the first wave in what will emerge as a wider network-based form of assessment that makes tests and reviews unnecessary. This paper discusses work being done in network-based automated competency development and recognition, the challenges it presents to traditional institutions, and the opportunities created for genuinely autonomous open learning. Through an exploration of the ethical issues related to analytics and assessment and the development of alternative credentials, the paper proposes a mechanism for personal learning assessment based on production in social and community-based environments.

Keywords: networks, learning, assessments, social media, analytics, ethics

What constitutes success?

There is a case of a woman who was a dean at MIT for decades, receiving the institute's highest honor, the MIT Excellence Award for Leading Change, and it turns out she didn't have any degrees, not even a bachelor's degree. (Lewin, 2007) Obviously she has been disgraced and she should not have done that, but the interesting thing is that she can do an excellent job and be recognized for this, by a major institute of higher learning, and yet not have a degree. It raises the question of the value of the degree itself.

On the other hand, we have the possibility that many of us are just faking our way through. (Tremonti, 2014) It's not just faking our way through doing jobs without degrees -- although I do wonder how many other people are out there doing that. It's faking our cultural knowledge generally, for example, people acting like they've read "War and Peace" when they really haven't read War and Peace, or people referring to plot elements in "Moby-Dick," like I do, without having read Moby-Dick, which I haven't.

When we get into this sort of discussion, we wonder, is there a core, a common heritage, which we each share, or rather is each individual, as we just heard, a strand running through the fabric of culture? What is it that can be faked, and what is it that, like being able to speak Urdu, can't be faked?

It's interesting to think of culture in this perspective, as a type of language -- culture as something that helps us communicate with each other. (Hereford, 2014) It's like a speaker at a conference referring to a science fiction novel by Greg Egan to make a point. I can nod at this because I'm familiar with Greg Egan, thus faking cultural fluency. Unfortunately I hadn't read that particular book so I lost the context of the example, and wouldn't be able to discuss it. Cultural knowledge can be faked, but cultural interaction cannot.

When we talk about knowledge and language in this way, we sometimes have this sense that we're talking about knowing a language, knowing a culture, knowing a whole set of facts, and if we could just get all these facts, then we'd know what people know. But, in fact -- Wittgenstein here is the expert on this -- a language isn't just knowing a set of facts or knowing a set of rules. A language is something much more dynamic, much more behavioral and complex: not a set of facts, but the embodiment of a skill, like playing a game, like a way of life.

Looked at from this perspective, what constitutes success? (Thomason, 2014) Playing the game of being a good MIT Dean of Admissions constitutes success, while a demonstration of recall of a set of facts does not. What is it for one of us to be a success? Do we count our citations? Do we count the impact factor of the journals that we're writing? Probably we shouldn't.

This raises a lot of serious questions about assessment and about understanding what constitutes success and what constitutes learning.

Here's one question: we have many more ways of finding work today, but it seems harder and harder to find a job, harder and harder to match ourselves to a position. (Young, HR tech, 2014) Why is that the case?

Here's another question: today's students leave a lot of data traces, as we've just heard, from demographic information to how they read and highlight eBooks, et cetera. What are the ethics of using this for the purposes of assessment? (Young, Personal education, 2014)
Here's another one: everybody's learning experiences are customized. Everybody is, as my wife likes to say, a special snowflake, where their experience exactly matches who they are. They study exactly what they best comprehend. So does this mean everybody gets an A?

And another: is open online learning or the MOOC, the massive open online course, or informal learning in general doing the sort of thing that we need? According to the traditional metrics, it's not. (Moe, 2014) People aren't completing their courses. They're not amassing these sets of facts. They're not proving their knowledge by taking tests and getting degrees.

MOOCs and open online learning generally are shifting the definition of education away from its historical roots to a skills based, instrumentally defined enterprise -- in other words, very much like speaking a language.

What We Need

What is it that we need? What is it that we're after? What are we trying to get at when we're doing assessment?

One way of looking at it is the skills gap. As widely discussed in Canada, a skills gap exists when the set of unemployed people and the set of employment opportunities don't match. The skills the positions need aren't the skills that the unemployed people have. So we're trying to bring people to the point where they can qualify to fill the jobs. That's one way of looking at it.

Or look at it this way: it would make sense for employers to just go out and say "we'll educate people for the skills that we need, and then we can hire them," but this isn't happening. (Munroe, 2014) One of the reasons, I think, is employers don't actually know what these skills are that they need.

They know that they don't have the people. They know that the unemployed people don't qualify for the job, but they don't know exactly what it is that would qualify for the job. It's just when they do the interview, when they have a conversation with the person, it becomes obvious to the interviewer that they're qualified or not qualified. This is an interesting and remarkable phenomenon.

What's being recommended? What has our government and business community come up with? Well, in Canada we have something called Canada 2020. It's a business oriented group. They're recommending a learning outcomes assessment program, a council on skills and higher education. We actually used to have one, called the Canadian Council on Learning. Now they want it again. They want education and skills for aboriginal peoples, whatever that means. They want to "narrow the skills gap between men and women," again, whatever that means. They're looking for credential recognition and skills training for immigrants. (Munroe, Skills and Higher Education in Canada, 2014)

I don't think any of these addresses the point. I don't think any of these addresses the problem. The problem is how do you recognize, first of all, what you need in society? And secondly, what people actually have in society. We need to be able to, on a society-wide level, to be able to do the job of the interviewer.

![Figure 1. Skills Gap](image)
Traditional approaches to assessment

Confusing the outcomes of education with the process of education

This sort of approach being recommended by Canada 2020 and other business groups isn't addressing the problem head on, but instead is trying to cover the cracks with committees and lists of skills and competencies. But it doesn't get to the core of the problem.

What we're doing now is compiling learning task inventories (LTIs) to define sets of learning activities related to skills. (MacNeil, Wood, Zivcakova, Glover, & Smith, Learning Task Inventories (LTIs). Exploration of Optimal Conditions to Help Students Develop, Improve and Sustain Good Study and Learning Practices, 2014) It's the basis for instructional design. (Quinlan, 2014) You start with what you want them to learn, design an experience, cause them to learn it, build in some checks, and see that this has all happened in the end.

That's basically what these councils and these skills programs are going to do. That's what PISA did. That's what PISA did for 15-year-olds. The PISA test, for those of you who aren't familiar with them, is to take 15-year-olds around the world. You give them a standard set of test questions (interestingly, test questions not based on the curriculum of what they learn but rather test questions based on some definition of what the organizers of PISA think they should have learned by the age of 15). Apply these tasks, and then you get a league table. You have Finland, Shanghai and Singapore at the top, all the way down to "not us" at the bottom half of it.

It's a very traditional approach. LTIs detail the learning tasks students are expected to master during the course. They are represented in, for example, standardized curricula such as the Western protocols in Canada or the Common Core in the United States. The intent is to improve learning outcomes; "It is well known that distributed practice, the technique of dividing study efforts into frequent, relatively short study sessions, is more beneficial to student learning than is massed practice." (MacNeil, Wood, Zivcakova, Glover, & Smith, 2014) But while making it clear to students what they don't know, it is not clear that LTIs actually help them learn. "Only 10-20% of students believe this contributes significantly to making course material easier to learn or to their final grades."

So creating lists of learning tasks students are expected to master creates significant extra work on the part of designers, but it's not clear it results in more work or improved outcomes on the part of students. It's a long process of identifying and testing for skills gaps that doesn't seem to have any beneficial result. And interestingly, the countries that are doing well in PISA are beginning to doubt the whole program. Countries like Finland probably always doubted the whole program. We have Shanghai, and China generally, looking at whether they really want to focus their efforts on this anyway. (Zhao, 2014) Their skills and qualities, they say, should also be acquired from a variety of activities, not just studying specific ('core') skills and and testing for them. They consider things like play, online activities, and games to be equally important because they understand that knowing isn't just about getting a set of facts that you can measure on a test.

Why are we emphasizing the test? Here's one theory. This is the slide for any who are skeptics. The per-student cost for testing is currently about $31 a student. Multiply that by 50 million students in the United States, and you get lots of money. (Heick, 2014) Interestingly, organizations like "The Washington Post," who promote testing, also run testing agencies like Kaplan.

Yet, education is still crucial for economic development, for personal development, and there is this sense in which skills build on skills. (Pearson, 2014) There is this sense in which education is kind of cumulative. It almost feels like we're piling facts on each other, even though we know it's not.

We have reports saying the time in school spent by a country's children is directly related to the productivity of its workers. That appears in the publisher's Pearson's White Paper. I'd probably say it differently, to focus on the health and welfare of the population. The point nonetheless remains the same -- more education means happier people and a more developed society.

In my opinion, the problem is that we're confusing the outcomes of education - the test results, etc. - with the process of education. That's why it's significant and that we talk about the time in school as opposed to, say, the test grade, because if people said the test grades are proportionally related to economic development or productivity, I think they'd have a much harder time making their case.

As opposed to test grades, which are easy to measure, outcomes are hard to measure. As Pearson's 2014 report, 'The Learning Curve', argues, "You can be certain and vague, or you can be precise but not certain. You can't be both." (Fallon, 2014) The really interesting, useful outcomes like
"understand" and "appreciate" are almost undefinable. (Talbert, 2014) They are, in a certain sense, ineffable. We could not really express what we mean.

This is what the representation of culture as a type of language appeals to, the ineffability of learning. We cannot express in language what it means to learn a language. Language limits us to describing learning in terms of as a set of facts, structures, rules, et cetera, and this doesn't work. There isn't a nice and neat set of concepts and principles linked to what we mean by "understand," so you get behavioral outcomes, "display," "recite," "define," but these are based in rote.

That's the problem with these tests -- you can fake them.

"The complexities matter," says Gardner Campbell. "When confident, simple, plain orderly advice is given about a subject matter I hear the sound of the hatchet replaced by the sound of wood snapping as the branch I'm sitting on gives way." (Campbell, 2014) It's easy to recommend simple test-defined outcomes-based ways of developing education, but as soon as we begin to do that, we're undermining the foundations of the educational system.

Making Stuff Up: Mental Processes

This is the dilemma. We can't depend on the test. But on the other hand, our knowledge is in our heads, and what's in our heads is incredibly difficult to access. Even if you slice open the brain -- and people have. I've heard this -- you still don't see knowledge. You see gray, messy, gooey stuff.

What are we going to do? (Watters, 2014) Do we continue using the black box approach (McLeod, 2014), which is based on "recite," "define," et cetera, or do we start making stuff up, using what Hume would call 'convenient fictions' to explain a way that which we do not know.

Here's an example of what I mean by "making stuff up." This is someone who I won't name for his own protection: "Our brains need some way of deciding what to encode and how to encode it, so as to retrieve it in a way which is useful. Our minds solve this problem by encoding information along the affective context." (Shackleton-Jones, 2014) No doubt you have studied many papers that sound like this.

This is made up stuff. It seriously is made up stuff. What is the “affective context”? Even if you can give me a definition, can you give me a definition that is operationalizable in any meaningful way? Can you give me a definition which is observable in any meaningful way?

When you start saying things like "the brain needs some way of deciding," how do you know this? Is the brain sitting there and saying "oh, my, I need to find some way of deciding how I know?" No. It's a hypothesis. It's making up some kind of activity the brain is doing, but the brain is not actually doing it.

Stephen Talbott argues that we have this tendency to represent the human body and human systems, including thought and even things like the circulatory system, as though they were machines, when manifestly they're not. (Talbott, 2014)

For example, we typically (and habitually) think of the heart as a pump. So we say the heart pumps the blood through the circulatory system. But, as he argues, if that's really what happened, the amount of pressure that the heart would have to exert on the blood would explode the tiniest veins and arteries in our bodies. Rather, our circulatory system is less like plumbing and more like the tides. It involves some liquid in the blood system but other liquid elsewhere in the body. It's like the tides that sway back and forth.

On this picture, the heart is a regulatory mechanism, not the sole thing that makes the whole thing work. Other things are involved; the veins in your legs actually play a role in moving the blood back to the heart. The whole body works in this way. The whole body works together as a system for making the blood move. It's not simply the heart. The heart is just one part of it. It's a complex, messy -- really messy. Open a person and you'll see nothing but messiness -- totally integrated organic system, not a machine.

Figure 2: The Heart as something other than a pump. Image: https://emedtravel.wordpress.com/page/16/
Making Stuff Up: Competencies

That takes us to the next part of our discussion, competency-based education, which is a major trend in modern e-learning. (Tamburri, 2014) In competency-based education students are granted credentials (Eduvation, 2014) based on demonstrated proficiencies. (Shapiro, 2014)

Critics argue that it seems too much like training and it focuses too much on outcomes. That may be. My response to it is it takes a hard problem (of deciding, for example, whether somebody is a dentist) and breaks it into smaller problems, each of which is just as hard as the original problem. We had one hard problem. We've created 10 hard problems.

I wonder, indeed, whether personal learning even requires competencies. Do we need to break down our domain of study into a set of clearly defined competencies in order to be able to master the domain? Is a discussion of our learning a domain at the same time a requirement for a discussion of the competencies that we've acquired in that domain? For example, is being a physicist the same as having acquired all the competencies we take to define a physicist?

In one sense, yes. (Mind/Shift, 2014) You can't really do personalized learning without common expectations about competencies. You need to know, for example, what a physicist knows. But what is that? What defines what a physicist knows? This is where the competency-based approach begins to break down, because it is extraordinarily difficult to define the full set of necessary and sufficient competencies that define ‘being a physicist’. Only under certain circumstances, where we know and require a common and core set of competencies, are competencies required to support personal learning. But this may well prove to be the exception rather than the rule.

And this seems to be the result we are obtaining in practice. According to a study (Abner, Bartosh, & Ungerleider, 2014) on competency-based education from the Higher Education Quality Council, there’s no systematic comprehensive study indicating that the specificity of skills from competency-based education translate into performance. As Charles Ungerleider asks, what are the competencies underlying performance in anything? What are the competencies underlying a satisfactory high school education, even?

We think we’ve got a good handle on what these basic competencies are, but we don’t. We think we do, but it’s an illusion. We make stuff up, and we say it’s foundational, without any good ground for saying so.

Alternative Credentials

What's happening now? What are we getting? We are getting alternative credentials. We used to have a system where we had high school diplomas, bachelor's degrees, master's degrees, PhDs, and a few professional certifications. Now, because there's so much information out there and so many ways of interacting with people, we are getting a ton of alternative credentials.

As I say here, a veritable slew -- Qualt, (http://www.qualt.com/) for example, based on courses developed by the Association of Accounting Technicians, et cetera, and brought to us by the good people like Google. Harvard has created the Credential of Readiness, which means that you are ready to take a Harvard education, I guess. (Useem, 2014)

ALT, the Association for Learning Technology, in Britain, is designing and creating badges as part of its oCTEL MOOC. On top of that, the badge issuing system, which can establish whether the badges you are issuing are compliant badges. So we have a credential for a credential. (Hawksey, 2014) (Levine, 2014)

Udacity, Sebastian Thrun's company, together with AT&T and 1.5 million of their dollars, is launching something called nanodegrees. (Shen, 20143) In Europe, the European Commission has the VM Pass (Knowledge Innovation Centre, 2014), a validation process based on a combination of peer review and crowd sourcing. (Creelman, 2014)

Condé Nast - yes, the magazine publisher - is issuing college credentials. (Lederman, 2014) The experts are going to be the writers and editors from various magazines. Of course, the publisher will provide some financial backing. It actually convinced some colleges to go on with the scheme.

The Achievement Standards Network is offering “open access to machine-readable representations of learning objectives published by education agencies and organizations including the Common Core State Standards.” (JES & Co., 2014) It was recently acquired by Desire2Learn.

Learning Locker (http://learninglocker.net/) is an open source Learning Record Store for tracking learning data. (Betts, 2014)
What Are We Validating?

Understanding

What we are seeking is a sustainable and reliable method for the validation of learning. But, let me ask, are we validating the learning, or are we validating the person? Who are they hiring when they hire someone, the learning or the person?

The objective was, remember, jobs, skills, gap. They don't hire learnings. That's why they don't just use the CV when they're hiring people. They're hiring the person. You wonder why they would do this. They actually go through a process of selection, where real people sit down and talk to job candidates. Why does that happen?

We need a basic understanding of understanding. (Stanley, 2014)

When you're trying to show that you understand something, the answer to that isn't really "let me demonstrate." The reason why "let me demonstrate" isn't the reason is that it's too easy to fake. If you just show a production of some sort and say "this proves that I know of quantum physics, because look," people aren't going to believe that.

This is because there is a sense in which understanding quantum physics is more about being immersed in a culture or like learning a language than in possessing some set of facts and principles in the brain.

To know something, in this sense, is to recognize. (Wilkins, 2013)

This should be thought of in a very precise sense. What is it to know something? Consider the books, "Where's Waldo?" (or "Where's Wally?" in Europe). (http://whereswaldo.com) Open up "Where's Waldo" and look and search for Waldo. Finally, you see him. You recognize him. The next time you do the same thing, it takes you no time at all. There he is.

Knowing is like finding Waldo. It's being able to recognize him in the sense that you can't un-know it once you see it. Knowing is like picking out the face of your spouse or your close friend in a crowd coming over in a train. Easy to do. It's an incredibly complex process, but easy to do. You can't not do it. That's the key.

It's a physical state. It is quite literally the organization of the connections in our brain. Our brain is a perceptual mechanism. It's a perceptual mechanism such that if we see something that we recognize or we know, we get a cascade of neural activation, and we get this characteristic "Ah, there's Waldo. Ah, there's my wife. Ah, there's a tiger." You can see how it would be useful.

Knowing and Doing

Learning, in an important sense, is learning how "to do," in other words, rather than "to know." (Ferguson, 2014) This is important.

When we're doing these assessments, when we're doing these measurements, we're after facts and principles and things like that. Theories. Even language. Even a definition or description. This is a representation or a model of what we know, rather than what we do. It's a tool, an aid to learning, an aid to understanding and comprehension, but it is not literally the thing that we know.

The thing that we know literally is this recognition process. How do I know that? I know, because our brain is a pattern-recognition machine, not a digital computer. It's not even a pattern-recognition machine. It's a complex biological stuff, interconnected neurons that collectively recognize patterns, and not a digital computer. The digital computer analogy is simply wrong.

How do you show what you've learned? Do you demonstrate, or do you do? A demonstration is a requirement intended to satisfy a specific set of criteria. That's the formula. (Kuhlmann, 2014) How do you become, or establish yourself, or show that you are an e-learning professional or anything else? First of all you practice what you do. Secondly, you show examples of what you do. Thirdly, you show what you do and what you learned.

You don't just show the examples. You show the process. You show the thinking. You show what goes on behind the scenes. And this is what a modern learning network enables. When I work on the network, I show what I know by being on this network doing what I do, whatever I do. All of those
people see it, and they talk about it. Maybe they talk about it, or maybe they ignore it. Who knows? They do what they do.

For example, I show what I know with my LinkedIn network, (Downes, 2014) and it shows a lot of connections. The connections are mapped and organized by the computer, which also adds the colours. You can actually analyze what the different colors mean; they represent clusters of contacts. The computer autodetects these clusters; to a certain degree, you could find out what I know by looking at the set of people who talk to me.

This is the wave of the future. There's a system called SCROLL, a System for Capturing and Reusing of Learning Log, and basically it's capturing your learning as you go along. (Ogata1, Hou, Li, Uosaki, Mouri, & Liu, 2014) This learning, just like a LinkedIn network diagram, can be analysed by computer and clusters – which in this case would be key areas of learning – can be identified.

Think about what happens when we add learning to the Internet of Everything. (Jarche, 2014) The Internet of Everything is the Internet of people, of resources, and of things. We're hearing about the Internet of things, but what's really interesting is the Internet of everything. We interact and communicate not only with each other but with our devices and our tools.

I used to talk, many years ago, about this fishing rod that teaches. (Downes, The Buntine Oration: Learning Networks, 2004) You take your fishing rod and go out and fish, and the fishing rod has internal sensors that detects how you cast. Then it remarks to you, "You've never fished before, have you?" or something like that. The fishing rod gradually teaches you, but what's more interesting is that the fishing rod and you are interacting together. It has sensors. It's detecting what you're doing, and it's using that feedback to help you learn. It was always theoretical, but a month ago I saw a TV show. They didn't do a fishing rod. They did a tennis racket. (Diallo, 2014) People who buy a tennis racket will pay more than people who fish, I suppose.

The idea here is that as time goes by, we and the machines have to get skilled, are getting skilled at lumping data and things together and then filtering and understanding the language. You can't fake playing tennis. You can't fake fishing. The totality of the practise represents the learning. All of this data basically tells, as Samuel said, the story of who we are. The story of what we do.

It's assessment based on public performance. It's like an essay, and it can be assessed in exactly the same way an essay is assessed. The way an essay is assessed now is a person reads it. Sometimes they'll use a rubric but again, that's taking one hard problem and creating 10 hard problems out of it.

Other times they'll look at it, and the mechanism by which they determine whether it's an A or an F -- and they've decided that probably very quickly -- maybe even after the first few paragraphs. Certainly when I read papers -- and I read lots -- I force myself to read the rest of the paper, but really I know. You know because you can tell. You can recognize it. See how the words are used? See how the sentences are constructed? Are they even addressing a real problem? All of these things are in a certain sense ineffable.

Like Dreyfus would say, "The knowledge of an expert is intuitive. It's recognized." (Lester, 2005) The machines are getting smart enough to do this themselves. Neural-network software is getting smart enough to do it itself.

That's how computers are used to mark essays. They don't mark essays using key words or grammatical constructions. That's a popular fiction. (Kolowich, 2014) If you look at the actual way they do automatic grading of essays (Paruchuri, 2013), they give a neural net a training set of five, 100, 1,000, whatever essays all previously marked, and then that creates the recognition mechanism in the
neural network, specifically the pattern and connection. Then when they put a new essay into the system, it comes out with a grade based on that previous experience.

**Grading/What is assessment?**

**A Recognition Task**

Combine two things, the mechanism that creates clusters like we saw on LinkedIn and the mechanism that can automatically grade essays, and you have the potential for a system that doesn't actually need to be trained. You just let it out there into the world, let it find expert discourse for itself, and then it can associate new discourse with the expert discourse.

I've just waved my hand here at what is in fact a very difficult and challenging problem. We have researchers and engineers working on this problem...Not easy. But we know the machines are getting closer.

We know this because machines are passing the Turing test. (Baraniuk, 2014) They have been improving since the development of the chatbot, for example, which has been going on since the 1990s in MUDs, IRC, which systems like the one called Julia, (http://www.lazytd.com/lt/julia/) where people would have conversations with these bots. That's been continuing since then.

Grading is a recognition task. It's what neural networks do, and it's what we design and build interfaces for ourselves to do. It's how we'll respond to the Internet of things. (Lockton, 2004) We're not going to examine all of that data personally. If we could, we'd design systems that present to us maps, graphs, dashboards, things like that. It's how we're beginning to understand the world now.

Sometimes it's talked about as intuitive. Sometimes it's talked about as a language. Sometimes, Don Tapscott, Marc Prensky, and the rest would talk about it as a culture and a generation in that. (Tapscott, 2013) But what they really mean is that we are beginning to understand the world through this process of pattern recognition in complex data. Preskett and Prensky might know that this is what they're saying, but this is what they're saying. It's not a generational thing. It's not a "ooh, we can all multitask." It's that if you look at this wide set of data you can see. You can look at multiple thread streams, multiple Twitter feeds at once, and see the pattern.

How do you see the pattern? Because you train your brain over time. You have been exposed to this data in the past and it creates a set of connections. Your brain is a pattern-recognition machine. You see Tweets, LOLcats, whatever, and you recognize them like you recognize Waldo, like you recognize a pattern. It's an instinct of knowledge. It doesn't have a name. It doesn't have a word. It doesn't have a concept. But it's a thing. People know what it is.

**What We Reveal**

Our reaction to some of the stuff that goes on online is proof of our recognition of some of the stuff that goes on online. We're beginning to become sensitive to these tunes, to these signals, sometimes even overly sensitive, sometimes even hypersensitive. (Flaherty, 2014)

On the one hand, we reveal ourselves in our messages. (Tyson, 2014) We reveal our thoughts, maybe times a lot more than we intended. Sometimes these assessments, what we reveal, what other people look at, can be very personal, can be very uninhibited. (Rose, 2014) I think we know this.

We're getting sometimes some very brutal -- not necessarily honest but nasty -- assessments online. There's the whole range of reactions. The range of reactions is from the very positive to the oh-so-very negative. I've had both, and I think we all have had both.

We're seeing all of this in other areas first. (Dyens, 2014) We're seeing big data used to analyze all of these Internet reactions. We have a project (Mechanical Turk, 2013) at the National Research Council where they looked at the emotional significance of Tweets. You have an event. You look at all the Tweets. Are people generally happy with it? Are they upset with it? et cetera. It's a project. It's done all by neural network analysis of this published data. Sometimes what we reveal is very involuntary. You can sort of get this reaction. You may see a cat with the cone on its head and say "aw." This "aw" sensation is revealed in your later communication. Sometimes you actually type it out, "Aw."

It's interesting because it's not just a one-way thing. There's a dynamic interplay. I was thinking about this. There's of course this whole literature about violent video games and that. I've played violent video games. I don't think that they desensitize you. The reason that I don't think they desensitize you is that there's no real emotional attachment to the figures in the game in the first place. (Bilton, 2014) It
doesn't trigger the apocryphal mirror neurons. (Winerman, 2005) They're maybe not that apocryphal, but you know what I mean.

But I'm also a devotee of fail videos. That's a little secret. But I love them because I see myself in those. You see somebody on the bicycle going over the handlebars, and you go "ah." You do have that feeling. That feeling is what comes out, and that feeling does get reflected. Then Facebook analyzes it and monetizes it.

**Ethical issues**

These assessment mechanisms are being built into the LMS. (Petropoulou, Kasimatis, Dimopoulos, & Retalis, 2014) You require your students to use an LMS. They use an LMS. Your system now begins to analyze them in more and more and more detail over time. They probably won't stop at the LMS, will they?

People are beginning to raise questions about this (Association for Learning Technology, 2014), and I think these are important and good questions. They're asking about the methods of exploring the types of data. What kinds of data is appropriate for an institution to collect? Should an LMS be collecting information that reveals your emotional state? They're asking about data fishing. "Let's see what's there."

The worlds of privacy and the worlds of analytics interact (Heath, 2014). This is the problem with traces. You leave these traces, and they're analyzed. People see into your soul -- or other non-made-up thing -- do we have the right to do this, or do we have the right to, as Samuel said, take back our traces, take back our digital presence?

In a certain sense, that's impossible. It's like me trying to take back the fact that you all saw me 10 minutes ago -- "I'd love to take that back. It wasn't one of my better moments" -- but it's not possible.

You have heard about this:. Facebook was doing an unannounced experiment on the emotional reactions of 689,003 of its users to show that emotional states can be transferred to other people. (Kramer, Guillory, & Hancock, 2014) They messed around with the lists of stories displayed in their news-stream or their feed and then measured the responses to detect emotional responses to that. Intuitively it's measuring something that we understand does exist.

If you show people nothing but stories of crime -- and there have been studies on this -- and they think there's a high-crime rate. Even though the crime rate is going down, because all they see is crime, they think it's going up. Facebook was doing the same sort of thing, except they didn't tell anybody they were measuring this.

You've probably heard about the reaction. (Globe and Mail, 2014) People want to get out of Facebook, and they'll jump to Twitter. But it's not just Facebook. Yahoo -- among others, I think Google is the other one -- is dropping the do-not-track mechanism. (Marvin, 2014) That's a signal you can put in your browser so that people don't track you (They're saying that it's too confusing, but they're the ones who made it confusing).

Google announced (Molnar, 2014) last April that they had halted the practice of scanning student Gmail accounts for potential advertising purposes. (Bout, 2014) But that means they were scanning student accounts for advertising purposes. They've decided to stop acting like your creepy uncle.

Sometimes it's accidental. (Biemiller, 2014) Sometimes the data just gets out, but when it gets out it can be a bombshell. Like this one, "University of Virginia Law School collecting and distributing to potential employers information about grades," OK, "class ranking," I don't know, "political affiliation, work experience, recommenders, information about where their girlfriend lives." (Zaretsky, 2014) This is secret data. Students don't know about this, the employers do.

**Options**

What do we do? One option is to delete all of our social media accounts (Suarez, 2014) (Bussing, 2014) , but we're not going to do that, are we? People are not leaving Facebook. (Elliott, 2014) They're
not leaving Google. They're not leaving LinkedIn. It's not going to happen. These services are too useful.

We learn about our friends. We learn about ourselves. It gives us this mechanism by which we can recognize what the state of affairs of the world is. So we're not going to leave the system. At the same time, companies are beginning to feel the heat.

Gates funded a thing called inBloom. (Thompson, 2014) It was based in Atlanta, and basically it was "we will centralize and store all of your student data for you." Well, we know about that sort of practice, and we have Rupert Murdoch on the one hand, Gates and Carnegie on the other hand, and Joe Hacker on the other hand all accessing this data. Of course it raised a substantial response, a substantial reaction, and inBloom was eventually shut down, (Korach, 2014) as it should be. (Daniel Solove, 2014) Ironically the new concern about data is called the Snowden Effect. (Grealish, 2014) That's what you classically call shooting the messenger.

But it's true. Canada just passed an anti-spam law, which I can report in my case did not change the flow of email into my inbox. (Davison, 2014) There was a surge before the law was passed of people asking whether I gave them permission to continue sending messages to me. I took great delight in not giving them permission.

As of July 1st, the same messages, the same companies...The flow continued uninterrupted. But there are laws in place now.

This whole concern about privacy is spreading -- and quite rightfully so in some cases, wrongfully so in other cases. For example, lecture capture… (Opidee, 2014) you'll notice I did advise everyone that I was recording this ahead of time. I hope it's still recording. Oh yes, it's still chugging away there.

People are demanding that the classes they attend not be recorded because they think that the classroom is a space where you expect privacy. It's an interesting question.

But it's also becoming more and more the case that when you attend a class, cameras will be on, if not officially at the front of the room, unofficially in the back of the room. I could give you a whole bunch of neat little examples of teachers rampaging on, but I won't.

One proposal -- and this comes from Doug Belshaw with Mozilla (Belshaw, 2014) -- is to ensure that common spaces are public spaces and not privately owned. There's one weakness in that proposal -- our public spaces aren't very private either; no matter where you work, it seems, there will be both government and corporate surveillance, turning your private conversations into products or commodities.

**Personal Privacy**

It's not simply the case that we can take these services out of the hands of the billionaires because if we put it in the hands of the government, we get, again, the Snowden Effect. The real answer here, I think, is personal privacy. Personal privacy and informal assessment are going to go hand in hand. They will necessarily go hand in hand.

The schemes -- and you will hear a lot more about these -- big data and learning analytics are going to flounder on the rock of personal privacy. There's clear indication that people want this. One example is on a crowdfunding site called Seedmatch raising money for an NSA-proof personal server. (Russia Today, 2014) They asked for €75,000. In 89 minutes, they raised €750,000.

People are moving to privacy securing personal networks. There are a whole bunch of them. Privatext, TigerText, Whisper, Cyber Dust, Ansa, Omelette, and Diaspora. (Bourne, 2014) Personal disclosure, I invested in a whole 100 dollars in Diaspora.
A New System of Assessment

How does it work?

Let's put all of this together. The elements within your system of assessment are going to involve personal servers. (BCNet, 2014) Not stuff you store on the learning management system, not stuff you store on Facebook or LinkedIn, but stuff you store on a network you control and own.

There's going to be a public space, the information you are willing to share with other people, your friends, the assessors that are out there in the world. That'll be your public face. It'll be the clothes that you put on.

There will be identity management. But individuals will take control of our own identity. Facebook that's depressing insists that each person will have one and only one identity. But instead, one of the things we will see is people can have multiple identities. The can present themselves in different ways to different audiences (just in the same way an athlete is one type of person while playing the game and a very different person when caring for his daughter).

The things we do online publicly feeds into these content networks. This is known as personal production. (Waters, 2014) These content networks act, in the first instance, as a global content filtering system, a global perceptual network. You think of the social network as an interconnected network of people. It functions in the same way as a neural network, in the sense that it is a pattern recognizer.

One might ask, who are the curators? The answer is: everyone else. They interpret, revise, remix, re-purpose, spin-roll, fold, et cetera. This is more than just curation, although curation is a word a lot of people like to use. It's people, right? It's one person doing things, whatever they do, and these things are seen, recognized, passed on, commented on, et cetera, by other people.

The first layer here is the social network. (Andrade, 2014) That creates the mechanism for assessing the qualifications of the individual. One can imagine a social network of quantum physicists. We know all the major quantum physicists know each other. They communicate with each other, respond to each other's papers, go to the conferences, call each other names, et cetera. There's this cluster, just like the cluster of green people in my LinkedIn network, except they're quantum physicists and therefore have no color. They're linked to each other.

My qualifications, as a quantum physicist, can be mapped and understood as my positioning in this cluster. If the other quantum physicists talk to me -- this is putting it very crudely, of course -- I rate as a quantum physicist, but I can't fool the other quantum physicists because the one person who recognizes a fake quantum physicist is a quantum physicist.
This human network acts as a perceptual mechanism for filtering the qualifications of people. That's why the person could fool MIT staff. The degrees actually don't matter. But the way you relate and interact with other people: that does matter. That's what's happening online today. And as an aside, it has always happened. That's the way it's always worked except we didn't have a global communications network to pull it off before, so it was always very local, very individual, very personal.

Professions will coalesce around this. They're online communities. They're open ended networks. They're similar to vendors' communities in practice, but they're not just that. They might be gaming communities. (Nisnevich, 2014) They might be hobby communities, they might be neighbourhood communities. These already exist, and we already use them. And the artifacts of our interactions with each other in these communities can be measured and understood in terms of their impact on our qualifications and credentials. (Salmons, 2014)

Interviews. Instead of a person interviewing with 10 different companies, a person does an interview with a professional interviewer. The video and transcript are made available online, and then these 10 companies can look at that interview, use their system to assess that interview according to their internal criteria, and determine whether or not you get the job. It's a first-order screening, but it's a very effective one.

Would you hire him? Could a machine detect whether you would hire him?

Assessment of the future will basically redefine what we mean by a body of work. (Bentley, 2014) It used to be that one's work was one's formal publication, books, paintings, films, whatever. Now it will be the mass of communications, my mass of activities, whatever we do on the public Internet. That will be a good thing because it will mean that we're able to obtain a much more accurate, much more precise assessment of people and it will help to map, first of all, the gaps in knowledge that need to be filled by learning, which is one of the purposes of assessment.

How Do We Know This Will Work?

It is arguable that such a solution is no better than the competency maps we have now. We could simply say, "We need maps." There is nothing wrong with the map. The question is the place of the map within the educational system. The competencies we develop today are just a guide – they help us understand what we need to perform our work, but they don't define it.

The map analogy is useful because there are different ways to create maps. One way of doing a map is to send a guy on a ship out with an astrolabe and a compass, and to draw pictures of the shorelines. That's what people used to do. But this is a bad idea, first of all, because it's really expensive, and second, because the maps aren't that accurate.

A better plan is to launch a satellite and take pictures. That is still not going to be the best map in the world. We could probably still do better, and it's still only going to be a map. But it's going to be a lot more accurate and a lot more useful. When we use a GPS, we use one of the picture kind of maps, rather than one of the hands-made kind of maps because it's more accurate. It's not perfect -- people have driven into rivers following on GPS. They really shouldn't depend on them and believe that they are reality, but they're better.

We have the same story here with competences. Right now, the enterprise of sending people out and drafting lists of competencies by hand, is too expensive and almost certainly inaccurate. We want the alternate mechanism of automatically recognizing competencies.

We actually have a project in our program called Automated Competency Detection and Recognition. The idea here is it's like a satellite photo of an environment -- in this case a social infrastructure -- taking pictures, understanding the connection, et cetera, and that gives you your map. But it's just a map. Once we understand that it's just a map and that it's based on what are actually real human performances. And it's the real human performances -- and responses to them which are equally important.

We may maintain that we need to have the human support to ensure that it's accurate, but in fact the reliance on humans makes it less accurate. For example, we have the choice between OpenStreetMap (http://www.openstreetmap.org) versus Google Maps. OpenStreetMap is created by people who map their own communities. But I use Google Maps. The reason for that is OpenStreetMap is really detailed in some areas but not too detailed in other areas, because there are no people there, like places where I live.

I live in a province the size of Belgium with a population of one of its smaller cities. There is a lot of room, and there are very few people driving on the roads. None of them are mapping them. That's the
problem. Meanwhile, the Google satellite, or whatever it is, passes over once, takes a picture of the province, and we've got our map.

Yes, machines may have blind spots, and the design of the analysis may create some blind spots. Human perception works basically on the same principle, and human perception sometimes goes wrong. Sometimes we're color blind. We only see what we're expecting to see. We don't see the gorilla walking behind the crowd. Perception is not a perfect mechanism.

I think we need as a society to understand we've always had these mechanisms. We're describing a system for analyzing social networks, but it's just describing a giant version of a much richer and complex network of social perception that adds to what we've always had in the past. The perceptual mechanism we had in the past was composed of scholars and reporters going out, watching things, taking pictures, and writing about them, publishing in newspapers, and things like that.

It has on the whole functioned pretty well, but there have been some glaring weaknesses, for example, weaknesses created by corporate control of newspapers or influence over research results. The system being proposed here is probably better than that, but it's not perfect. One of the useful things about the new system is that it's forcing us to question whether our understanding of the world is correct. That isn't something we've been good at in the past.

It is hard to be self-correcting. We need to develop the global mechanism of self-awareness, of reflective reflection. One of the reasons why I favour a neural network approach is that in the neural network, the quality, if you will, of the inference is described in terms of the structure and the properties of the network. For example, one of the properties of the neural networks is to seek the set of connections that expresses the lowest potential level. It's a methodological principle. It might be overall good or might not be overall good, but as a methodological principle, you can apply that and test whether or not it is.

Who Pays?

Finally, I would like to address some practical considerations, such as the question of who pays. The "who pays for it" is us because we've always paid for it. Facebook offers a free service, but as everyone knows you are not Facebook's client. You are a product. You are what they sell to their real customers, who are the advertisers, marketers, and corporations. That's who pays for it ultimately.

We could approach this in different ways. One way is to view it as a technological problem, a question of designing self-organization in such a way as to distribute revenue and work equitably through the system. The other way is to attempt to make the same determinations through social processes. There can be work and revenue for all if we view this from the technological perspective. But the social processes could go in any direction, leaving us without a means to pay for the system, and ultimately, without a system at all.

Those of us who are good at negotiating deals will get our employers pay for some of it. You might get a computer from that. You might get a service from them. Just like my employer pays for my computer in my office, my employer also pays for laptops. If I want a better one I can configure on my own, I pay for it myself.

The more significant issue after 'who pays' will be 'who is in control'? We've got to come up with some sort of accommodation. There are voices even in my own company, the National Research Council Canada, which is a government agency, saying "there should be no data whatsoever that goes outside the corporate infrastructure," but from a practical sense that's impossible.

The world is more permeable. The world must be more permeable than that because you can't run in a completely isolated network and expect to communicate with the rest of the world. It can't happen. There isn't going to be an easy answer to your question. Ultimately it comes out to power. The power relations are shifting. It's outside the scope of this talk, but the power relations between individuals and employers are shifting.

What's going to change things is the capacity for people to organize themselves, to quickly and efficiently find people, individuals, and contractors to fill individual positions. People will be, because of something like this, more mobile, more able to market their works to a wide variety of employers worldwide as opposed to just in your own city or your own plot. That changed the dynamic.

The relationship between employer and employee becomes one more of a negotiation between equals rather than the exertion of a corporate dominance by one over the other. This is the technological solution. That's what allows for the negotiations to take place regarding the ownership
and the management of the data. But social forces push back. I know employers don't like this. People in power never do, and they will resist this -- count on it.

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Student Engagement: An evaluation of the effectiveness of explicit and implicit Learning Analytics

Ed de Quincey, University of Greenwich, Ray Stoneham, University of Greenwich

Introduction

Retention and the measurement of student engagement are long standing problems within HE (Jones, 2008). A number of studies have investigated how students at risk of failing or withdrawing from University courses can be identified (e.g. Rugg et al.) but the issue still remains, and looks set to be a key concern with the rapid development of MOOCs within the sector (Yuan and Powel, 2013). One area of research in this field that is receiving increased interest is the use of implicit data collection and analysis, commonly known as Learning Analytics (LA).

LA has been defined as a method for “deciphering trends and patterns from educational big data … to further the advancement of a personalized, supportive system of higher education.” (Johnson et al., 2013). Traditionally a student's progress and level of engagement has been measured by assessment, an explicit measure reliant on a student's submission of work and an academic awarding a mark and/or giving feedback, usually at the end of a module/course. However, in a student's day-to-day interactions with a University, other real-time implicit measures are being generated that are currently not being fully utilised e.g. attendance, VLE interaction data, library usage data, Web 2.0/social media usage. These measures do not normally require direct user interaction to record their engagement and so have advantages over labour intensive measures, such as exams and coursework.

HE already gathers an “astonishing array of data about its ‘customers’” but has traditionally been inefficient in its data use (Siemens & Long, 2011). The analysis of this data though has the potential to identify at-risk learners and provide intervention to assist learners in achieving success (Macfadyen & Dawson, 2010) and so increasingly, student data is being aggregated and presented to tutors in the form of a Dashboard e.g. the University of Southampton's “Student Dashboard” (JISC, 2011). However, the representations being used are often based upon the ability of the developer to extract information from disparate sources and not on the types of data and interpretive needs of the user, usually falling far short of their potential (Few, 2006).

Making information available and transparent to tutors is only the first step however. Presenting student data back to students, using student centric formats and metaphors could tackle students' inability to access a composite, over arching view of their current learning activity, which can impact on a student’s ability to develop creative divergent thinking skills (Rugg & Gerrard, 2009). A related issue that is frequently reported is students’ inability to link skills that they are being taught on different courses together and how that impacts on both their employability and financial outlook.

A number of projects have investigated the use of LA and information representation/visualisation such as the Open University’s Anywhere app which includes a “range of analytics that show how students engage with it” (theguardian.com, 2014), the University of Bedfordshire’s student engagement system (n.a., 2012) and London South Bank University’s partnership with IBM to “use predictive analytics to gauge if they might be falling behind” (Perry, 2014). However, there have been few studies that have systematically identified sources of pre-existing data and metrics from systems that are currently in use within a HE setting.

This paper explores the potential sources of data that represent/determine a student’s level of engagement and progress by analysing the usage data of a bespoke Managed Learning Environment (MLE); the School of Computing and Mathematical Sciences (CMS) Intranet (Stoneham, 2012).

Methodology

The CMS Intranet has been incrementally developed since 2002 and contains the key information that a student needs in order to complete their courses. This includes the coursework specifications as Word or PDF documents, previous exam papers, screencasts and podcasts of some lectures, book lists, common teaching material, final year project documentation and relevant forms such as those for extenuating circumstances, ethical approval and general enquiries. Very few handouts are given to students so learning materials are only accessible to them once they are logged in to the intranet.
Assessment is also supported on the intranet by student submission pages that record all coursework submissions and hand-ins. Students can submit work as many times as they like and the last one before the deadline is marked (with automatic penalties for late submission). Lecturers are able to provide feedback to students in a number of ways including annotated versions of the student’s upload, screencasts with visual and audio feedback, recordings of project pitches and demonstrations as well as general textual feedback and provisional grades. The CMS Intranet also includes online eSupervision and Personal Tutoring Systems where most interactions between a student and their project supervisor and personal tutor are recorded. This includes meetings, messages, uploads of draft documents and reflective blogs.

All student interaction with the CMS intranet is recorded in the form of server logs. When a user requests a file from a web server, an entry is recorded in a log file i.e. by loading a web page via a web browser, a user is making a request for a HTML file along with other files that are embedded components of that page such as images and videos; each of these file requests make an entry in a log. These server log entries contain information such as the name of the file that was requested, the address of the page that referred the user to the requested page, the IP address of the device that requested the file (this can indicate the location of the user) and the time the file was requested. Tools such as Google Analytics are commonly used to analyse user traffic on a website but these require the embedding of a piece of code within a web page, something that cannot be put into a file such as a Word document. This means that non-web page file views and downloads cannot be tracked, which is where the majority of interactions are being generated on a VLE such as the one described above e.g. students viewing lecture slides in the form of PowerPoint files (.ppt), listening to audio feedback via MP3 files (.mp3).

As part of this study, functionality has been developed that takes this server log information and inserts it into a database, facilitating easier querying and analysis. Each server log record is simplified to contain the following information; the date and time of the request, the page/file requested and the userID of the user that requested the file. This userID is the email ID of the user supplied by the University and can therefore be linked directly with a student and their related data such as attendance, their course and modules of study, their tutor and lab groups and their assessment details. The combination of this data has then been used to compare traditional metrics such as attendance and coursework marks with interactions with the CMS Intranet. This has enabled an evaluation of the value of these measures in determining a student’s progress and whether they can be used to identify “at risk” students, at various points in the academic year. The results of this comparison are described in the following section along with an overview of the general usage of the intranet.

**Results**

Server log data generated by 3,576 students across the School since September 2011 to June 2013 has been collected and during this time there have been 7,899,231 interactions with the CMS student intranet. For this study, the period from September 3rd 2012 to May 29th 2013 has been analysed, to represent an academic year, with 2,544,374 interactions from 2,634 students being recorded.

The distribution of interactions over the academic year is shown in Figure 1 below, showing that there are peak times during the year where the intranet is being used.
These relate to the start of each semester at the end of September and middle of January and also during coursework deadlines towards the end of a semester. There is also generally less activity on weekends than in the week and reduced activity during holiday periods.

File Types

The following table shows the number of interactions/downloads for the most popular/relevant file types.

<table>
<thead>
<tr>
<th>File Type</th>
<th>Web page</th>
<th>Word</th>
<th>PDF</th>
<th>PowerPoint</th>
<th>ZIP</th>
<th>MPEG</th>
<th>Excel</th>
<th>MP3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Interactions</td>
<td>2,131,278</td>
<td>157,607</td>
<td>128,676</td>
<td>66,129</td>
<td>19,561</td>
<td>18,974</td>
<td>6,368</td>
<td>1,851</td>
</tr>
</tbody>
</table>

Table 1: Number of interactions with different file types on the CMS Intranet

The majority of views were of the web pages of the intranet itself, representing the large number of tasks that the site supports. These can then be analysed further in relation to the different resources on the intranet that students are (or are not) using. For example, there were 18,507 interactions with the section of the intranet that provides access to past exam papers by 911 individual students (35% of the total number of students)\(^1\) and 3,181 views of the page that contains advice on plagiarism by 778 students (30%). This information is useful for the staff responsible for these areas in determining whether the content is being utilised by students and also is an opportunity to target those students who are not using these resources with reminders/instructions about how to access these materials. This point is discussed further in the discussion section.

Of the other file types, these are predominantly resources created by staff to support teaching, learning and assessment. The majority of the views of Word documents (4,539 individual files) are coursework specifications (15%) with one particular specification receiving over 2,500 views by 243 students. Interestingly 20 registered students did not look at the coursework specification for this module and 103 students (39%) viewed the specification more than 10 times (this is explored further in the following section). The views of PDF documents were also comprised of coursework specifications but the most downloaded file was an iBook created to support students on a Level 2 Digital Media Design course (1,390 views) followed by a number of example final year projects that

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\(^1\) This low percentage can be explained by some modules not being assessed by exam.
had been uploaded to the project resources area of the intranet (5,883 views of 13 project reports by 430 students).

**Comparison of Measures**

In order to identify which implicit measures might determine/represent a student's progress, two Computing Undergraduate modules have been considered; a first year module called “COMP1314: Digital Media, Computing and Programming” and a third year module “COMP1640: Enterprise Web Software Development”. COMP1314 is a 30 credit introductory course to computers and programming, assessed by 2 pieces of coursework and an exam. COMP1640 is a 15 credit final year course that aims to give students practical experience of developing enterprise systems using web technologies and is assessed by a piece of group coursework. Both modules contain students with similar levels of ability but at the opposite ends of their degree experience.

For both of these modules, comparisons between the student attendance, final mark and intranet activity, categorized into various resource types, have been made to investigate which factors might affect student engagement and progression.

*COMP1314 (first year module): Comparison of marks, attendance and intranet activity*

For this module, Figure 2 shows strong positive correlation was found between the final module mark and overall attendance at tutorial and lab sessions (0.64).

![Figure 2: Relationship between a student’s average final mark and their attendance percentage (n=53, Correl. = 0.638)](image)

Figure 3 below shows equally strong positive correlation between the final module mark with the number of total intranet interactions during the year (0.6). This correlation increases slightly (to 0.63) when only intranet resources related to COMP1314 e.g. views of lecture slides, tutorials, coursework specifications, reading lists etc. are considered. On average, a student interacted with COMP1314 intranet resources 215 times.
Figure 3: Relationship between a student’s average final mark and their intranet activity (n=53, Correl. = 0.601)

This indicates that students that have high levels of activity both physically and virtually with the module tend to have higher marks and students with low levels of activity, achieving lower marks. When considering views of lecture slides and tutorial instructions separately, each lecture slide handout has been viewed on average 76 times whereas each tutorial instruction has been viewed on average 142 times.

Figure 4: Relationship between a student’s average final mark and their intranet activity (n=109, Correl. = 0.18)
There is also strong positive correlation between the number of intranet interactions and a student's overall attendance (0.44), perhaps countering the generally held belief that making materials/services available online decreases attendance in lectures.

Interestingly there was a weak positive relationship (0.23) between the number of times the coursework specification had been viewed and a student's final mark, with the specification being downloaded by each student 7.4 times on average.

**COMP1640 (third year module): Comparison of marks, attendance and intranet activity**

For this module, there was similar, moderate positive correlation between attendance and the final mark (0.42) but as shown in Figure 4 below, weak/negligible correlation between the interaction with module resources/pages and final mark (0.18). On average, a student interacted with COMP1640 intranet resources 119 times.

There was in fact no relationship between views of module lecture materials and the final mark (-0.07). Whether this reflects improved digital literacy i.e. saving instead of downloading the same file multiple times, less reliance on module materials or simply the nature of the module is currently being investigated. However, there was a moderate positive correlation (0.38) between the number of times the coursework specification had been viewed and a student's final mark and on average each student downloaded the coursework specification 9.4 times.

**Firsts and Fails: Temporal distribution of intranet activity**

As shown in Figure 5, the distribution of intranet activity shows that the pattern of usage is similar to begin with for students on COMP1314 that eventually receive first class marks and those that fail, with relatively high levels of activity during October and November and a decrease in December. First class students then have a similar patter of activity to that in the first semester whereas failing students tend to remain at low levels. On average, failing students have half the number of interactions with the intranet than first class students throughout the year.

![Figure 5: Distribution of intranet interactions for and average “First” student and an average “fail” student](image)

Table 2 below shows the averaged profile of a student who is awarded a first class mark on COMP1314, compared to an averaged profile of a student who fails the module. For each set of activities, both physical i.e. attendance and virtual i.e. intranet interactions, a first class student has double the amount of activity as a student that fails this module.

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2 This has been calculated by taking the average number of interactions at different points of the year for groups of students that are awarded first class and failing marks.
Discussion

The results presented in the previous section have shown that there are clear differences in the levels and types of online activity between students and that these levels may be factors in determining the final levels of achievement within modules. The following sections discuss potential explanations for these findings and suggest possible uses and implication for LA and the integration of these measures in MLE’s and predicative/automated systems.

Attendance

A number of previous studies have demonstrated the importance of attendance and the affect this has on final grades e.g. (Schmidt, 1983; Park & Kerr, 1990; Ryan et al., 2010). Although this study has not taken into account other important considerations such as pre-entry qualifications, attendance on the first year module, COMP1314, showed a positive correlation with a student’s final grade at similar levels to previously reported accounts for first year science degree courses e.g. Gunn (1993) reported a correlation of 0.66, with similar levels seen in the final year course. The implication is that for any LA based system, physical attendance is an important metric for measuring engagement and a predictor of future achievement. Further work is currently being undertaken with the full data set of all students recorded in the CMS Intranet to determine whether the temporal distribution of attendance is a significant factor and at what point in the academic year future achievement can be predicted.

Intranet Activity

The differing levels of correlation found between the two modules and the types of resources that were viewed show that further consideration needs to be made for which measures are suitable for LA and to what extent they impact on a student’s final grade. For the first year module, similar levels of correlation to that of physical attendance were found for students viewing module materials and their final mark in that module (in this case lecture slides, audio recordings of some lectures and tutorial instructions). At this level, it seems that viewing module related materials online is as important as lecture and tutorial attendance. The fact that 25% of the assessment of this course is based on weekly tutorial uploads, where the tutorial instructions are only available via the CMS Intranet perhaps explains the fact that they were viewed on average twice as much as lecture handouts and further analysis into comparing the marks for that component of the module and views of tutorial instructions is currently being undertaken. However, beings as a student’s progression is largely determined on them completing these weekly exercises, this is clearly a metric that should be considered when designing a LA system i.e. which files/resources are essential for completing the module assessment should perhaps receive a greater weighting when building predictive algorithms, with students and lecturers receiving alerts if these files are not being viewed.

For the final year module, COMP1640, it was interesting that no correlation was found between module lecture material views and a student’s final mark. The average attendance percentage of a student on this course of around 65% is comparable with that for COMP1314 of 63% and the average number of interactions with module pages/materials is similar (taking into account the fact that COMP314 runs for two semesters). The main difference between the two groups therefore is other material that was made available to students with the majority of views on COMP1314 relating to the weekly tutorials that were part of the assessment. For COMP1640 there were no equivalent weekly tasks apart from suggested weekly meetings with a tutor and the group of students that they were working on the coursework with (all details of which were in the very detailed specification). This may explain the fact that there was a moderate correlation between the number of times the coursework...
specification was viewed and the final grade and the fact that it was viewed twice more on average per student than COMP1314, in half the amount of time.

For both of these courses, it is clear though that there is a link between views of the files relating to assessment and a student’s final grade, which has implications for the metrics used for LA and perhaps shows that online activity on an MLE is more centered around assessment.

The general behavior observed of students in both groups downloading files repeatedly instead of saving them to their own areas/drives or printing them e.g. the coursework specifications, perhaps indicates either lower levels of expected digital literacy or a shift in students’ perceptions of where files are stored and viewed, due to the ubiquitous nature of cloud based services e.g. a user will tend to take a photo with an application such as Instagram and upload it and view it online as opposed to saving it and copying to multiple devices.

Profiles

A potentially surprising finding from this study is the distribution and amount of intranet activity that first class students display compared to students that fail. This study has shown that failing students still engage with a module but at around half the level of a first class student. Over an academic year though, these levels tend to fall off more notably in the second semester until May, where activity recovers to similar levels (this can perhaps be explained by students looking at materials for the exam and then resit courseworks). As far as implication for LA are concerned, this immediate difference in online activity at the start of the academic year should be considered and appropriate interventions planned e.g. checking to see whether students know where the materials are or allowing them to view their own usage data in comparison to students at different predicted levels.

From the perspective of a module coordinator or personal tutor, being able to view how resources are, or are not being used in real time has substantial implications for module delivery and pastoral care. Beings as attendance at lectures and tutorials is a commonly accepted, highly visible indicator of engagement, being able to see a student or cohorts’ level of engagement with the non visible components of a module such as lecture handouts, tutorial materials and reading lists, could be a significant factor when judging a student’s profile or the success of the module’s delivery.

Future Work

Further analysis of this data is ongoing and a full evaluation of all 3,576 students is planned using techniques such as Bayesian Belief Network Analysis. Specific areas of focus however include an examination of when and how often students access their feedback (either text based, audio or video) relative to release dates, and whether this is a key indicator of their engagement and desire to benefit from feedback. Also the record of interaction between a student and their supervisor and personal tutor via the eSupervisor and Personal Tutor Systems might indicate whether a student has been taking advantage of the support that the school offers in these areas and will therefore be investigated. Finally, preliminary results show that only around 30% of students view pages and information related to plagiarism, that are on the CMS Intranet. Whether this is because students are unaware that this information is being made available or they do not see its importance will be explored along with methods for highlighting it to students.

Conclusions

The results from this study indicate that attendance and interactions with a student intranet are useful measures for student engagement and predictors of success, particularly in a student’s first year. Reasons for the difference in effect observed between first and third year modules have been tentatively identified, and further investigation is currently being undertaken on the full data set. This work shows that there are clear implications for LA, and for educators in general, regarding expected patterns and levels of activity for different types and levels of student and that increased emphasis may need to be placed on measuring interactions with assessment based materials.

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Authors

Dr Ed de Quincey
University of Greenwich, Department of Computing and Information Systems
Old Royal Naval College, Park Row, London SE10 9LS UK
e.de.quincey@gre.ac.uk

Dr Ray Stoneham
University of Greenwich, Department of Computing and Information Systems
Old Royal Naval College, Park Row, London SE10 9LS UK
R.J.Stoneham@greenwich.ac.uk
ePortfolio and identity construction. A program for newly hired teacher training

Lorella Giannandrea, Stefania Quattrochi, Pier Giuseppe Rossi, Patrizia Magnoler, Università di Macerata

Abstract. The paper aims to investigate the construction of a professional identity of newly hired teachers during their first year in school. The issue of identity has been the subject of numerous studies in recent years, perhaps because we are witnessing a crisis of professional identity linked to a more general questioning of social identities (Dubar, 2004). As pointed out by Barbier (1996), identity is a construct that social actors operate on themselves or about other social beings with whom they are in contact, within a specific situation. To support the development of professional identity, newly hired teachers were prompted to use an ePortfolio in their first year of access to the teaching profession. Following the suggestions of the studies on the “didactique professionnelle” (Mayen, 1999; Pastré, 2011), it was decided to start from real situations of lived experience and from their analysis, to build relevant and contextualized pathways to training. The results, emerging through the reading and the coding of the materials produced by the teachers involved in the program, show the dynamics involved in the construction of the professional identity of newly hired teachers and the ability of an ePortfolio to enlighten these movements and to favor them.

Introduction

During the last twenty years there has been an increasing interest in investigate teacher identity. This phenomenon is partly due to the occurred perspective shift from a traditional vision that saw professional development mainly as acquisition of assets (competences, knowledge, and so on) to a postmodernist perspective which assumes a more holistic interest in “what it means to be a teacher” instead of “what is meant to be learnt by teachers” (Akkerman & Meijer, 2011).

Within this new vision, identity is assumed to be a complex construct with many different form of expression (social identity, personal identity, professional identity, political identity, cultural identity) that cannot be reduced to one of them because of their interrelation (Kaddouri, 2007).

Identity is studied with different disciplinary approaches. Avice and Wittorsky (2008) identify three of them: a psychological approach, focused on individual dynamics, a psychosocial approach, addressing mainly the social process of identity construction within groups, and a social approach, that focuses on the professional aspects of the identity, viewed as the final result of a social negotiation. According to the authors they differ mainly in the way they consider the identity dynamic but they assume as general acknowledgment that identity has to be viewed in a relation individual-others-environment (Dubar, 2004). Similarly Akkerman & Meijer (2011) state that, in recent years, the dispute between scientists “has moved from choosing either the individual or the social environment as primary unit of analysis to discussing how the interrelatedness between the individual and the social should be conceptualized”.

Furthermore, Beauchamp and Thomas (2009) have recently pointed out that, despite the different approaches, there is a shared vision to consider identity as a dynamic and multifaceted construct that evolves during life under the influence of many factors, both internal to the individuals, such as emotions and interest, and external such as working and life experiences in different contexts. However, it is not proper to consider identity construction as just a sum of experiences but rather as rearrangements and integration efforts more or less successful (Marc, 1997 quoted in Kaddouri, 1999) in the tension between the self and the others.

Day et al. (2006) found that teachers balance three relevant dimensions in their work: a personal dimension (their life outside school), a professional dimension (social and policy expectations of what constitutes a good teacher and a teacher’s own educational ideals) and a situational dimension (the teacher’s immediate working environment). Different professional identities are formed through the ways these dimensions interact (Flores & Day, 2006).

In line with this recent literature, in our research we assumed identity not just as a fixed concept but, rather, as a development dynamics, as an ongoing process that is “a way to be and to become” (Wittorski, 2007). According to Dubar, the professional identities development could be recognized in two kinds of transactions: (1) the biographical transaction that pertains the identity inherited from the past (trajectory) and the ideal (or desired) identity as a project of a possible future; (2) the relational transaction that pertains the relation between the self-identity and the identity...
attributed by others and aims to be recognized within a space of institutional exchange (Dubar, 2004).

Similarly, Kaddouri (2002) argues that the self is confronted with two identity orientations: (a) the one which regards the individual that, in the relation with others, struggles to construct his/her own self, and (b) the one that regards the others and what they pretend from the individual in term of the way to be and the behavior to assume.

Teacher Identity, teacher professional development and professionalization

According to Beijaard et al. (2004), the identity construction is guided by the question “Who am I at this moment?” but also by the question “Who do I want to become?” because of the connection between past experiences and future expectations (Montalbetti, 2005). So, in a more specific pedagogical perspective, it becomes useful to investigate the construction of teacher identity, in order to find how identity “shifts and reshapes”, to develop intentional ways to foster a conscious process of professional grow throughout a teacher career.

The connection between teacher identity and teacher development is crucial, it is through the exploration of their own identities that teachers can find their own way to professional development because the reflection on the self makes individuals able to establish routes to move toward a better (professional) self (Lisimberti, 2006; Magnoler, 2008). Here we consider that professional development cannot be intended merely as acquisition of knowledge and skills but rather as “an access door to conditions of greater significance of personal and professional history.” The process is favored by allowing in the individual the appropriation and redefinition of the knowledge generated in working experience (Montalbetti, 2005). The issue of professional development and professionalization was addressed by Wittorski and his team (Wittorski & Briquet-Duhazé, 2010). They outline a conceptual route between professionalization and professional development defined by the following characteristics:

- by one hand there is a social intention of professionalization issued by an institution or an organization; it is the injunction due to individuals in training to begin a process of building/ transformation of their activities in order to reach a greater effectiveness and readability of their work;
- on the other hand, there is a dynamic of professional development from the point of view of the individual; it is a joint movement of development of skills and knowledge, development of identity strategies and dynamics that accompany the professional construction/ transformation.

This distinction is based on the assumption that the professional construction occurs in a transaction individual-environment between professionalization and professional development; the authors state that this transaction is a kind of identity transaction.

The identity characterizes the “game” (in a strategic and dynamic sense) between the individual, with his/her emotions and representations regarding also his/her action in the environment (past, present and future position) and the social recognition of the subject by the environment. Inside this game the individual act strategies to be recognized while the “social side” put into play a set of situations to allow the attribution of competences related to a specific “way of doing”. Furthermore, “identity is not just about social negotiation, it is also structured in the heart and in the course of the action so professionalization and professional development are at the same time action and identity dynamics” (Wittorski & Briquet-Duhazé, 2010, p. 214). According to this frame, we can state that the professional construction processes occur inside the space between training and action and it can be investigated through the identification of three kinds of dynamics:

- a dynamic of production/transformation of knowledge and skills;
- a dynamic of individual transaction within an “institutional” professionalization and the ways of professional construction considered effective by the individual as teacher in action;
- a dynamic of individual transaction between the “inherited” identity and the identity that individual recognizes for him/herself.

In designing the professionalization course we followed these general principles together with the adult education principle according to which adult education induces transformations that involve the whole person so professional development and personal shifts are indissociable (Paquay & Wagner, 2006; Quaglino, Carrozzi, 1995). Therefore the adult education system should accompany the adult professional development providing a space for reflecting and questioning their own professional self taking into account the deep personal implication involved (Lisimberti, 2006).
Thanks to the contribution of the studies on the “didactique professionnelle” (Mayen, 1999; Pastré, 2011), it was decided to start from real situations of lived experience and from their analysis, to build relevant and contextualized pathways to training.

**Teacher ePortfolio, reflection and identity construction**

Building a teacher ePortfolio means to activate a path of recognition in which an individual describes him/herself documenting its trajectory with artifacts (evidence). But the ePortfolio process regards also a decision about how to move forward and to plan a working and education path to develop and enhance his/her own operational and cultural modes (Giannandrea, 2012). The portfolio then creates a strong connection between past and future, memory and promise (Ricoeur, 2005). This dialectic between memory of the past and commitment for the future, is also favored by the longitudinal characteristic of ePortfolio: the diachronic comparison allow to give meaning to the experiences and also to inquire any possible discrepancy between what was planned and the results of its implementation.

In this regard, it is often recalled the importance of ePortfolio as a tool for teacher education and training (Laurillard, 2012; Hallman, 2007; Strudler & Wetzel, 2005). Reflective processes fostered by the ePortfolios are now at the center of many professionalization programs as they allow a conceptualization of the practice. The ePortfolio can adequately support these processes by creating a network between artifacts and narratives and an analysis of them, in order to reflect on objectives achieved and to reach (Granberg, 2010; Bruneau & Bie, 2010; Wetzel & Strudler, 2005).

In this perspective it can be traced the main aim of building an e-portfolio: the process of reflection and awareness that it triggers allows the authors to first to gain awareness of their own personal and professional identity, while the projection into the future allows them to direct their own evolutionary and transformative trajectory towards the realization of their life project. (Giannandrea, 2012)

In a sociocultural perspective Berrill and Addison (2010) presented the teacher ePortfolio as a tool of mediation in the process of identity negotiation of a novice teacher entering the teaching professionals community. This perspective is based on the Wenger assumption that there is a profound connection between identity and practice, so teachers entering the profession negotiate their identities through the meaning of their participation in the community of teaching practice. The authors concluded stating that “by re-framing the portfolio in terms of the shared repertoires of the teaching profession, portfolios may, in fact, be able to serve the dual purposes of enabling reflection on practice for learning purposes and for credentialing purposes” (Berrill & Addison, 2010, p. 1184).

**Background and context**

This study has been conducted in the context of a professionalization course based on the construction of an ePortfolio. Twenty-four teachers of diverse school grades attended the course in 2013, during their first year after the hiring as a teacher. This “first year” is a crucial moment in the career of the Italian teachers because it represents a preparatory phase before the assumption of a stable position. This new professional identity positioning usually places the teachers in a tension between their project for themselves, in line with their identity aspirations, and the project that others attribute to them - in this specific case the educational Institution - which sets out what they will be expected to be and to do.

In the Italian educational system this “first year” usually occurs after a variable number of year of teaching and it is institutionally accompanied by a compulsory teacher training that is strictly regulated by the Ministry of Education. Since the early 2000s this teacher training is delivered, at national level, by a unique institution, INDIRE, that is closely connected to the Ministry of Education. INDIRE provides the teacher training path within a e-learning environment supported by e-tutors. Teachers in their “first year” are also supported by a personal tutor, an experienced teacher usually of the same content subject or similar, working in the same school department. At the end of their “first year” teachers are evaluated by a committee formed by the school principal and a group of teachers including their personal tutors. Whether this evaluation step is positive the candidate is “confirmed” as permanently hired.

Even if this passage is still a crucial moment in the career of a teacher, the process of accompaniment of that passage has lost its significance becoming more formal than substantial and it is criticized by many parts because of the intrinsic potential, even symbolic, of that moment that is not exploited in order to improve the professionalization of teachers. It must also be stressed that, at the moment, this
is the unique moment in the teachers career where is contemplated a compulsory training and a related evaluation.

Thanks to an agreement between Macerata University and the Emilia Romagna regional office of the Ministry of Education we had the opportunity to organize an alternative teacher training for a group of newly hired teachers of Piacenza province. According to the theoretical framework assumed and the specific context, the course was conceived to be a fertile space to foster the focus on professional self, through the proposal of activities of review of experience, analysis of practice, and reflection during and on action; all the artifacts realized by teachers became part of the construction of their ePortfolio. The course was provided in a blended way with the support of the Mahara platform and it lasts about six months.

In designing the course we assumed that to foster a teachers professional development, the first step is to guide them to acquire more awareness of their professional self and action. The action of teachers is almost always governed simultaneously - although in different proportions depending on the context - by rational thinking, that is knowledge acquired, and by the reaction to the context that is ruled by less conscious schemas rooted in the personal and professional experience (Magnoler, 2011). According to this view, to carry on a discourse on professional development it is necessary to invite teachers to look at and consider in depth their own past and present experience, to self-evaluate it and to plan a future development in order to shape their professional identity (Magnoler, 2008).

More specifically, the educational objectives of the training path can be stated as:

the acquisition of new knowledge and skills in terms of:

a. acquisition of a professional language
   ▪ acquisition of pedagogical concepts and teaching strategies (eg, pedagogical tool concept, collaborative learning strategies, new assessment strategies)
   ▪ improving the skills of didactical planning; and

b. the acquisition of awareness of one's self through:
   c. a deep reflection on the previous professional and personal meaningful experiences,
      ▪ a critical reflection on their own action,
      ▪ the comparison between planned and acted,
      ▪ the clarification of implicit knowledge/nodes.

We intend reflection as described by Montalbetti (2005) according to which the reflexive disposition is not the outcome of particular methodologies but rather a training orientation that puts teachers in the condition to learn from experience. Experience appears to be the first educational source for teachers, even though not always they master the basic tools to read and interpret it critically. So, our effort was to foster a reflexive posture in teachers through all the activities proposed trying also to shift reflection from the pragmatic pole (reflect to solve a problem) to the identity pole (reflect to shape their own identity).

Finally, in order to plan the course we also considered the following portfolio practice guidelines (Rossi, Magnoler & Giannandrea 2008):

▪ to provide both mandatory and non-mandatory activities;
▪ to use software that provides flexible and redundant tools so that the author can choose on the basis of his/her own style the media and the language suitable to carry out the activities;
▪ to design an accompanying path that is consistent with the objectives of the portfolio itself;
▪ to reckon on the presence of experts (teachers, tutors, coaches) in order to provide the necessary scaffolding.

**Teacher training details**

The course was divided in four phases:

1. reflection on the experience;
2. the didactical planning cycle I;
3. the didactical planning cycle II (cooperative learning);
4. recrossing the training path.
Every phase was introduced by an on-site meeting that was generally dedicated to: give feedback, present and discuss the assignments, develop group work and to provide theoretical insights. After every on-site meeting, teachers were requested to carry out one or more assignments.

During the first phase they were invited to carry out a written reflection about their personal and professional experiences that particularly contributed to the definition of their professional self. They had also to self-evaluate their planning lessons competence using a rubric. And, finally, they were invited to write a narrative about how they usually plan lessons, such as, which mental process they act to prepare lessons, which elements they consider first, and so on.

The second phase focused on the didactical planning, intended as the “anticipation” moment where teachers think about what to realize in the classroom. Starting from the work of Altet regarding the teacher practice and the work of Schön regarding the reflective professionalist, Rossi and Toppano (2009) have implemented the model F-V-P (Purposes-Variables-Path) that we assumed for this second phase of the teacher training course. This second phase was structured in the following steps: (1) anticipation, (2) review, (3) action and documentation, (4) reflection based on the comparison of what was planned and what was actually realized. The third phase was organized in the same way, the only difference was that participants were requested to focus on a cooperative learning activity. The last phase was dedicated to the reflection on the training experience.

Along the entire training path the Mahara platform provided the participants a place where uploading assignments, organizing their e-portfolio, sharing artifacts and communicating with tutor, teachers and peers. At the end, every participant created his/her own final page to show their learning process and results during the evaluation phase.

The analysis

Trying to understand the identity dynamics and strategies of the teachers in the context of a teacher training program is useful for at least two purposes: to ameliorate teacher education in order to favorite their professional development in a lifelong perspective (Beauchamp & Thomas, 2009) and to comprehend under which conditions the request to reflect on the self can be effective (Kaddouri, 2007). Within this frame we conducted our research to investigate the professional identity dynamics of newly hired teachers occurred during the training path presented above. Our hypothesis were:

1. a training program structured into phases of immersion in the experience and phases of distancing/ reflecting favours the professional development towards an identity position of reflective practitioner (Schön, 1993);
2. ePortfolio is an effective tool to support and give meaning to identity dynamics in the context of the training path;
3. the more is the matching between the training process and the identity project of the participant the greater is his/her engagement and the formative gain.

Methods

We carried out a qualitative research analysis and, assuming a phenomenological perspective, we analyzed the artifacts developed by the participants during the program and the interviews we realized one year later. Our aim was to identify any potential signs of identity dynamics and, more in general, to comprehend the meanings given by participants to the training experience.

In this paper we present the result of the analysis of ePortfolios and interviews of four teachers enrolled in the training course, one working at kindergarten, two at primary school and one at secondary school. We analyzed the initial resumé, the final reflection (and projection) and the transcription of the interviews realized one year after the end of the educational program in order to gain a diachronic view of the teacher professional development.

The analysis was conducted using a Grounded Theory approach (Glaser & Strauss, 1967). During an initial stage two researchers read independently and separately all the writings to determine recurring traces or salient aspects. Researchers defined their own indicators and at the end they compared their coding in order to come to a negotiated unique version. The analysis process continued refining the coding until a final version containing thirty-four disjointed categories related to five axis or trajectories.
<table>
<thead>
<tr>
<th>Categories</th>
<th>Absolute Frequency</th>
<th>Category occurs in N documents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 - The training path and the transition year toward the permanent employment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>feed-back on the training path</td>
<td>37</td>
<td>5</td>
</tr>
<tr>
<td>formative gain perceived</td>
<td>33</td>
<td>8</td>
</tr>
<tr>
<td>the experienced emotions</td>
<td>31</td>
<td>5</td>
</tr>
<tr>
<td>ePortfolio's properties</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>the video's revision</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>the reflection in and on action</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>cooperative-learning</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>perception of a change</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>formative gain related to ePortofolio</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>2 - Educational philosophies</strong></td>
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<td></td>
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<tr>
<td>educational philosophy</td>
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<td>9</td>
</tr>
<tr>
<td>the teacher that learns from the experiences</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>the teacher as a life model</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>the teacher that does</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>the teacher that cares for students</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>teaching by discovery</td>
<td>3</td>
<td>2</td>
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<tr>
<td><strong>3 - The relationship with knowledge</strong></td>
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<tr>
<td>the relationship with knowledge</td>
<td>12</td>
<td>6</td>
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<tr>
<td>the relationship with technologies</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>technology applied to didactics</td>
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<td>4</td>
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<tr>
<td><strong>4 - the self and the others</strong></td>
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<tr>
<td>distance between the self and the other teachers</td>
<td>37</td>
<td>4</td>
</tr>
<tr>
<td>the colleagues as a resource and reinforcement</td>
<td>22</td>
<td>7</td>
</tr>
<tr>
<td>the importance of the working context for the self-expression</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
<td>teacher’s representation</td>
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<tr>
<td>contraposition between the self and a certain image of teacher</td>
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<tr>
<td>the relationship with parents</td>
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<td>4</td>
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<tr>
<td>the importance of experienced teachers for the growth of the novice</td>
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<td>3</td>
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<tr>
<td><strong>5 - identity strategies and dynamics</strong></td>
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<tr>
<td>Reflection on professional self</td>
<td>24</td>
<td>10</td>
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<tr>
<td>student's posture</td>
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<td>3</td>
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<tr>
<td>professional's posture</td>
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<td>6</td>
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<tr>
<td>awareness of professional self - identity positioning</td>
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<td>4</td>
</tr>
<tr>
<td>the self and the future</td>
<td>18</td>
<td>4</td>
</tr>
<tr>
<td>role assumption - identity positioning</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>dynamics from student to professional</td>
<td>7</td>
<td>1</td>
</tr>
</tbody>
</table>
The table shows the categories’ name, the related number of occurrences and the number of documents where each category appeared.

The five trajectories - representing different tracks of the teachers’ reflection – that emerged from the analysis of the categories are: (1) the teacher training and the condition of the transition year toward a permanent employment; (2) the teachers personal conception of teaching and learning; (3) their relationship with knowledge; (4) the relationship between the self and the others; and (5) the identity strategies and dynamics.

Identifying the identity dynamics was part of the interpretive process, acted by researchers on the basis of the participants’ voices. As Kaddouri (2002) stated, it is quite rare that an individual is completely aware of the identity strategy he is acting in order to reach a new identity position. The reason is that an explicit identity strategy requires not only self-awareness but also to formalize and to act in a conscious, voluntary and deliberative way.

A way to help individuals to recognize their strategies is to create the right conditions to encourage them to do a critical reflection on themselves in respect of their past, present and future identity. Nevertheless it remains mainly a matter of the researchers to infer, where possible, identity strategies and dynamics, even through the identification of “movements” that can be captured by comparing materials of the same individual along the time.

### Findings and results

Through the analysis of the participants’ writings we observed, first of all, that they reflected on themselves toward a greater professional self-awareness. We also identified the following identity dynamics: (1) the assumption of a more mature identity, (2) the identity reinforcement or consolidation, (3) the confirmation of their own professional identity from others and (4) the self-recognition. Moreover, the analysis showed, for some of the participants, the tension between the identity they recognize for themselves - or which represents the aim of their project for themselves - and the identity attributed by others. So, for example, some teachers considered this institutional transition as a starting point to develop their identity project, while some others have in mind a teacher representation so little desirable that in taking this step they see mainly the risk to be forced/constrained in it as in this interview’s passage:

“This year I'm becoming a teacher and this is worrying me. I mean I don’t see the word ‘teacher’ pejorative, but I don't want people that see me around think that I’m a teacher because teachers are recognizable” (itw_1_ICA_B11).

In another passage she clarifies what she intends when she talks about that particular kind of teacher:

“The one that takes root, that is always firm and fixed in the same place, who is quiet and thinks that everything is okay, for a matter of not having too much responsibility and that the less I do the better I stay” (itw_1_ICA_B11).

This teacher showed an identity shift during the educational program assuming a more mature concept of professional identity to be compared with her personal representation of teacher profession, being more aware of her ideal self. From the analysis of the interviews emerged the transition, occurred during the teacher training, from a student's posture, focused on a strict relationship between task and assessment, to a professional's posture where the focus is on taking responsibility of their own decisions and actions and on assuming the risk to experiment new teaching strategies:

“When we started in January, I was very much... in the first report, I was very formal, that is, I wrote a sort of academic report where there was nothing inside. Then I realized that I
started to write things as I say them, that is, the thoughts of the children, what emerged, what I have done.” (itw_1_ICA_B9)

And also:

“I think of it as my work and I don't consider it as a mandatory work as newly hired teacher. It has been like you gave me the go and then I went, but I didn't do it for passing the exam because in that case probably I would have done, I don't know, a little schema or a simple lesson and nothing else. Instead I felt the work very much mine” (itw_1_ICA_B9).

Regarding the process of identity reinforcement, during the interview a participant stated:

“As long as an individual is not aware he says ok, here people do in this way and I have to make the best of it, but when an individual becomes aware he doesn't adapt himself so easily, i.e., before doing so, he acts a process of mediation with colleagues. I believe that [the course] definitely has influenced me a lot” (itw_2_ICA_B50)

Here she told about how she feel inside the teacher community, and the importance to be aware of how you are as teacher in the negotiation with colleagues. In another passage of the interview she confirmed that the course helped her to become more confident about her professionalism.

In another case we could identify a different dynamics, the constant need of this participant to be recognized by others to confirm herself as she said in this interview’s passage (and in many others):

“if you have parents that make you compliments, congratulations, children who love you, then it means that you are “arrived”, that you met the objectives” (itw_4_ICA_B57).

Finally, another participant told about what she perceived as a result of the reflection process:

“This process of reflection gave me the opportunity to verify and confirm that my 'educational philosophy' is effective and my teaching paths are well structured” (fr_3_ICA_B57).

This participant stressed the importance of the program for self-appraisal and as a final result she gained to self-confirm her identity of professional teacher:

“…you come out of a classroom and you know it, I know whether the lesson went well, or went less well, you feel more satisfied or less satisfied and you already know, you've already made an appraisal, it comes to myself automatically, so then you start from that point” (itw_3_ICA_B50)

Conclusions

The program, and the ePortfolios, had given voices to the shifts that have occurred during these two years in the professional identities of the teachers. The influence of the context, of the colleagues and of the community is strongly perceived, but the teachers showed that they had taken the challenge of developing a personal and professional identity in a positive and original way. The construction of the ePortfolio, thanks to its specific process of gathering evidence and artifacts and the reflection involved, has favored especially the motion to give meaning at the identity dynamics occurred. We therefore believe that the training model implemented can be useful also for in-service teachers who hardly in their careers are put in the condition to reflect on their professional self.

Finally, we want to report the different participation's quality between the teachers involved that emerges both from the artifacts and from the ePortfolio final pages. This can be justified by the fact that the training path was imposed by the institution and not chosen by the subjects. In these cases, according to Kaddouri (2002), a training path can be effective only if it meets the identity project of the subject, becoming a useful strategy for him/her to bring him/her closer to the realization of its objectives.

The educational program presented has proved, throughout the participant’s artifacts and narratives, to be potentially effective in order to foster a stronger and more positive sense of identity. Thanks to the process of ePortfolio construction teachers had the possibility to collect evidence of their practice and to reflect on it. The connection between teacher identity, teacher development and ePortfolio leads us to conclude that further research is needed in order to find effective way to encourage an harmonic and conscious teacher professional growth.
Bibliography


**Authors**

Lorella Giannandrea,
Università degli Studi di Macerata, Dipartimento di Scienze dell’educazione e della Formazione
Piazzale Bertelli, 1, Contrada Vallebona, 62100 Macerata, Italy
l.giannandrea@unimc.it

Stefania Quattrocchi,
Università degli Studi di Macerata, Dipartimento di Scienze dell’educazione e della Formazione
Piazzale Bertelli, 1, Contrada Vallebona, 62100 Macerata, Italy
stefania.quattrocchi@unimc.it

Pier Giuseppe Rossi,
Università degli Studi di Macerata, Dipartimento di Scienze dell’educazione e della Formazione
Piazzale Bertelli, 1, Contrada Vallebona, 62100 Macerata, Italy
piergiuseppe.rossi@unimc.it

Patrizia Magnoler,
Università degli Studi di Macerata, Dipartimento di Scienze dell’educazione e della Formazione
Piazzale Bertelli, 1, Contrada Vallebona, 62100 Macerata, Italy
patrizia.magnoler@unimc.it
Outcomes-based ePortfolio implementation: a report on a three-year learning journey
Barbara Anne Nicolls, Bucks New University

Introduction

In recent years, the majority of health education curricula including medicine, nursing and allied health, for example the Operating Department Practice (ODP) course, employ an outcomes-based education approach which starts by defining the curriculum outcomes at the time of graduation and these outcomes are then matched to the requirements of the individual profession in clinical practice. The curriculum is then aligned to support students in achieving these outcomes. As with all the other graduating outcomes, those for the Bucks 2-year full time Diploma in Higher Education – Operating Department Practice (Dip HE in ODP) are strongly influenced by the requirements stipulated by professional and statutory bodies such as the UK Health Care Professions Council’s (HCPC) Standards of Education and Training and the Standards of Proficiency, the Quality Assurance Agency for Higher Education (QAA) and the College of Operating Department Practitioners (COPD) Curriculum Document 2008. These are organizations and accrediting institutions which define learning outcomes for educating lifelong learners capable of reflective, integrative and evidence-based practices advocating the principles of autonomous and accountable practice with practitioners exercising their own professional judgment. The Bucks ODP curriculum is therefore, projectional, outward facing to employers and the economy rather than introjectional facing inwards to the discipline (Barnett 2000, Moore 2001).

The curriculum is designed to develop highly flexible, integrative and adaptive life-long learners (Newall 1999) who are capable of keeping pace with the rapidly changing demands of new knowledge, emerging work roles and changing work environments (Stuart and Dahm 2006). One of the advantages to such an approach is that students, graduates, employers (the National Health Service), patients and society have a much clearer statement of what they can expect from these graduates entering the workplace. The education providers are therefore accountable to the HCPC for the degree to which those expectations are met and the learning experience of the students: completing this approved programme means being able to practise safely and effectivly as an Operating Department Practitioner. Therefore, the Bucks ODP programme team are responsible for and expected to provide evidence of the process and growth in student learning over the two years. In other words, grades alone are no longer proof of learning; rather, we must demonstrate the entire process of learning in order to be considered accountable.

In order to meet the HCPC registration and Continuing Professional Development requirements for ODPs,– extrinsic and intrinsic motivation respectively (Barrett 2011), the Bucks Diploma in HE in ODP embedded an institution independent, student owned, FREE, open source web-based environment for the students to capture critical incidents, document their knowledge, ability and skills for learning development and to showcase their achievement of the programme learning outcomes demonstrating the standards of proficiency and competency. Professional groups including the Allied Health Professions use portfolios for the purpose of assessment and personal development (McMullan et al. 2003, Wilkinson et al.2002) where the underpinning learning theory is not only that portfolio preparation can help to nurture and develop the students, in a facilitative climate (Cayne 1995 and Knowles 1990) but that learner-centeredness and experiential learning are central (Kolb 1984, Quinn 1998 and Redfern 1998). As Cottrell et al. suggest (2005), embedding an ePortfolio requires a continuous process of evaluation and refinement of both technical and people processes - in order to ‘fine-tune’ the role of ePortfolio in the curriculum and wider teaching and learning strategies.

Aims and rationale

This paper reports on the evaluation of our three-year experience of implementing the ODP programme ePortfolio from September 2011 to July 2014. It aims to answer the questions:

1. How can we make effective use of the ePortfolio to demonstrate the students’ learning, growth and achievement of the programme learning outcomes?

2. How can we use the ePortfolio to satisfy the accountability requirements of the HCPC?
This paper will present the findings of the three programme evaluations since 2012 and the changes made to the ePortfolio process to achieve our goal of balancing the two faces of the ePortfolio – learning and evaluation (Barrett 2011).

As the early adopters of the ePortfolio and the first professional course at Bucks to embed the ePortfolio within the programme, the stakeholders including the Head of School, the Department Manager, the Course Leader, the External Examiner and the Lead Mentors from the practice areas as well as the ePortfolio facilitator from the Learning Development Unit are keen to maximise the affordances of the Google Sites ePortfolio especially, its capability to provide evidence of the process and growth in student learning. With this in mind, we, the Course Leader and the ePortfolio facilitator, made a conscious effort to iteratively evaluate the efficacy of the ePortfolio supported learning experiences designed to lead the students to connect, integrate and synthesize their learning (Peet et al. 2011) in order to enable them to construct their personal, professional and intellectual identity and to become reflective practitioners and lifelong learners.

The Bucks ODP curriculum

Buckinghamshire New University is one of 25 British HEIs that offer training and education in ODP in line with the HCPC’s standards and processes ensuring the trainees meet the professional standards of proficiency (HCPC 2012). As illustrated in Figure 1, the curriculum comprises 38% theory and 62% clinical practice experience in the learning process to enable the student ODPs to gain a better understanding of the link between theory and professional practice. Each of the eight theory modules worth 30 credits (Figure 1) have a set of individual learning outcomes which are aligned with the rest of the curriculum.

<table>
<thead>
<tr>
<th>Year/semester</th>
<th>Level</th>
<th>Modules 30 credits/module</th>
<th>Modules 30 credits/module</th>
<th>ePortfolio activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 2</td>
<td>Level 5</td>
<td>CL 503</td>
<td>CL 504</td>
<td></td>
</tr>
<tr>
<td>Sem 2</td>
<td></td>
<td>Specialising in Perioperative Care</td>
<td>Developing Leadership Qualities in the Perioperative Care Environment</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>CL 504</td>
<td>CL 502</td>
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<tr>
<td></td>
<td></td>
<td>Specialising in Specialist Anaesthetics, Surgery</td>
<td>Clinical Practice in Complex Anaesthetics, Surgery</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>ePortfolio presentation with achievement of course learning outcomes</td>
<td>ePortfolio progression</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Blogging in the ePortfolio</td>
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<tr>
<td></td>
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<td></td>
<td>Building on Y1 achievements</td>
<td></td>
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<tr>
<td>Year 2</td>
<td>Level 5</td>
<td>CL 501</td>
<td>CL 502</td>
<td></td>
</tr>
<tr>
<td>Sem 1</td>
<td></td>
<td>Advancing Perioperative Practice</td>
<td>Applied Anatomy and Physiology</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CL 501</td>
<td>CL 502</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clinical Practice in Complex Anaesthetics, Surgery</td>
<td>Clinical Practice in Complex Anaesthetics, Surgery</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Placement</td>
<td>ePortfolio progression</td>
<td></td>
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<td></td>
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<td>Blogging in the ePortfolio</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Building on Y1 achievements</td>
<td></td>
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<tr>
<td>Year 1</td>
<td>Level 4</td>
<td>CL 403</td>
<td>CL 404</td>
<td></td>
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<tr>
<td>Sem 2</td>
<td></td>
<td>Developing Perioperative Practice</td>
<td>Anatomy &amp; Physiology</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>CL 403</td>
<td>CL 404</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Clinical Practice in Emergency Anaesthetics, Surgery</td>
<td>Clinical Practice in Emergency Anaesthetics, Surgery</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Placement</td>
<td>ePortfolio confidence building, making connections, reflection, self assessment</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Summary of learning in Y1 Planning for Y2</td>
<td></td>
</tr>
<tr>
<td>Year 1</td>
<td>Level 4</td>
<td>CL 401</td>
<td>CL 402</td>
<td></td>
</tr>
<tr>
<td>Sem 1</td>
<td></td>
<td>Fundamentals of Perioperative Practice</td>
<td>Principles &amp; Practice of Anaesthetics &amp; Surgery</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CL 401</td>
<td>CL 402</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clinical Practice in Anaesthetics, Surgery</td>
<td>Clinical Practice in Anaesthetics, Surgery</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Placement</td>
<td>ePortfolio induction, familiarization, exploration, goal setting, collection, selection of, reflection on evidence</td>
<td></td>
</tr>
</tbody>
</table>

Figure 1 The Bucks Diploma in HE in Operating Department Practice curriculum

The application of theory to practice takes place in a variety of clinical settings according to the three interconnected phases of perioperative care: anaesthetic phase, surgical phase and recovery phase highlighting the need for the integration of learning in these diverse contexts. Given the chance to observe and practice in situ the behaviour of the members of the operating department team including surgeons, anaesthetists and theatre nurses, the students can pick up relevant jargon, imitate
behaviour, and gradually start to act in accordance with its norms. Acting in situations also facilitates learning as a continuous, lifelong process and is a means to discuss, reflect upon, evaluate and validate community procedures in a collaborative process.

Completing the related coursework and the practice successfully contribute to the achievement of programme outcomes specified by the external influencing bodies.

The ODP ePortfolio

The Google Sites ePortfolio is a space for the students to document evidence relating to the academic modules and clinical placements which run throughout the programme and reflect on them to demonstrate growth, make connections between theory and the real world of practice where the learning environment is potentially rich but often chaotic and unstructured. It is also a digital environment where connection making is enabled through collaboration and conversations with peers, academic tutors and placement mentors. Therefore, the ODP ePortfolio “is a purposeful aggregation of digital items – ideas, evidence, reflections, feedback etc, which presents a selected audience with evidence of a person’s learning and/or ability” (Sutherland and Powell 2007) and could be called the learning ePortfolio where dialogue about learning was essential in generating expertise and knowledge of the profession (Lyons 1998, Shulman 1992 and Wolf et al. 1995).

Each cohort of ODP students adopt a structured ePortfolio template which relates to the specific pedagogical requirements and ensures the inclusion of the essential elements to demonstrate achievement of the programme learning outcomes and not limited to course work. The scaffold approach not only provides a more direct relationship to the programme as it becomes part of the pedagogy but also easier for monitoring purposes. Barrett (2011) affirms that having a standard structure can help with assessing student work, especially when comparing to other students.

Although the students are expected to demonstrate their learning from the modules by reflecting on their performance in the ePortfolio, the range of assignments themselves are submitted and assessed in Turnitin.

Students also have some control over structure as they can create folders, add files, Web pages, structure action plans etc.) thus, enabling them to demonstrate their individuality and creativity through the inclusion of a Curriculum Vitae highlighting extra-curricular and co-curricular activities that support the achievement of the programme learning outcomes. Therefore, the ODP ePortfolio has added value as a Showcase portfolio for celebrating learning over the two years of study. Fig 2 summarises the central role of the ePortfolio within the ODP curriculum.

The timetabled, supervised sessions in the IT room with the ePortfolio facilitator were opportunities for the students to work on updating their ePortfolio, improving the presentation, clarifying how to create hyperlinks and setting sharing permissions and sorting out any technical issues. Since reflection was key, these one-hour sessions mainly aimed to develop their reflective capacity (Arter and Spandel 1992, Klenowski 2002): students think about their academic and professional challenges following a skills session or an assignment brief analysis and draft their reflective pieces using a reflective model. The formative assessment of the ePortfolio occurs in these sessions as there is dialogue between the ePortfolio facilitator and the students and among themselves creating opportunities for feedback from multiple sources to aid learning and reflection (Strivens et al. 2008).

The assessment of the portfolio itself is designed formatively to enable the personal tutors to provide regular and constructive feedback on the entries made in the ePortfolio. The Comments box on each of the Google Sites ePortfolio facilitates this. A Checklist of ePortfolio tasks aids both the tutors and the students to be clear about deadlines while the Self-Assessment of my ePortfolio rubric is used for assessment.

The ODP ePortfolio has two limitations, though:

- it is not currently used to record placement records and learning due to the requirement for confidentiality and signatures from clinical supervisors. It is, therefore, the students’ responsibility to collect representative experiences from all their placements and reflect on them and share with invited peers and staff. Instead the Practice Assessment Document (PAD) is used to present and document achievement of learning outcomes and verified by the placement staff.
- it is not yet a high stakes assessment/accountability portfolio
In summary, the Google Sites ODP ePortfolio has the characteristics of the spinal column (Endacott et al. 2004) type ePortfolio as it uses the competencies and learning outcomes as the structure.

**Methodology**

Since we intended to examine the students’ perceptions of the process of developing the learning portfolio and to evaluate student learning outcomes in order to facilitate improvement in the use of an ePortfolio as a tool for supporting learning within the programme, we chose the qualitative enquiry within a type of action research which “facilitates the connection between evaluation research results and program improvement” (Hansen and Borden 2006:49). The principal investigator in this project is the ePortfolio facilitator, so the study supports Craig’s (2009) assertion that action research is conducted by a practitioner studying an existing issue for the purpose of improvement. An exploratory (Yin 1993), collective case study (Stake 1995) within action research with three cases comprising the 2011, 2012 and 2013 cohorts was adopted and was conducted over a period of three years by the ePortfolio facilitator and the ODP course team - practitioners studying an existing issue (Craig 2009) to explore the strategies to achieve our goal.

To explore the extent to which the ODP ePortfolio process facilitated the students’ achievement of the programme learning outcomes, we used data collection methods which focused on evidence documented by the students in their ePortfolios and their reflections on it as it was the students’ perception of their learning from the experience. Buyarski and Landis (2014) claim that using student narratives in an ePortfolio as authentic evidence of student learning, we were able to determine the level of achievement for the learning outcomes associated with the two-year Diploma in HE in ODP. It is also a way of involving the students in the curriculum design, development and evaluation and demonstrates Bucks New University’s commitment to our students’ learning (2013). Examination of the ePortfolio content and the assignments submitted as well as the course team’s observation of the ePortfolio processes in action were triangulated with responses to the
Initial Assessment of skills, expectations and needs for ePortfolio development

This assessment is an element in the step by step guide to creating an ePortfolio in Google Sites which is embedded in the programme ePortfolio template to be adopted and adapted by the course participants.

- end of programme survey “My ePortfolio journey” that included both open and closed items focussing on the process of developing the ePortfolio. It explored the students' opinions and beliefs, focusing on their experiences of using the ePortfolio to facilitate their achievement of the programme learning outcomes.

- The study began with Case 1 (the first cohort of students) in September 2011 through their level 4 and level 5 studies and the findings were used to improve the ePortfolio experience of Case 2 (the September 2012 cohort). Similarly, the findings from Case 2 informed the development of the ePortfolio template for Case 3 (the September 2013 cohort). The sample sizes at each stage of the study and the ePortfolio templates are shown in Table 1.

<table>
<thead>
<tr>
<th>Stage of study</th>
<th>Case</th>
<th>Cohort</th>
<th>Cohort size</th>
<th>Level</th>
<th>Type of ePortfolio</th>
<th>Template Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>III Sept.2013-June 2014</td>
<td>3</td>
<td>2013</td>
<td>27</td>
<td>4</td>
<td>structured integrative* formative assessment evaluative showcase + process</td>
<td>2013 cohort**</td>
</tr>
</tbody>
</table>

Table 1 Summary of the sample  * integrative = assessment + reflection  ** this link is currently unavailable

Ethical considerations

As it was within the scope of the academic department to redesign assessment practices based on student feedback, accreditation requirements and Bucks learning and teaching strategy, no formal consent process was implemented. Ethical approval was not required for this study either, as it formed part of routine programme evaluation procedures.

Findings and Discussion

It was found that despite the differences in the make up of participants in each case, there were common emergent issues and themes with regards to expectations from the ePortfolio experience and the perceptions of the experience at the end of the programme.

Initial Assessment of skills, expectations and needs questionnaire

The findings after the recruitment of Case 3 in September 2013 showed that the majority of the course participants believed that the ePortfolio development process could be used for personal and professional development planning through regular documentation of experiences, reflections, self and peer assessment accompanied by regular tutor feedback. They expected the ePortfolio to be a place for storing assignments and related readings, professional guidelines etc. and as an opportunity to create and own their personal website for diverse purposes throughout their lives. They also foresee the benefits of this IT skills for lifelong and lifewide learning. The challenges they identified included the skills to create hyperlinks and security and maintain confidentiality as well as the support they would get in developing their ePortfolios while in placement.

The reality

All the cases enthusiastically embraced the ePortfolio concept and had their individual ePortfolios set up, the welcome page and the About me pages completed within the first week of study. They also welcomed the course team and one of their peers to the
environment. Creativity and individuality was evident in the presentation of the ePortfolios as each one appeared different although the predefined organisation of the ODP ePortfolio existed (scaffolding) for future development. It was apparent that the students used the Checklist to keep the ePortfolios up to date as the ePortfolio facilitator received requests “How do I ……?” especially on evidence of linking theory and practice.

By the end of year 1, it was evident that the individual ePortfolio products were evolving works in progress as the students worked both on campus and at home to individualise their web spaces with carefully selected themes, images while collecting and documenting copies of assignments in different formats (essays, powerpoint and prezi presentations, posters) under My Achievements as per the ODP ePortfolio template. The actual assignments were submitted via Turnitin following Bucks e-Learning Strategy. It appears that the scaffolding in the ePortfolio template adopted by the students facilitated the collection and selection of evidence for a personal, professional learning portfolio - the real “process” aspect of portfolios takes time and support. Documentation happens throughout the learning process - from the creation of the assignments and recording of goals or learning outcomes, to the capturing of individual and collaborative work done with others. Over time, as it was done on campus and in their own time, it became a part of what learning is all about for the students.

All artefacts and work samples were clearly and directly related to the purpose of the ODP ePortfolio as shown in the tags explaining the importance of the item including title, author, and date. The limited variety of the artefacts was acceptable at this early stage of the programme. It appears that collection of evidence in the repository was relatively easier than selecting specific pieces of work from the collection to demonstrate achievement of a particular learning outcome: a large number of students found hyperlinking a challenge; most of the hyperlinks led to the File Cabinet page with a collection of evidences highlighting the need to develop the selection stage of the ePortfolio process. At this stage, most of the ePortfolios appeared to have progressed from the shopping trolley type to a toast rack type ePortfolio (Endacott et al. 2004). It was also noted that some students were more organised than others arranging artefacts into folders in the File Cabinet (see sample work by a student from Case 1).

The About Me page with the authentic narratives of their background and how it led them to choose the ODP profession demonstrated their ability to use existing knowledge, skills and experiences to achieve their aspiration to become a health care professional. They also noted that the ePortfolio structure was the strategy to help them achieve their long term goal; some also set immediate goals such as developing academic skills including reflective writing, referencing etc. and set them as Action Plans.

“I think it gives an overview of the course what it covers ,what you have covered” (Case 1)
“The main potential benefit that I can see is that there is a place for me to go and store all the work and knowledge that I have gained throughout the 2 years of study” (Case 3)

Case 1 used the Reflection page exclusively for describing placement experiences or “reflecting on practice” (Schön 1983) albeit with limited analysis, synthesis and evaluation. Very few reflections described growth and included goals for continued learning. A few of the reflections illustrated the ability to effectively critique work or provide suggestions for constructive practical alternatives specifically in the context of course work assessments. For example, it was observed that although all the students passed the module-related assignments set at Level 4 and so, in the view of the course team, they met the learning outcomes. However, the students were unable to identify them themselves which then became a challenge when reflecting on learning from these assignments. Evidently, the participants were unfamiliar with the fact that reflection on the assignments following the What, So What and Now What model, was in fact, returning to the process of doing the work, thinking forward for improvements or changes, introspection – uncovering self-knowledge in relation to past experiences and that it was an opportunity for them to examine what they had learnt, how and why and to link the learning to future actions and finally, externalising their feelings, thoughts, understandings seeking theories to make sense of them (Barnstable 2011). This may also be the reason for the lack of connecting learning between modules as in CI 401 Fundamentals of perioperative care and CI403 Developing perioperative practice. The following end of year 1 reflection by a student from Case 1 is a case in point:

The first year has now come to an end and it's gone so fast! I can still remember the first week of practice and how nervous I was turning up at the hospital not knowing what I had thrown myself into! I feel I have learnt so much over the year and a completely different person to the one that turned up 12 months ago. I feel my confidence has grown massively and can communicate effectively with all adult patients in the hospital setting. Working in anaesthetic and in scrub I feel like I have mixed well with the whole multi-disciplinary team within the hospital and now feel a valued member of the team even though I am a student. I still find scrub quite daunting sometimes, especially the multiple orthopedic sets sometimes laid out, but at the same time my orthopedic placement has been the most interesting scrub placement, mainly due to all the power tools, plates and wires they use to fix broken bones. I've loved all my anaesthetic placements as I enjoy interacting with the patients while waiting for the surgeons! Every patient is different and from all walks of life which makes conversation easy to keep their nerves under control. The best part of the placements has been each day being different from the next which makes me realise how lucky I am to be on the road to becoming an ODP. I cannot wait to start my second year but it is quite daunting knowing how much there is to learn between now and July 2013 in order for me to become a first class ODP, but I know if I put in the effort it is achievable.

Feelings of joy and anxiety at completing the first stage of study and the goal aimed for is clear in this example; however, as Barrett recommends (2011) the direction to the goal could have been outlined by using technology to create hyperlinks to situational reflections within the ePortfolio enhancing the credibility of the narrative. As a result, My Year 1 Position Statement was included in the 2012 and 2013 ePortfolio template with guidelines for writing it.

Cases 2 and 3, on the other hand had guided reflective writing and critical thinking workshops to help them develop these skills. In pairs and groups, the students shared reflections with one another to help deepen their learning. Some students found it insightful and interesting to see what their peers got out of a particular assignment. “It opened my eyes to new ideas and perspectives” (a Case 2 student). However, getting started with writing was found to be a common challenge among all the cases and therefore, the course team prepared a list of prompts to help with the thinking process: some prompts, for instance, “How did this learning relate to your goals (personal, academic, or professional)?, How did this learning relate to the things you are learning in your other modules/courses?” helped them to analyse, synthesise and evaluate the experiences.

In year 2, at Level 5, the students in Case 1 and Case 2 created a Blog within the ePortfolio environment using the Announcements or Blog style template and shared their placement experiences over a period of two months beginning in February 2012. The students' engagement with the task was encouraging as the posts comprised topics which appeared to be issues in practice and involved communication with their peers in geographically diverse placement sites and use of literature to support their claims. Skills in searching, evaluating and exploiting web-based resources improved more for Case 2 than for Case 1 due to the perhaps due to the clarity of the purpose of the task and the Blogging Guidelines including how to write the blog, commenting on blog posts and the Rubric for Assessing the Blog task – this was a formative assessment (Nicolls et al. 2013). Blogging in year 2 of the programme also required sharing of experiences documented in the ePortfolio and dialogic
learning with peers; Case 2 students showed that they were more prepared than Case 1 to move away from the instruction or ‘transmission’ model of learning in which learner agency does not have an active place (Klenowski et al. 2006). The evidence was in the posts: the former tended to write longer, ask more questions and use words verbs that reflected higher order thinking skills such as comparing and contrasting their own experiences with those found in literature, hypothesising, finding values etc. as in the example below (a Case 2 participant)

“We all know that different people check the anaesthetic machine differently. What does this mean to us? Our mentors will teach us how they check their anaesthetic machine THEIR own way. I find this a bit difficult since I tend to adapt how my current mentor checks his/her anaesthetic machine. Then moving to a different mentor, I will again change the way I check the anaesthetic machine.

The Association of Anaesthetists and Great Britain and Ireland (2012) published a recent checklist for anaesthetic equipment. However, this article about anaesthetic machine is a good read. Goneppanavar and Prabhu (2013) stated that “No single checklist can satisfactorily test the integrity and safety of all existing anaesthesia machines due to their complex nature as well as variations in design among manufacturers”.

I have discussed this issue to my last mentor and she suggested that it would be good to teach all the ODPs/Anaesthetic nurses a standardized way of checking the machine, involving the manufacturer’s representative. Do you agree with me that this is a good idea?

The students perceived that sharing such kind of reflection with peers requires courage and patience (Ovenell-Carter 2011) as it is context dependent where “we are expecting to learn from each other while no one is an expert in the field. How do we know we are on the right track?” (Case 1). It appears that, the course team need to prepare students in effective blogging: trust, empathy, faith in reason etc as suggested by Ovenell-Carter prior to the blog task through workshops to boost their confidence. Moreover, it was observed that due to limitations in the sharing of certain pages within Google Sites, some students did not receive peers’ comments to their blog posts till closer the deadline. Accessibility issues also prevented collaboration over the set period. There was also concern that sharing the entire site with their peers would encourage copying and reproducing their own work submitted in the ePortfolio.

The Bucks ePortfolio journey

Responses to the Bucks ePortfolio journey questionnaire completed at the end of the two-year programme, showed that the 47% of the course participants in Cases 1 and 2 perceived the ePortfolio as a process for raising self awareness as future ODP professionals.

“it also has highlighted the mistakes that i would have failed to notice and open my mind of things i could change in the future”

“It is a good record that shows you how far you have come and how much you have achieved, especially when reading over previous reflections”

“Gave me understanding of how I did my practice compared to others and had dialogue to support each other”

“Blogs. by interacting with other students and finding out what they views are and what their practice is in their respective Trusts”

“The e portfolio has not changed me as an individual, however it gives me somewhere to explore things that have happened in clinical practice and learn from them for future”

13% disagreed as they “believe the E-Portfolio is something to be included in the ODP DipHE course, but I do not feel there is any benifit to me becoming an ODP, although it is a good tool to record the day to day learnings, and experiences of the course, the placement, mandatory training and CPD that we identify as we progress on the course”and “this e portfolio has not changed me or developed me. These students perception is the ePortfolio as” a toast rack” (Endacott et al. 2004) and evidence supports this. Reflections in their ePortfolios were at the developmental stage and lacked cohesion and higher order thinking although the assignment learning outcomes were achieved through the assessments.

The remaining 40% remained neutral, unsure of the role of the ePortfolio in facilitating self discovery as trainee ODPs.
Only 21% of the participants perceived the ePortfolio process as useful to link between theory and practice assisting the transfer of specific knowledge and skills while 25% disagreed and the remaining 54% were neutral. For example, some course work assignments focus on infection control, multidisciplinary team working, communication with atypical patients submitted via Turnitin and it appears that to 25% of the students, they were working in a different environment to their ePortfolio as stated by this student:

“When I think of my eportfolio I don’t think about learning, I think how it is a waste of time as it doesn’t help me to become a better practitioner”

In summary, at the end of their two-year programme, case1 may have passed their course work and placement requirements successfully but unfortunately, the majority of the participants felt that the ePortfolio development process did not have a role in it. They had used the ePortfolio template and populated the pages with elements prescribed by the programme without giving much thought to its ability to organise their learning process, to reflect on past experiences and see themselves grow in their ePortfolio environment. The common issues were lack of time, lack of timely tutor feedback and most importantly, lack of understanding of the term “learning”. Learning is perceived to occur when summative assessment exists. In contrast, more than half of the participants in Case 2 who completed the programme in August 2014, appeared to have engaged with the ePortfolio process more effectively and were able to acknowledge the values of the ePortfolio process not only for discovering themselves as learners both academically and in practice but also their development as future ODPs. They had used the ePortfolio environment to enhance their IT skills, communication with their peers and developing higher order thinking skills.

**Challenges for the Course Team**

Tracking and assessing student learning, albeit formatively, within one programme with the academic and practice components over a two-year period is clearly challenging. These observations and findings highlighted the course team limitations. We acknowledge the need for human resources: Case 1 with 6 students and 3 tutors was just manageable but case 2 with 24 students was overwhelming. The course team new to HE teaching and associated requirements added to the pressure. The addition of a fourth team member in early 2013 alleviated some of the problems of managing the ePortfolio process especially because of the spinal column type ePortfolio: discrete elements of evidence within the ePortfolio needed to be formatively assessed to enhance student learning. Most importantly, e-Assessment in Turnitin and learning from the assessments in the ePortfolio was another issue for us as well as the students due to the duplication of evidence.

The most challenging was engaging with our students’ development of their ePortfolios. Perhaps the role of the ePortfolio within the curriculum needed to be discussed and its importance in the students’ learning to become reflective practitioners made a priority in our busy schedule? Since the use of the ODP ePortfolio for personal and professional learning purposes predominated, the course team agreed to a number of improvements.

**Future actions**

On reflection, we realise that for accountability purposes, we need to extend the spinal column type ePortfolio to a cake mix type (Endacott et al 2004) keeping in mind the need to balance the two faces of ePortfolios in the process (Barrett 2011). The current ODP ePortfolio with the specific learning outcomes for the individual modules implies that the evidence from practice is also included. Making this explicit to the students by assessing a narrative developed at the beginning of Level 5 and examined for the students’ ability to analyse, synthesise and evaluate their integrated learning across the two-year academic, practice and personal components could be a more efficient way of working with a larger group of ODP students. At this moment, preparations are being made for the programme to go through a course amendment committee; once approved, the changes could be in place for the Case 3 participants at Level 5.

The Level 5 marking criteria will also be amended and renamed to reflect the nature of the assessment. It will be specifically used for ePortfolio assessment. The ePortfolio templates will be amended to include reflections on the practice competencies to reflect the ODP ePortfolio in Figure 2.

ePortfolio Workshops delivered by the personal tutors and the ePortfolio facilitator to emphasise self analysis, goal setting at the beginning of Level 4 and Level 5 using the course handbook and the module plans, planning to achieve the goals including SMART objectives; structured, guided reflective writing and responding to peer assessments.
Regular formative assessment, central to the education process (Yorke 2002) incorporating feedback in a pedagogy focused on learning was timetabled in the teaching calendar and the required shift in emphasis from the collection of evidence (Arter and Spandel 1992, Forster and Masters 1996) to a focus on the analysis and integration of learning was made explicit through timetabled reflective writing sessions.

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Author

Mrs Barbara Anne Nicolls
Learning Development Unit
Learning and Teaching Directorate
Bucks New University
Barbara.nicolls@bucks.ac.uk
21ST Century Competencies and Communities in Higher Education

Penelope J Lister, London Metropolitan University

Higher education staff face a paradigm shift in the transformation of learning and teaching fit for purpose in the 21st century. The experiences of developing the eMatrix – a multi-purpose web platform for learning and teaching through informal and formal learning offers one solution as a possible way forward.

Abstract

Early research carried out by the author (Lister, 2013) indicated that current support and training mechanisms for uptake of technology enhanced learning and teaching amongst academic staff were not working. Some key hindering factors shown by the study were lack of adequate training support as well as lack of pedagogical support for faculty to develop courses suitable for 21st century learners. Whilst there may be a variety of approaches to solving these problems, the London Met E-learning Matrix (the eMatrix) might be one possible solution to some issues. The eMatrix website has become a focal point for developing further mechanisms to help train and support academics at London Metropolitan University in their individual technical skills development as well as their knowledge of the possibilities and pedagogical approaches to technology enhanced learning.

The eMatrix is a complex category driven online content management system that offers multiple authors the opportunity to create related articles in the field of e-learning, which can then be cross categorised into appropriate themes and topics. It is a practical piece of work that attempts to build an online community, both for the authors themselves as well as others who would use the material in their learning, teaching and elsewhere. Centred around one institution (London Metropolitan University), it seeks to provide content for pathways of accredited learning for the continuing professional development of its own and other academic staff, as well as offer more informal connected learning content for a variety of areas related to technology enhanced learning, teaching and research.

It is a pioneering web application, seeking to blend articles from e-learning technologists, academics, admin and library staff, and even students if practicable. The process of creating articles has been made especially user friendly and straightforward, with as little technical ‘know-how’ required as possible, yet allowing for multimedia webpage content to be authored and navigated with ease.

The aim is to provide a technology that ‘meets its users on equal terms’ in order to encourage use by all, not only by a few technical specialists. A strong emphasis has been placed on the social functions of the articles, to encourage as much sharing into social and professional online networks as possible, therefore promoting further discussion in the wider community.

Introduction

The concept of ‘academic community’ is complex, with diverse areas of discussion amongst academics everywhere (Maxwell, 2004, Kogan, 2000). Communities of practice, perhaps the most prevalent type of ‘academic community’, have a far-reaching scope of reference, extending from research partners and practitioners, professional academic bodies to online open resource development and shared repositories.

This paper discusses ways in which those who may seek to develop a comprehensive set of learning and teaching resources, practitioner expertise, case study discussion and ongoing (often peer) support, together with opportunities for accredited continuing professional development may best utilise web technologies to develop their community of practice. By making use of open online technologies to develop a community such as this, access and sharing can be most effectively achieved (Oblinger, 2013, Kukulska-Hulme, 2012, Whitworth et al, 2012), with more individuals potentially able to become part of an authentic community of practice over time and thereby increasing useful content and connections for all users (Talja, 2002).

The eMatrix concerns the development of an online community of blended learning academic practitioners at London Metropolitan University. The focal point of this paper centres round discussion of the iterative development of the community and the resource, from initial concepts and requirement specifications in 2010, following through to the first ‘beta’ online deployment iteration in 2012 and on to
the current iteration (2014). Under scrutiny will be application effectiveness, perceived usefulness and ease of use (Davis, F, 1989) both for author-publishers and user-consumer/practitioners, and ways that these factors can be best researched and evaluated over time to enhance the successful engagement of academics within an online community such as this. Technical issues, interface design, information design and online community aspects are all considered, as well as areas for future development and research.

**Background**

The eMatrix web application development work has largely been undertaken by two academics from the Centre for the Enhancement of Learning and Teaching at London Metropolitan University, Charl Fregona (Principal Lecturer and Head of CELT E-learning), and Pen Lister (CELT Senior Blended Learning Facilitator and Lecturer in Web Applications and Multimedia) with central support from senior management and academics at the institution. Ms Fregona’s background is in extensive academic lecturing and research within the e-learning and blended learning fields, with a strong emphasis on CPD and CAP (CPD in Academic Practice). Pen Lister is a web and multimedia professional and lecturer working in a variety of fields associated with new media, web development, e-learning and social media in the context of academic scenarios. Both are higher education lecturers of considerable experience in their chosen disciplines, and both have a keen interest in new technologies and discovering new opportunities for utilising technology for the benefit of learning and teaching.

**Aims and purpose of the eMatrix**

An information and learning resource was requested by senior university management at London Metropolitan University which would aid the dissemination of skills, knowledge and experience in e-learning and blended learning, to help support the newly instigated blended learning institutional policy and encourage best practice in the institution. By utilising experts to help novices (Whitworth et al, 2012) and make use of online technology, the hope was that “positive impact on changing practice” would be achieved. Whilst this type of platform is straightforward to build technically, it can be fraught with problems in terms of actual success of purpose (Conole & Culver, 2009).

The initial vision of the eMatrix came about as a result of this need, for academics to be able to access materials and support associated with faculty policy and practice in relation to blended learning, and to be able to share their practice with one another. Areas were needed for each faculty that would hold a selection of current policy documentation as well as faculty specific case studies and relevant tutorial and help sections. Though the eMatrix has grown somewhat since the original requirements and expectations, its core aim and purpose remains, that of providing ways to share best practice and support professional development of academics at the institution, providing up to date approaches to teaching and learning, blended learning resources and an online community presence.

**The eMatrix website development Iterations from 2010 – 2014**

A prior study carried out by the author (Lister, 2013) developed a hierarchy of problems and benefits factors influencing the uptake of Technology Enhanced Learning (TEL), which highlighted some key hindering factors of relevance to the eMatrix, and which may form part of future research of the eMatrix project. These were:

- Time Poor Academics in relation to professional development time allocation
- Pedagogical innovation and support problems in relation to TEL
- Learning quality support and evaluation mechanisms in relation to TEL
- Central ICT and e-learning pedagogy support provision in relation to TEL
- Staff expectation for ‘Always On’ help, support and learning
- Student expectations in relation to TEL and:
  - Flexible learning provision
  - Student centred learning approaches
  - Device friendly TEL provision

It was clear both from literature and from primary data in this study that academic staff saw the provision of easily accessible, relevant, preferably discipline specific case studies and pedagogical advice and support as of great importance and influence in facilitating and encouraging their use of technology in their learning and teaching practice. The eMatrix project offers some practical solutions for ‘always on’ provision of tutorials and TEL pedagogical support, and by attempting to develop a clearly focused online peer ‘self-help’ community, conceptually smaller in nature, it perhaps creates a

Development Iterations of the eMatrix

The eMatrix website development in the context of multiple factors of relevance are considered here. Discussion is summarised into several main topics indicated below, with reference to three distinct phases: Phase A (2010-2011), Phase B (2011-2012) and Phase C (2013-2014)³:

- Community
- Design
- Information Architecture
- Media and Social
- Features
- Continuing Professional Development
- The Metrics
- Issues and considerations
- The future

Stakeholder requirements for the online system needed to provide the following:

1. Resources to support a recently instigated (2009) central university policy of blended learning at London Metropolitan University learning and teaching practice.

2. Designated faculty spaces to hold faculty specific documentation, case studies and research relevant to blended learning.

3. Shared spaces for e-learning (blended learning and distance learning) pedagogical and technical support.

4. Provision for staff (designated representatives) from each faculty to contribute as and when they required, to their own faculty space, independent of any other support staff being involved. That is, to publish directly into their own faculty space whenever they wished.

5. Communal faculty forums to aid collaborative development of faculty blended learning policy, best practice and problem solving.

6. Communal (all faculties) forum to provide the facility to help each other in problem solving, and to share news, events and other relevant information concerning blended learning at the university.

Community

Building an online e-learning community means defining who the community is, as individuals and together as a whole. We needed to discover the best means of communicating our raison d’être, our identity and our roles as equal participants in this community, to build the trust and value of the community and so increase the likelihood of engagement in that community. Work by a variety of academics in this thinking (for example Dunbar, 1993 and 1998, Butler, 2001 and Gladwell, 2001), and later the work of Conole and Culver (2009) with their development of Cloudworks all have bearing and relevance to what we are trying to achieve. At first this was not apparent, and did not directly inform our thinking, but over the iterations, it has become a leading factor of importance to the entire development process.

Design

Phase A of the web platform was built ‘inside’ Blackboard⁴, as a stand-alone website, complete with meta-navigation, logos, icons and banners. Making use of learning modules (a Blackboard feature) and extensive JavaScript and CSS created an identifiable space for faculty best practice and strategic policy, but drawbacks were many. The site was limited by the well-documented idiosyncrasies of Blackboard (too numerous to mention here), staff needed to log in and navigate to the site module to access it (too laborious a process), and nothing could be shared. Staff also found it too technically challenging to publish in, so it failed on several of the stakeholder requirements.

³ The website is available at www.celtelearning.org.

⁴ Blackboard Vista, an earlier version of the proprietary Learning Management System
Phase B learned from many of these initial problems and moved out of Blackboard. Utilising a professional Content Management System, ExpressionEngine, as the platform for further development, improvement was significant. But interfaces were still over complex, with use of too much ‘playful’ interactive behaviour, too much branding and too many icons. Typography also became a design element of more significance as time went on, and menus, which were cluttered and illogical (design and functionality), became much simpler by the end of this phase.

Phase C has shown that the simpler everything is, the better it seems to be for everyone. Flat clean design, well spaced and padded sans serif fonts, content block approach to all layouts, and opportunity for authors to easily select layout choices for articles depending on type and amount of content all contribute to a more successful application. The predominant purpose of reading the article is now paramount in the layout approach, but there may still be room for improvement.

Overall approach to the author side of site design from phase B onwards has been to create a ‘one page view’ clearly laid out publishing form, which requires little or no technical skills in order to publish sophisticated multimedia articles with a choice of layouts for sections of the article webpage. Semantic mark-up for text has now also become more achievable for authors, with styles available in the publishing WYSIWYG to help with visual chunking as well as machine-readable hierarchy of textual content.

Information Architecture

While the fundamental challenge of all information architecture is to avoid confusion, the overarching requirement of the eMatrix is to create multiple routes to sometimes the same content, in order to suit many users who come with different reasons and needs. Site users are from a wide variety of cultures and languages, so it’s very important to cater for various approaches, but not lose sight of defined clarity and logic. This aspect of the site is in persistent subtle iteration, and much like any modern web application, change is the most constant thing about taxonomies and menus. Taxonomies have changed somewhat over phases of work, and been added to considerably as areas of the site have expanded, but the main noticeable change has been in a lot more use of folksonomy tagging of articles. This feature of the site has been developed to allow for filtered tags as well as a dedicated area to view all site tags.

Menus continue to improve, but each implementation will show new problems. This perhaps is one of the major challenges of a site such as this. As we move towards a fully responsive design iteration (Phase D) we plan to look again at simplifying and focusing user journeys to single purpose tasks, which will have great bearing on menu approaches. The overall aims of avoiding ‘dilemma of choice’ and obscure academic terminology are still key considerations.

Media and Social

The use of rich media in site articles is perhaps one of the strongest unique selling points of the eMatrix and has been very important to the site from Phase B onwards. The affordance of embedding multiple media sources (up to 6) into a single article allows for a much richer and dynamic user experience. The site does not allow for upload of video or audio, this can only be used if hosted elsewhere on a third party, usually social, platform. By encouraging the use of these platforms, a larger site web footprint is established, as well as avoiding potential problems surrounding video streaming and file size and formats. Moves to use a media streaming service such as Zencoder may become more important as time goes on but as yet this remains to be seen.

The integration of social channels into the site has always been a high priority. By using customised scripting and accurate implementation of Open Graph we are able to offer a much more controlled and detailed sharing experience, without the user having to do much. Having accurate social metadata helps to establish the site in machine-readable contexts (search, metrics), and in due course social login functionality and goal conversion analytics monitoring will be implemented, as well as a wider selection of social metadata.

Features

Key features that we have established as of real importance and significance to the work of the eMatrix would be the emphasis of its identity as an Open Educational Resource (OER), to pioneer a versatile set of choices and accurate approach to intellectual property, the attempt to have author teams as well more flexible contributor members, and to integrate open academic resources with formal assessment mechanisms. Over time and with more careful promotion to faculty and partner
institutions, we might be able to improve and develop on this set of key deliverables. All of these features are community in orientation, as they impact public (open), private (closed) and individual reputation and engagement.

A recently implemented (phase C) feature to help build ‘contributor’ roles is the concept of the ShortRead. This is a one click to publish functionality using an email to blog process. Any user who knows the ShortRead email address plus any designated subject line prefix (in principle similar to using a hashtag) and whose own email address is listed as a contributor can then email articles to the site, including an image attachment if they wish, which are published automatically to the site, or held in a moderation queue. The ShortRead idea seeks to overcome problems surrounding technically novice and time poor academic users that may otherwise be disinclined to contribute articles. ShortReads could be used in any number of settings such as collaborative projects with a larger group of contributors, or for feedback purposes on a given set of topics.

**Continuing Professional Development**

The eMatrix works in conjunction with a ‘Tessello’ closed system (access via login only) third party platform, from the Brightwave online learning company. The application, which has been created by us to compliment the eMatrix, is known as the eMosaic, and embeds eMatrix content into formal curricula, allowing learners to compile personal learning environments (Davis and White, 2004) of this and other content. Learners submit reflective projects based on this content for formal assessment using a variety of approaches, and can support each other, either in the social area of the eMosaic platform, or openly using comments or ShortReads in the eMatrix.

**The Metrics**

Quantitative data is always useful to web developers, as well as to those who might fund projects such as the eMatrix web resource. The most striking fact that is apparent on even a cursory examination of the metrics currently available for the eMatrix from Google Analytics is the breadth and depth of reach for the content on the site. While our statistics are still modest as we have only been a live site for approximately one year, we already have a sound foundation of statistical characteristics: lower than average bounce rate, good user retention, multiple user interactions, and impressive global reach. With no official publicity at all we have gained users from many nations around the world. With currently less than 200 articles available we have managed 20,000 page views, 3500 unique users, at least 30 countries of user location, and very respectable accesses made from mobile as well as desktop devices. If this were to be compared with analytics from the Blackboard closed platform application of phase A, the difference would be astounding.

**Issues and considerations**

With any public facing web application associated with a formal organisation, a variety of issues can very quickly surface which must be considered seriously. The most significant legal issues for the eMatrix are concerning data and content, but user engagement is also an important challenge.

1. The intellectual property of academic articles published in an open educational resource, which are authored by staff currently employed by an institution. The relationship of academic intellectual property and individual academics in the employ of a higher education institution is in itself a thorny issue, with academics constantly aware of issues surrounding ownership and rights to their work (Campbell et al, 2001). In the setting of the potentially institutionally shared OER landscape, both institutions and individual academics are increasingly concerned about IPR rights, when authorship takes place wholly or partly outside of professional duties, thereby creating an unclear territory of ownership. This situation is only set to magnify as time goes on, yet Campbell’s work is nearly fifteen years old.

2. Protection and archiving of personal or academic materials data used or incorporated in some way by third party hosted (bespoke) web applications, in relation to the legal responsibilities of the institution who may employ those people that are either members or creators of those applications. It is not clear what the position is when referring to the average terms and conditions of universities where these responsibilities may lie. If they lie with the individual developers or users, legal ramifications might be serious were there to be a breach and loss of data.

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5 Tessello & Brightwave, International House, Queens Road, Brighton, BN1 3XE
3. Accessibility for all users is a major challenge of all web applications. From a legal perspective the issue is clear: responsibility to build sites fully accessible by all users is of paramount importance. However, university general web provision may only meet single A accessibility standards, and no clear terms of requirements for application development are available from institutions in this regard.

4. Engagement of faculty academics and institutional partners in connection with use and authorship of shared open resources remains a challenge. As Rogers (2003) and others (Butler, Whitworth, Campbell et al) know, any innovative practice takes time and the informal leadership of innovators and early adopters for it to take hold further down ‘the chain of command’. If we could find a way of targeting individuals by knowing more about what they need (perhaps than even they themselves might know) we might be more successful at aiming this type of platform at their requirements and so find a more receptive audience amongst those that are not perhaps Rogers’ laggards, but certainly are ‘late majority’ users. Other research carried out by the author has piloted one way of measuring some of these needs that may prove worthy of more research in connection with the eMatrix as a staff development tool (the Personal Technology Profile). It might be useful to note here that further afield amongst the wider web community at large, the eMatrix is apparently being received fairly positively (see the Metrics section).

The future

As the eMatrix grows into a larger project, it offers more opportunities for investigating how our immediate academic online community interacts with it, and what that community needs becomes clearer. From a technical and user standpoint, to develop a device responsive design site is of highest priority. Web analytics for June 2013 – June 2014 show that of users who visit the site, combined Android and iOS users (25%) already outnumber Macintosh users (18.7%). Though Windows users still outnumber all of them (55%), this indicates how quickly we need to develop a fully responsive site.

Developing the community itself is also of real importance. Partner Institutions (other universities, colleges or groups of teaching practitioners) could all contribute and benefit from being part of this platform, so new ways need to be conceived to make this a reality, with ShortReads being a good start. Social collaborative spaces or other collaboration initiatives between groups of authors may provide added incentive for others to become involved.

Technical functionality still only touches the surface of what is possible with a socially connected learning space such as the eMatrix. Opportunities for innovation are plenty, with full Facebook API integration, Tin Can API functionality, use of Open Auth and web trail activity tracking and sharing all in the frame for possible small pilot research add-ons to be developed which would connect the user to a seamless world of learn-on-demand.

Conclusions

Though the development of the eMatrix web resource platform is ongoing, it is now beginning to yield some measurable benefit on a number of fronts. It has become clear that the work has gone beyond ‘making a website’ and has blossomed into a fully-fledged academic research project of some depth, offering the opportunity to measure a variety of aspects of modern academic resource development for learning and teaching. Staff requirements for their practical uses of materials, continuing professional accredited learning and support provision for training and resources, and their engagement in an online academic community all being part of the picture.

Though problems and setbacks have occurred, these have all mostly been solved and often contributed to the improvement of the application as a whole. We look forward to the next phase, and new extensions of the system into further areas of development and use.

The eMatrix, however good the technology may be, will only be as good as the community who contribute to it. By authoring and collaborating on high quality academic content which is useful to many in the immediate community as well as those who access it from further afield, a context of understanding is established, and this may in turn help to create the right conditions for a relevant and empowered authentic academic community (Cox, 2000).
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Author

Ms Penelope J Lister, MA MSc MBCS FHEA
London Metropolitan University, Centre for the Enhancement of Learning and Teaching
166-220 Holloway Road, London N7 8DB
p.lister@londonmet.ac.uk;
Identity Construction: a Personal Portfolio and e-Branding Plan for an Academic Purpose

Ana María Belmonte Jiménez. Universidad de Málaga.

Digital portfolio and e-branding plan

There is no doubt that we live in a society dominated by technology and audiovisual, and that is why people and companies and institutions can not remain outside this reality when it comes to creating and maintaining a digital identity. As Tíscar (2009) states "It is important to note that digital identity is not only for people. Also the companies, governments and institutions must make decisions on the construction and management of their digital identity to the dynamics of the network society."

Therefore, building a digital portfolio (how to digitally present our professional work) is essential in this digital society in which we live and work.

Tom Peters, in his article "The Brand called you" (in the magazine Fast Company, 1997) coined the term "personal branding" and its subsequent popularization. The rise of all kinds of tools offered by the so-called "web 2.0" has facilitated, without question, that anyone can create their own personal brand.

According to the expert Stuart Agres of Young & Rubicam (cited in Rodríguez et al., 2010) the brand or "Brand" would be "the set of differential promises that link a product to its customers." Therefore, when we speak about the constitution of a personal brand, the professional concerned must establish, the same as a product brand, their competitive advantages to be linked to a potential client or company, who will require their services, rather than requiring the services of another professional.

When we talk about e-branding, we are referring to the constitution of a personal brand and its visibility, positioning, reputation and communication on internet.

Specifically, according to Aaker (1996) the identity of a personal brand would be how we define ourselves to be perceived as a brand, and then to position our personal brand to the audience, in a proper way.

It is therefore important the creative concept used to present us professionally online, as well as to associate our professional values to our personal brand; for it will serve us to show the right contents associated with our professional area and our performance in it.

The concept of digital footprint, or what is the same, the information available about us online, has been treated by Lampel and Bhalla 2007 researchers; Madden et al. 2007 (cited in Labrecque et al., 2010). The researchers Safko et al. (2009) also highlight the use of social media to build a personal brand. So, we can say that the contents found online can show a not adequate personal brand, and if that image is not managed properly, can turn into a negative image.

The creation and management of an e-branding plan as a communication process, necessarily involves the same steps as any marketing plan: analysis, planning, implementation, release, implementation and control (Rodríguez et al 2010.).

Therefore, we have to analyze our footprint, what image we have on the Internet through search engines results with our full name.

There are many important reasons to work our portfolio and e-branding plan; first, puts us in the online world, which has already become a precedent for our presentation in the physical world; allows us to extend our network of contacts in a specific sector and in an easier and faster way than if we had to do it in a personal way; gives us added and essential value in a current professional context of high competition and finally allows us the access to specialized information that would be more difficult without having a digital portfolio and personal brand.

Strategy for creating an e-branding plan and a digital portfolio

"Strategist acts with intuition and logical; considering all possible options, but no detailed analysis that paralyzes or delay action; aims to achieve objectives rather than solve problems; your responsibility is great, because you can not blame anyone for his failures and because their decisions determine the long-term outcome of the war " (Sánchez-Tabernero, 2000)

Apparently, it was Socrates who made the first considerations about the similarities between business and the military, without forgetting also, of course, which is already considered a classic for
understanding the ancient origins of the applicable strategy to different fields of life and not only the battle: the book "The Art of War" attributed to Tsun Zu.

"Know thyself" would be the first axiom to begin creating a strategy for our digital portfolio and our personal branding plan; it is impossible to build a personal brand plan without knowing what our strengths and weaknesses are, to emphasize the former and minimize the latter, in addition to be clear about what we offer to the labor market and what are specialists; all considering "threats" and "opportunities" to which you can face in the workplace, particularly in the professional sector which you have to focus professionally.

Knowing our strengths also implies knowing what our best abilities and what tasks we perform with more personal gratification; then, we will decide the most adequate professional area for us.

The next questions we should ask ourselves are: why I want to build my portfolio and my e-branding plan? what goal or goals I intend to achieve with it? Promote a better digital reputation?

To have digital visibility in order to obtaining a job? Maintain our image and business contacts? To change our current work?. Accordingly, we have to keep updated our portfolio, as well as our digital presence. Then we should set our target, what industry workforce headed; and finally, through which tactics we will achieve our goal: the creation of our e-branding plan and digital portfolio.

Creating a digital portfolio and e branding plan: the case of Dr. Ana Maria Belmonte Jimenez and Communication Strategies Lab (University degli Studi di Firenze, Italy)

Communication Strategies Lab, a research center belonging to the University degli Studi di Florence, Italy, is dedicated to innovation and creativity in the field of communication strategies of companies, organizations and institutions, both public and private. The center is well noted for working with public institutions such as Craiat Research Center, Amnesty International Research Center as well as major private companies, including IBM Italy, IBM Semea, the Bassilichi Coop Group Foundation, highlighting for the latter, the development of its first social network and its e-commerce portal; between their research projects include the design of the mobile tourist application of Rimini.

In May 2014 I sent the web address of my digital portfolio by mail to the director of Communication Strategies Lab, Luca Toschi, to apply for a research stay at the center in 2015; after seeing my portfolio, the director responded positively to my request. This portfolio continues and is updated each time I expand my cv.

Then I do an exhibition of my strategy for creating an e-branding plan and a digital portfolio, through the tactics and tools that I have used.

Tactic 1: card online presentation — Tools: About.me.

About.me could be used as a card online presentation; about me is defined as:

"About.me makes it easy for people to learn about you and find your content. Create a free page in minutes with no coding required ".

With About.me, we are given the opportunity to create a personal home page in which briefly expose our biography: definition of who we are, what we look or what our purpose; after all, the formulation of our elevator pitch: the discourse of communication with which we introduced for professional reasons.

It has many customization options and is very important to choose the background image with which we will build our presentation. Another form of personalization of a great relevance is our url on About.me: it is important to build it with our real or professional name, in order to be located more quickly, and to keep consistency with our digital brand.

We can also list our interests through tags, and it is important the correct definition of them, because through them we will be found by other users of About.me. We can obtain statistics about the visits to our site and information about where they come from. Users can classify us through different sentences:

"Favourite, I love your site, great photo, great page, I'm a fan, Amazing bio, I'm inspired, I'm impressed, 're cool, creative"

In this way we can test the effectiveness of our online business card and image. It also allows the connection of the site with our profiles on social media, through the inclusion of buttons, and can
automatically connect our current professional position referenced in the LinkedIn professional network with our professional profile on that network.

In my “about me” page (the language used was Spanish) I do a little summary of my career and personally, I define myself as follows:

“I like helping others and teaching to those excited about learning (and, with a little more effort, the less enthusiastic too ;)!). Although I have a doctorate in communication, and thus become a doctor in the area, I consider that in the area of my profession and in life, I still have much to learn, so much of me as well as from others.”

My identification tags are: Malaga, Spain, Teaching and Research, University of Málaga, Università La Sapienza di Roma, ICT, Gender Communication, Italy.

Tactic 2: Personal web — Tools: Weebly

Creating a personal web is the option that offers more possibilities to configure a professional digital portfolio with the inclusion of graphics, audio and texts. Weebly offers many customizable templates and tools, easy to set up and with multiple functions.

The language of the website is Italian, due to the purpose of its realization was the admission to an Italian research centre.

The sections of the website are: home, training, publications, professional experience (university education, given lectures, research experience, participation in conferences, organizing conferences), about, contact.

The design of the website is easy and simple, with white background, header with my full name, and the home and contact page with pictures of me in a middle plane.

Each section of the website has professional photographs taken at conferences and academic events. Moreover, all publications have links to access the original documents. The web in the contact section links to my profile in LinkedIn and my email account, as well as the direction of the faculty in which I work, the Faculty of Communication Science, University of Málaga, through a google earth’s map.
Tactic 3: social networks — Tools: Linkedin

Linkedin is the most famous professional social network. In linkedin, we can expose our cv in an attractive manner, increase and maintain our professional network and belong to professional groups as well as being part of selection processes for many companies.

In my linkedin page, conducted in Spanish, I discuss my professional experience, publications, languages, education, and interest groups and associations to which I am attached.

Bibliography


Authors

Dra. Ana María Belmonte Jiménez


Teatinos s/n, Calle León Tolstoi 4, 29071, Málaga.

anabelmonte@uma.es
ePortfolio as a tool for formative assessment of knowledge and skills

Dr. Tanja Rupnik Vec, mag. Leonida Novak, National Education Institute, Slovenia

Introduction

EUfolio project

The European ePortfolio Classrooms (EUfolio) project started in May 2013 when thirteen institutions from seven countries combined their interest in electronic Portfolios as a tool for fostering students' learning. In this article we want to address two basic aims of this project: (1) to design ePortfolio models for teaching, learning and assessment use, and (2) to apply valuable real-life lessons for deepening the use of ICT (specifically the portfolio approach) in teaching, learning and assessment processes. Cyprus, Ireland, Lithuania and Slovenia (with Spain, Galicia as a joint country) are the four piloting countries, which work with teachers and support them in the processes of students’ ePortfolio implementation. More about the project in general can be read at www.eufolio.eu.

The article proceeds to present an outline of the Slovenian experience with implementation of ePortfolio as a formative assessment tool, followed by a description of the support provided (training of teachers) and explanation of some aspects of the project evaluation findings.

Slovenian pilot project

The basic aim of the Slovenian pilot is implementing formative assessment (or assessment for learning) of student knowledge and skills with the support of the developmental e-portfolio. Through the process of e-portfolio implementation teachers support their students' self-regulation skills, their critical thinking (argumentation, working with resources) - another 21st. century skill, as well as creativity, communication and cooperation. The participating teachers' developmental-research question is: “How to use an e-portfolio to empower students to plan, monitor and evaluate their own progress at different dimensions/stages of their knowledge and skills development?


There are 15 schools participating In the Slovenian pilot (13 secondary schools with students aged between 11 and 14, and two high schools with students aged from 15 and 19). Each school has formed a project team (from four – seven teachers), all of which implement the developmental ePortfolio in their classes (altogether 80 teachers and one or two classes per school).

Developmental ePortfolio

Definition of developmental ePortfolio of a student

There are different terms and definitions of an e-portfolio in educational and scientific literature. It can be described as a means of collecting of (formal and informal) evidences of achieved knowledge and skills for the purpose of self-presentation (career ePortfolio or showcase ePortfolio). Grant (2005, in Giannandrea, 2006) shows how definitions of an ePortfolio stretch between more traditional and more contemporary views. In earlier cases ePortfolio used to be defined as a means of collection of formal proofs of learning. Contemporary definitions conceptualize an ePortfolio as a description/demonstration of learning paths, career, experiences and achievements. The basic aim of such an ePortfolio is to improve student's learning through the processes of self-reflection of his/her own learning and interaction with others.

Barrett (2001, in Lambert, 2006) distinguishes between three basic aims of the e-portfolio in education - learning, assessment and presentation. A learning ePortfolio is formative in nature and is directed
towards personal development of students through self-reflection and self-evaluation. An assessment ePortfolio includes students’ reflection on their school experiences, activities and a selection of evidences, which demonstrate their skills development with the purpose of assessment. According to Barrett, the third aim of ePortfolio is self-presentation for the purpose of searching employment.

Baumgartner (2011) formed a taxonomy which distinguishes between 12 types of e-portfolios, structured by the owner and the product/process. The highest level of his taxonomy is represented by a reflection, development and presentation portfolio. Each type can be further subdivided, depending on who owns it (depending on its author). The two types of the reflection e-portfolio are a) personal portfolio (learning e-portfolio), with the basic aim of knowledge and competences acquisition and b) the organizational e-portfolio (assessment e-portfolio), focusing on evaluation of knowledge and competences. The two types of the development portfolio are a personal development portfolio (supports development of student’s personality) and a career portfolio (it is organizational and supports professional career). The personal alternative of the presentation portfolio is a demonstration portfolio, with the basic aim to demonstrate one’s own products and competences. The organizational alternative of the presentation portfolio is a professional portfolio, with the main aim to demonstrate business products and competencies. There is also the third level of differentiation of e-portfolios, regarding the products and processes behind. So, for example, an assessment portfolio can be summative or formative in nature and a developmental portfolio can be a qualification portfolio (showing results/products of skills and abilities) and a competence portfolio (e.g. showing author’s self-organization and other competencies).

The concept of our (Slovenian) e-portfolio is based on the combination of all three Baumgartner’s types of e-portfolios, with a slightly stronger accent on its developmental function (end reflection being in the core of conscious and planned self-development). For the purpose of our project aims the developmental electronic portfolio of a student stands for/represents a virtual environment in which a student plans, monitors, reflects on and evaluates his/her own work and progress at different dimensions of learning, particularly knowledge and skills. This definition is based on the previous definition of a developmental electronic portfolio of a teacher (Rupnik Vec in Stanojev, 2013). The most important function of an e-portfolio, as we define it, is its developmental-reflective function, or its potential for supporting self-development in planning and reflective and self-evaluative processes of an individual. In this process an individual takes on the responsibility and cares for his/her own learning, progress and development, as well as plans and implements it systematically. Besides, this process enables him/her to raise his/her awareness of his/her own learning needs, learning styles, which enables him to plan and monitor his/her individual learning path more efficiently.

Developmental e-portfolio as a tool for formative assessment of knowledge and skills

Assessment for learning includes two phases: diagnostic and formative assessment. The latter should be based on a variety of information sources (e.g. portfolios, work in progress, conversation, student-teacher conferences etc.) (Sentocnik, 2012). According to Clarke (2008) formative assessment is recognised as an important strategy in raising student’s achievement. For the purpose of the Slovenian Eufolio project AFL is defined as a group of strategies (William, 2013). The key highlights of these strategies are:

- participation of students in creating the learning purposes and determining the success criteria,
- building on students’ prior knowledge,
- providing effective feedback,
- collection of diverse evidence of learning,
- peer-learning as a source of learning and teaching

As one of the two general aims of the ePortfolio pilot in Slovenia is implementation of the assessment for learning (AIL) or formative assessment (FA) principles using the e-portfolio, teachers encourage students to self-evaluate their knowledge and skills. Doing so, students get an opportunity to identify their strengths and weaknesses and then, considering their findings, they specify their personal goals and success criteria in the context of the goals set by their teachers. With formative assessment knowledge is built on student’s strengths and his personal interests (Komljanc, 2008). Student’s strong background knowledge can help reduce his/her weaknesses and explore new knowledge. A student is directed to a personal goal, described as an expected result, adjusted to the curriculum standards of knowledge (Komljanc 2009).
For the purpose of ePortfolio creation and organisation of the above mentioned activities, an open code application Mahara has been used with a new feature, My learning rubrics, programmed and integrated into its Slovenian version, following the AfL principles.

The feature consists of the following five elements:

a) Aims of learning

Bandura (1997, p. 11) shows that emotions, effort, perseverance and learning affect an individual's assessment of learning effectiveness. With this in mind, we can say that motivational factors and emotions have a major indirect influence on student's learning achievements. Students should be assisted in setting realistic goals. When the student adopts the goal that he himself has set, then adopting/reaching targets encourages his motivation. When students see how the goals are supposed to be set and eventually reached, their self-esteem improves and they take on greater responsibility. Achieving short-term goals help the student gain a sense of self-efficacy. Komljanc (2009) argues that personal goals offer opportunities for independent, collective learning and performance outcome respectively. To have maximum impact, success criteria must be generated by students (Clark, 2008, p. 93). Different tools and procedures for co-planning goals and success criteria can be used, such as sample case studies, discussions etc.

b) Prior knowledge

Planning learning goals needs to focus on what students already know, what they want to know (knowledge), what skills they want to learn (processes) and how they might go about learning (the context) (Clark, 2008, p.71). Activating prior knowledge should include (Pintrich, 2005): content knowledge (Know what? - information, data, facts, concepts, schemes), procedural knowledge (Know how? - how to perform certain things) and knowledge of circumstances (when and how to use the content knowledge). Options that are explored range from questionnaires, role play, records, reports about What do I already know?, check lists, to group conversations.

c) Strategy

On the basis of student's prior knowledge, the teacher plans strategies and methods of work. Students and teachers jointly select, plan, implement, evaluate instructional paths and approaches through which they can attain the standards of knowledge – with the personal goal of the learner in mind.

d) Evidence

The student considers ways of proving that the objective is achieved. Through the process of learning and reflection he assesses the proof of his learning and identifies the goal reached.

e) Self-assessment

Teachers organize discussions based on students’ ePortfolios about their achievements, which prove that the objectives were reached, so students can choose the evidence they want to use for each goal. During the stage of self-reflection, students use a variety of devices (cues, questionnaires etc.) and receive feedback (from teachers, classmates). Options for implementation: anecdotal records, checklists, learning diary/blog feedback, reflection and goal-setting diaries/blogs, questionnaire, reflective letters etc.

Portfolio is a demonstration of student's progress, achieved with quality formative assessment of a teacher, parent's encouragement and the use of different sources and learning opportunities (Komljanc, 2009). During the AFL (assessment for learning) or formative assessment (FA) process, as we define it, teachers encourage students to evaluate their knowledge and skills prior to portfolio introduction. By doing so, students get an opportunity to identify their strengths and weaknesses and then, considering their findings, they specify their personal goals and success criteria in the context of teachers’ (curriculum) goals. Teachers organize discussions about students’ achievements, which prove that the objectives were reached, so students have the opportunity to choose the kind of evidence they want to use for each goal. During the stage of self-reflection, students use a variety of devices (cues, methods, questionnaires etc.) and feedback (from teacher, classmates etc.) throughout all stages of the process. It is essential the student receives feedback, which is specific, descriptive, and relates to the student's intended goals. Checking their success against the set criteria, helps students to reorganize what they have done, and empowers them to decide what they want to do on their way towards the learning goals and success criteria (Sentočnik, 2012).
Mahara as a virtual space for creating developmental ePortfolio

To fulfil the purpose in our project we use an open coded web application Mahara. It was developed in New Zealand for the purpose of creating e-portfolios and it suits most of the needs of our project. Our programmer upgraded Mahara with two new functionalities: Questionnaires and My Learning marker. The latter directly supports the formative assessment process and guides student's thinking (e.g. about an issue or a skill) through the following five steps: 1. Setting goals (What are my goals?), 2. Identifying prior knowledge/skills (What I already know about this? What am I already able to do? How good am I at this particular skill now?), 3. Strategy setting (How will I reach this goal?); 4. Evidence (How will I prove that I have reached the goal?), 5. Self-evaluation, feedback (How effective was I at reaching my goals?).

Initial teacher training and further trainings and support for e-portfolio implementation in Slovenian pilot schools

Pre-implementation training and support

The pre-implementation teacher training and support program has focused on the following three topics: Developmental e-portfolio of a teacher, formative assessment and 21st century skills.

Developmental e-portfolio of a teacher
A hybrid (half in-vivo and half on-line) seminar with the title Developmental e-portfolio of a teacher was organized by the strategic team of the National Education Institute of Slovenia. The seminar attendance was a necessary precondition for a teacher to participate in the EUfolio project team. The decision to invite all the interested teachers to this initial seminar was based on the assumption that teacher’s experience in creating his or her own e-portfolio would be very helpful in his grasping the essence of the developmental e-portfolio as well as some other background theoretical concepts (for example, assessment for learning, self-reflection and self-regulation skills), and, later on, in planning, teaching and designing learning activities for their students. The seminar was expected to have a strong positive effect on teacher’s self-reflection and self-regulation skills.

The seminar consisted of three parts: 1. getting to know and understand the e-portfolio concept and considering/ the Mahara functionalities as one of the possible e-portfolio platforms, 2. nine activities/tasks were organized in three groups, focusing on different aspects of teacher’s professional role and professional development (first group of tasks, named Me as a teacher: Who am I as a professional?, My philosophy of teaching, My strengths and my weaknesses; the second group of tasks, named My professional plans and my professional learning: My professional vision, My short-term goals, Learning from each other; third group of tasks, named My achievements and my successes: Formal achievements and e-competencies) 3. exchanging ideas, reflecting on the seminar outcomes, using the critical friendship method regarding teachers early plans to use the e-portfolio in their teaching.

Teacher training for integration of formative assessment philosophy to e-portfolio
As mentioned before, one of the two general (major?) aims of the e-portfolio pilot in Slovenia is implementation of formative assessment (FA) principles in using the e-portfolio (Mahara). A one-day workshop was organized in order to discuss the FS theoretical framework as well as to share examples of good practice and create some initial ideas about how to support the assessment for learning process with the Mahara features. As the Slovenian version of Mahara (www.listovnik.si) contains an extra feature My Learning marker, which was created with the specific aim of supporting the assessment for learning process, the main workshop challenge was to discuss the possibilities of integrating this feature in the teaching and learning processes.

Teacher training for using an e-portfolio as a tool for supporting (some of) 21st century skills
The third very important aim of the Slovenian pilot is using e-portfolio as a tool for enhancing some of the 21st century skills, in particular 1. self-regulation, 2. critical thinking (argumentation and working with resources), 3. creativity, and 4. cooperation and communication skills. Two 6-hour workshops were organized, focusing on each of these skills (eight workshops altogether). The members of the school development teams chose to work on one of the above mentioned skills and participated in both workshops. The first of the two planned workshops, focusing on a specific skill was implemented as a pre-pilot activity, while the second one was run during the pilot stage. The seminar programme was designed to cover theoretical background (ex. 1) - different theoretical concepts of each skill, and then focusing on one single perspective; examples of good practice – case studies, 3) putting the skill in the context of FS and e-portfolio philosophy – using the My Learning marker in Mahara, 4) planning
different strategies in motivating and supporting students to define their own goals, prior knowledge, strategy, evidence and self-reflection; planning activities for a concrete curriculum content and exchanging ideas.

**Supporting teachers during the pilot implementation**

During the pilot implementation the NEI staff supports teachers in two ways: a. we organize regular meetings of school project team members with a NEI consultant (each school has their own consultant) and b. we organize workshops to exchange ideas and teachers’ solutions and to enhance their understanding and skills of using the ePortfolio in teaching. The basic aim of these reflective meetings is to support teachers when things seem complicated to them and to guide their thinking in the desired directions. As integration of all Slovenian pilot project theoretical basis and concepts (developmental e-portfolio, FA philosophy, explicit teaching of 21st century skills) is quite a complex task for the majority of the participating teachers, our meetings with these small teams are organized on monthly basis.

With the aim of deepening teachers’ knowledge and skills in all the above mentioned concepts (FA, teaching of skills, integrating both in using the e-portfolio) a number of workshops have been planned. The following during-implementation workshops have been carried out so far: 1. Intensifying the use of Mahara and some of the other ICT applications useful in teaching (Socratic, Jing etc.) 2. How to use the e-Portfolio to support the development of students’ 21st century skills? – exchange of teachers’ ideas.

The teachers reports and materials, created in the first (of the three planned) cycle of their teaching based on the Slovenian Pilot theoretical concept, have been stored in the EUfolio web classroom ([www.sio.si](http://www.sio.si) à Eufolio). Some of them are planned to be translated and accessible at the Slovenian EUfolio web page in near future (in preparation at the moment).

**Future plans**

The e-portfolio as part of the Slovenian pilot (with Mahara as a the platform) has been conceptualized as a personal learning, reflective and self-assessment space of an individual student in which she/he can plan, do, monitor and reflect about her/his learning (development) in different areas of knowledge and skills. In other words, the Mahara platform has been used primarily for self-reflection and self-regulation of learning of a single student. Cooperation and sharing of the content has been made ‘subordinate’ or secondary to this aim.

During the next stage of the Slovenian pilot we want to test the Mahara platform as a space for collaborative learning (as a web classroom), therefore we plan another set of workshops and reflective meetings, to successfully fulfil this goal. Finally, in autumn, we are planning to invite teachers to test the MS Office as a platform for creating the e-portfolio of a student.

**Aims of the evaluation**

In the project we want to answer the following questions:

2.1. What was the teachers experience with ePortfolio implementation this year?

2.2. In what manner is the basic concept reflected in teachers’ learning designs (formative assessment)? To what extent and how often are teachers planning to implement all elements of the project (working with ePortfolio, the AFL and the development of 21st century skills).

**Methodology**

With the first research question in mind we interviewed eight focus groups (a project team from one school formed a focus group).

The interview consists of five themes (discussion areas): 1) View backward, 2) The role of formative assessment in teaching 3) Implementing of developmental ePortfolio: challenges and prides, 4) Reactions of pupils, 5) Challenges for the future. The exact questions for each theme are in appendix 1.

With the second research question in mind we analyzed 45 learning designs. The check-list we used is in appendix 2. Teachers upload data in Moodle four times a year to cast their learning design templates. Among the cast of preparation, we selected 40 random preparations and analyzed them. The analysis also captured learning design templates for 14 different school subjects. All learning design templates included learning topics in a period from 3 to 10 hours of instruction.
Data was collected by analyzing the learning design templates. We recommended basics for learning design templates to teachers in advance and these basics had specific elements (learning goals and outcomes/activities and tasks for learners, teachers operations, tools, methods and forms, expected learning output). Example form for extemporaneous preparation is at Appendix 1. In advance, we prepared the accompanying scale with defined areas of monitoring criteria and descriptors (Appendix 2).

We wanted to know whether the stage when school teachers include ePortfolio is evidential from the preparations and which components of ePortfolios do teachers most often choose. the extent to which systematically planned integration of the principles of AFL are included and how intensively teachers systematically plan monitoring the development of 21st century skills into their learning design templates.

Overview of learning design templates in terms of formative assessment consisted of: verification of knowledge, planning goals and (criteria) success, designing learning strategies, collecting and assess evidence of learning, self-evaluation.

In addition, we determined whether feedback is included at all stages and who provides it.

Also, we were interested in what planned feedback was directed. Within the observational elements that relate to ePortfolio (Mahara) frequency and diversity of involvement blog / diary, a forum, My Learning tab, Mahara as a virtual classroom and other uses were monitored. Planned development of the skills were observed through the involvement of the tab My learning of skill, with connection of formative assessment with the skill and with methods designed to develop skills. Collected data enabled us that we were able to: observe frequency of integration of the essential elements in the development of the project design; assess the reasonableness of ePortfolio involvement in the school; assess the situation in the field of formative assessment; have insight into the intermediate results inbetween of the project; plan objectives for the further education of teachers.

Results and interpretation

Focus groups

The interview was divided into five areas. In the first group of questions we search for teachers conceptions of formative assessment and ePortfolio before they entered the EUfolio project. The prevailing answer was that they have no knowledge at all or that they have very superficial knowledge or just different conception (in comparison to ours) about formative assessment and ePortfolio. In two focus groups some teachers understand the formative assessment as teacher’s matter:

“I understand formative assessment as a notebook in which I wrote student's mistakes. Student was not actively involved in the process.”

In the case that they knew the idea of ePortfolio, they conceptualized it as a collection of learning proofs and results (showcase ePortfolio). Some of teachers intuitively used some elements of formative assessment (feedback as an example). As two teachers stated their experience:

“I regularly give feedback and suggest some students with learning problems how to improve their learning, but I never did this systematically." “I used formative assessment when I worked with students with special needs in the sense that I supported analysis of their work and mistakes and planning the future steps.”

Before starting the project they also didn’t support the 21st century skills systematically and explicitly. Seven teachers also said that they didn’t pay any attention to chosen skill, seven just occasionally.

At the start of the project the biggest challenge was use of ICT, as eleven teachers mentioned it. For others the challenge was also starting with assessment for learning, time management, making sense of using ePortfolio for children and integration of all new concepts (ICT, formative assessment, explicit teaching of 21. cent. skill). Among participating teachers nobody used ePortfolio to support formative assessment or 21st cent skills before. Some teachers use Moodle classrooms and other ICT tools but not as a tool for formative assessment or skills development.

The second group of questions focuses on the actual conception of formative assessment. We are interested in potential changes in teachers’ attitudes toward the phenomenon and asked them how they see the role of the formative assessment now, after a year of implementation. Twenty teachers see formative assessment as very important process with the crucial aim to support student's self-regulation of his or her work, learning and achievements. Some citations from this section:
Formative assessment (FA) is something that I must develop further. It’s a challenge for me, I want it really make alive in my teaching. It’s something that I believe in with all my heart, because enable children to hold the rudder of their learning in their hands.” “It’s important. It’s becoming my style of teaching and I want to transfer the idea into other non-project classrooms too.” “For me the FA is planned learning with the view backward and forward.” “The point of FA is the change in teaching and learning: students are active, they learn to learn, are independent, more critical, more responsible and hard working.” “FA is a tool for empowering children. It would be super if our system would support it from the beginning of schooling.”

On the question which element of formative assessment is the most important for teachers the majority mentioned self-reflection (eight teachers), five teachers pointed out that all elements are equally important. The rest of answers disperse between other categories: planning strategies of learning, raising awareness of prior knowledge, getting and giving feedback and goals setting. Nobody mentioned the cooperative articulation of success criteria.

The next theme was ePortfolio implementation: their prides and sorrows. In most project teams teachers cooperatively invite children to Mahara and gave them some fun challenges: create an interesting profile, chat, form groups. They introduce the Mahara as a social network:

"Mahara is like Facebook. … We will socialize with each other, share things and learn in this web setting."

The biggest challenge was Mahara itself, as nine teachers explained. Some teachers (five) explicitly mentioned that even after one year they are still having some troubles using it. But, said teachers in two project teams, they see the benefits of ePortfolio even though they thought at the beginning of the project that they will abandon it and use just portfolio as FA tool (the non-e variant) in this year change the perspective:

"ePortfolio is fine. FA can be without ePortfolio, but we will implement it in future into lower classes. We are going to start without e-variant, on paper maybe, but in higher classes we will definitely use ePortfolio." Second team: "At the beginning we saw the ePortfolio as a real obstacle, the more important was FA process for us. We decided that FA will stay and ePortfolio will go away after the project. But now we see how precious it is. We will keep it definitely in the future."

For four teachers ePortfolio is not so important, but for the rest is quite important because it relieves some processes in classroom (giving feedback, reflection, goal setting, motivation of students, student is more active, teaching is more student-centered). Nine teachers mentioned My Learning feature in Mahara as really useful function to direct student's thinking through the whole learning process and supports self-regulation of their learning. Systematically following the FA process is mentioned as a biggest change in their teaching (twelve teachers mentioned that), for example:

"We follow the phases of formative assessment systematically and we join the children in all steps.” “Children work more autonomously, they set goals and take responsibility for their learning. That was absolutely not true before.”

Teachers differ also in their specific goals in the project. In three teams teachers want just “to survive … the integration of all new concepts was really a challenge”. But some of them set specific goals. Seven teachers specifically wanted to co-create goals and success criteria with their pupils and they were successful in this, one want to work on feedback and one wanted “to leave children responsibility for their learning.” All teachers with specified goals mentioned that they want to develop these new skills further. Seven teachers are very proud on the fact that they use My Learning feature successfully with their pupils. They also are proud on their own learning in the project:

“T’im proud on my learning, a progressed from cycle to cycle. After the third cycle in Mahara I feel really good.”, “I’m proud on the fact, that in this project I step out of my daily routine in the classroom.”

The responses of children on FA and ePortfolio (Mahara) ranged from rejection to enthusiasm, but majority finally accept the tool. They were enthusiastic about Mahara at the beginning, but some technical problems demotivated them. Now, communicate teachers, the use of My Learning feature becomes routine: “Motivation also depends on the kind of activity and it swings through cycle.” “Children become better in their ability to articulate things.”

The last interview theme focused the teachers’ view into the future. The most frequent answer (N=9)
was: “We want to spread the idea of FA and ePortfolio in other classrooms.” Seven teachers want to use Mahara also as a web classroom, other seven of them want to use My Learning feature more systematically. Other answers were separate and reflect specific insights and learning of teachers, for example:

“I noticed how giving constructive and specific feedback is important for children. I want to improve my skill of giving strong feedback.” “I want to be more flexible and to learn to get attached to children prior knowledge in my lecture design.”

The last question was: If you could influence on educational politics in the country, would you support the idea about obligatory implementation of formative assessment and ePortfolio? In all project teams teachers support obligatory implementation of formative assessment, but not urgently with support of ePortfolio:

“ePortfolio should be optional.”, “Before obligatory implementation of ePortfolio we should give it more meaning.” “Our syllabuses are too full of themes and facts. For ePortfolio implementation we should relieve them of unimportant content and than, ePortfolio: yes!”

Analysis of learning design template

a) The integration of elements of the formative assessment process in learning design template for the topic

We found out that the majority of teachers whose learning design templates were analyzed (table 1) included elements of FA in their lessons. Differences between teachers are shown in all phases of instruction. A more detailed analysis shows that in 31 cases, teachers checked prior knowledge, in 9 cases they didn’t. Planning goals with the students was realized in 39 of 40 cases. Somewhat less is planned to design learning strategies (25 cases). Less than half of cases (N=19) show the aspect of collecting evidence of learning and judging them as confirmation of learning and progress. The great majority (N=39) of teachers included an element of self-evaluation in their learning design. We noted that in 31 cases they explicitly planned giving feedback on children’ work (results). The majority of planned feedback was between teacher and a pupil, less teachers planned the exchange of feedback between student (peer feedback) (N=15). Teachers rarely planned feedback on pre-knowledge, skills and learner’s progress. In cases that involve feedback, most of them is planned in the orientation of planning goals and strategies (N=9) and collect evidence of learning (N=9).

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Table 1: Areas of criteria and descriptors for the analysis of learning design templates in terms of AFL

Analysis of learning design template from the point of view of formative assessment shows that students realize the importance of each element, but the greatest emphasis is placed on planning goals / strategies and self-evaluation. Also prior knowledge is included, but they are not planning the analysis of the results which would verify prior knowledge and would be essential for the further
workflow. Feedback is designed in a way that the teacher gives it to the student, less than a peer feedback. With their planning teachers also showed that the feedback is tied to the learner’s plan and gathered evidences, less on the process and progress.

b) Integration of ePortfolio (Mahara) and the frequency of using its elements

Analysis of data showed that teachers are largely relying on My Learning tab (in 35 out of 40 cases) (table 2). According to the frequency use of forums and blogs is planned. Lessons planned with the Mahara as a cooperative learning classroom was not detected in selected cases.

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</tbody>
</table>

Table 2: Fields, criteria and descriptors for the analysis of preparations in terms of ePortfolio (Mahara)

We believe that such results are a consequence of thorough preparation of teachers in the integration of elements of the AFL in working with ePortfolio as the flap My Learning helps them with the creation and later the implementation of process of teaching. Mahara also allows the creation of teaching and learning process in the form of virtual classroom, but we discovered that the teachers involved in the project do not use it yet.

c) Inclusion of systematic development of skills in the preparation of the teacher

In their lesson preparation one-tenth (N=4) of the teachers include the development of skills, namely through the My Learning tab (table 3). Rarely (4-fold) they reported usage of My learning in the development of skill they were focused on. Methods that teachers used in the skills development are linked to the selected skill. In the most of cases we found creative writing, evaluating and questioning the skill of critical thinking (6 times), solving problems and creating new cases in skill Creativity (4 times), collaborative learning and work, pair work in skill cooperation and communication (4 times) and the use of sources and citations skills (3 times).

<table>
<thead>
<tr>
<th>Area of monitoring</th>
<th>Criteria</th>
<th>Descriptors with frequencies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>My Learning – self-regulation of skill</td>
<td>YES = 4</td>
</tr>
<tr>
<td></td>
<td>AFL aimed at developing skills</td>
<td>YES= 4</td>
</tr>
<tr>
<td>21st century skills</td>
<td>The method used to develop skills</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skill Critical thinking</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Creative writing, really a problem (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>evaluation (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Questioning (2), Work with text (1) Round Table (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skill Work with Resources: resource use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Working with resources – citations (1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skill Creativity Solving an open problem (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Creating a voice / Dance accompaniment / choreography (2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skill Cooperation and communication: group work collaborative learning (4)</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Areas of criteria and descriptors for the analysis of preparations in terms of skills

We estimate that systematical work on developing skills through ePortfolio will still be necessary, since the majority of cases show no systematic planning of monitoring it.

Analysis of learning design template shows that teachers most commonly targeted items in the formative assessment and ePortfolio are using the My Learning tab, rather than the development of skills. ePortfolio is reasonably and effectively involved in the planning, as it allows teachers to track key elements of formative assessment. Neuralgic points which are based on the analysis of extemporaneous preparations are: comprehending verification of prior knowledge, multi-directional
feedback and systematical with ePortfolio supported development of the skills. In the future the project will be directed in the way to remedy these gaps.

**Conclusion**

It’s evident that some changes in teaching are made by Slovenian EUfolio teachers this year. From NEI staff perspective most of the reported changes are relevant and are the response to the aims of our project. Firstly, all teachers implement some elements of formative assessment, at least, as they reported in interviews and as it is evident from their learning designs. Secondly, all teachers led their student at least four times in virtual classroom (or personal virtual space) to create some elements of ePortfolio. So, about 350 Slovenian students have their own ePortfolios with some content (and all our teachers also have, but it’s not the theme of this article). All those students fulfilled at least three times My Learning tab (in Mahara and some on occasionally on the paper) and have some experience with self-regulation of their own learning. This is quite important experience for both, our teachers and our students, as in Slovenian school culture the responsibilities for learning are frequently not divided between students and pupils: teachers often take too much responsibility for students learning (they control every children’ move and push pupils to work and learn) and, complementary, pupils take to less responsibility for their learning and results (and wait to be pushed and attribute guilt for their failure to teachers). One of the most relevant, but not articulated aim of our project is also to influence the tacit cultural biased assumption about teachers/pupils responsibility. But, our project is just at the beginning now: one year is not enough and one project with limited number of teachers involved is not enough. But formative assessment with the help of ePortfolio is strong tool to reach this goal. After many years, we suppose.

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**Appendix 1**

**Focus group interview – examples of questions**

1) **View backward:** How did you understand the concept formative assessment before entering the EUfolio project? What were the biggest challenges for you at the beginning of the project? How re you experienced your starts?

2) **The role of formative assessment in teaching:** How do you see the role of formative assessment
now, after a year of implementation of ePortfolio as a FA tool? What is in your opinion the essence of FA? Which element of the formative assessment process is the most important from your perspective?

3) Implementing of developmental ePortfolio: challenges and prides: How did you start with ePortfolio? What did you say to children, how did you explain the benefits of doing that? What was the most challenging at first? What makes using child’s ePortfolio easier for you? What makes using child’s ePortfolio more complicated for you?

4) Reactions of pupils: How did pupils react? What are they keen on? What they don’t like regarding ePortfolio?

5) Challenges for the future: What are your plans for the future? What do you want to try out? What will you certainly not do in the future regarding formative assessment and ePortfolio?

**Appendix 2**

**Learning Design Template**

<table>
<thead>
<tr>
<th>Activity</th>
<th>LEARNING OUTCOME</th>
<th>TASKS</th>
<th>TOOLS</th>
<th>Methods and forms</th>
<th>LEARNING OUTPUT expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEARCH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. SEARCH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSTRUCT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. CSTRUCT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CREATE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.CREATE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHERE/REFLECT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. SHERE/REFLECT</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
From single evidence collection to reflection on learning over time: process and product eportfolio in Teacher Education. A case study

Gemma Tur, Santos Urbina. University of the Balearic Islands

Abstract

Process and product eportfolio have been one of the most relevant debates in eportfolio literature for a long time. There is numerous research on diverse aspects of eportfolios such as reflection, collaboration or digital development. However, the implementations of eportfolios reported in research do not address the aspects in relation to the differences between product and process eportfolio. This study offers some data collected from student teachers’ process and product eportfolios and some of their perceptions on the contribution of what the eportfolio presentation means for their learning. Data collected allow us to observe the difficulties in the first steps of student teachers, the development of their skills over their years at university and the positive final perception of the eportfolio presentation. Conclusions arise some implications for further research of eportfolios in Teacher Education.

Key words: eportfolio, process eportfolio, product eportfolio, Web 2.0, Teacher Education

Introduction

There is a wide range of definitions of ePortfolio that consider different aspects and issues raised by technology, collaboration and ownership, among others. However, this paper focuses on one of the most interesting classifications of eportfolios: process and product (Barberà and Martin, 2009; Zubizarreta, 2009; Barrett, 2010; 2011; Cambridge, 2010; Mellado, 2010; Coromina, Sabate, Romeo and Ruiz, 2011). The former is aimed at showing the evolution of learning, reflecting on single evidence, which is periodically updated (Rubio and Galván, 2013); the latter is aimed at demonstrating the result of this learning process. Both concepts are not mutually exclusive but in fact complementary (Barberà and de Martin, 2009).

Background

A like balance in mental life characterizes process and product. We met one important phase of this adjustment in considering play and work. In play, interest centres in activity, without much reference to its outcome. The sequence of deeds, images, emotions, suffices on its own account. In work, the end holds attention and controls the notice given to means. Since the difference is one of direction of interest, the contrast is one of emphasis, not of cleavage. When comparative prominence in consciousness of activity or outcome is transformed into isolation of one from other, play degenerates into fooling, and work into drudgery. (Dewey, 2008, 350-351). However, Dewey (2008) talks about the contradiction observed at school when at the lower levels only play is introduced, and later on, work is suddenly challenged. School fails in combining both because, without the aim of the result, the activity can lack any sense. But also, only with the aim of results, work can lead to boredom. So, there is a need to introduce a balanced methodology in relation to play and work, process and product.

When all reference to outcome is eliminated from the sequence of ideas and acts that make lay, each member of the sequence is cut loose from every other and becomes fantastic, arbitrary, aimless; mere fooling follows. There is some inveterate tendency to fool in children (…). But when it is excessive in amount, dissipation and disintegration follow; and the only way of preventing this consequence is to make regard for results enter into even the freest play activity. (…) Exclusive interest in the result alters work to drudgery. (…) The argument that children should be kept doing drudgery-tasks because thereby they acquire power to be faithful to distasteful duties, is wholly fallacious. Repulsion, shrieking and evasion are the consequences of having the repulsive imposed –not loyal love of duty. (Dewey, 2008, 350-351).
There are several theoretical frameworks and definitions that have been able to represent the complementary relationship between eportfolios as process and product. Barrett (2009; 2010; 2011) has described the eportfolio activity as carried out in three main steps: artefact creation, collection on a chronological basis and final presentation. The first two steps can be understood as the creation of the eportfolio during the process, over a period of time when learning takes places. The final step is the product, which consists of the reorganization of learning in, e.g., competence achieved. The metaphor of the museum by Cambridge (2013) is also very interesting for the understanding of the role of the product eportfolio: the selection and recontextualisation of collected evidence through time, which can also be a collaborative task.

However, one of the best concepts describing the development of process and products are the constructions of two selves: the “networked self” and the “symphonic self” defined by Cambridge (2009; 2010). The former takes advantage of social software to create connections with others, while documenting learning in the meantime. The latter is more individual, calm and needs time to make connections among learning over time.

As for affordances of the construction of the “networked self”, it has been argued to be suitable for the development of student teacher Personal Learning Environment (PLE) (Tur, 2013a; 2013b; Tur and Urbina, 2012a; 2012b) which has been defined as the set of tools, activities and connections that ones has for learning (Adell & Catañeda, 2010; Castañeda & Adell, 2013).

![Figure 1. The networked self for the development of the PLE (Tur, 2013b)](image)

In fact, the close relationship between eportfolios and PLE has been reported in recent research, as the following figures demonstrate:

![Figure 2. Eportfolio & PLE (Salinas, Marín and Escandell, 2011)](image)
Coromina, Sabate, Romeu and Ruiz (2011), based on Barrett’s framework, understand these complementary concepts as two steps in the ePortfolio construction. The following is an interesting graph where we can observe that the creation of artefacts is considered outside the cycle of process and product of eportfolios.

Jones (2011, 81) differentiates between product and process when explaining showcase and repository. The former is described as the “tool to highlight skills and academic accomplishments”, and the latter as “digital collection of artefacts organized chronologically to support growth over time”.

The JISC has also successfully solved the relationship between the process and product concept on ePortfolios:

An e-portfolio is the product, created by the learner, a collection of digital artefacts articulating experiences, achievements and learning. Behind any product, or presentation, lie rich and complex processes of planning, synthesising, sharing, discussing, reflecting, giving, receiving and responding to feedback. These processes –referred to here as “e-portfolio-based learning” – are the focus of increasing attention, since the process of learning can be as important as the end product (JISC, 2008, 2).
The study

Context

Since the school year 2009-10, an eportfolio project has been implemented in the Early Childhood Teacher Education programme of the University of the Balearic Islands, in Ibiza. The experimental implementation finished in the school year 2012-13 when three students of the first graduation class (31 students) presented their eportfolio for capstone assessment.

Based on the theoretical framework briefly developed above, students built their process eportfolio with blogs and they created artefacts with all kinds of Web 2.0 tools. The usage of the social software has been reported as a two edged sword, since its openness has been observed both as an affordance and as a limitation (Tur and Urbina, 2013). Students built their process eportfolios over the four years of training considering the whole programme as an inter-context where transitions between school years are also scaffolded by a tutor.

Figure 5. Transition in the intercontext of the Teacher Education programme (based on Rodríguez Illera, 2011)

The technological environment during the process includes a Virtual Learning Environment in which formal assessment is carried out; blogs as eportfolio platforms; and an RSS site, based on Netvibes, where all eportfolios can be joined in order to enhance collaboration and sharing among students cohorts, following the idea of “netfolios” initiated by Barbera (2009). During the process, a tutor is assigned for the construction of eportfolios to scaffold reflection especially during transitions, whereas lecturers are responsible for the assessment of pieces of evidence assigned in some subjects included in the programme.

Figure 6. Technological platforms (Tur, 2013)
Afterwards, they used Google Sites to present their product eportfolio in which they were asked to link evidence amassed over the years and reflect on their learning process. The same tutor is assigned to support the competence reorganisation for the eportfolio presentation. The final mark of this last eportfolio step is decided after the oral defence in front a panel for capstone assessment. The eportfolio during the training programme is compulsory for students whereas the final presentation for capstone assessment is voluntary since students can choose between a wide range of final projects for capstone assessment.

Methodology, research questions and instruments

From a qualitative perspective, and based on a case study methodology this research focuses on three eportfolios built over a four-year process and presented for capstone assignment. The analysis of the process eportfolio demonstrates the first two school years of experimental implementation. Different instruments have been used for data collection. First of all, eportfolio content has been analysed in order to obtain data on artefact collection and evidence documentation. Secondly, a rubric on reflection on learning in both the process and product was observed. Thirdly, a Likert scale was also used to measure student attitude during the first years. And finally, students' interviews were carried out and analysed in order to see their perceptions of the role of both processes.

Results

Content analysis

<table>
<thead>
<tr>
<th></th>
<th>2009-10</th>
<th></th>
<th>2010-11</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EV</td>
<td>WORDS</td>
<td>PIC NO CC</td>
<td>PIC CC</td>
</tr>
<tr>
<td>St1</td>
<td>70</td>
<td>2798</td>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>St2</td>
<td>6</td>
<td>1487</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>St3</td>
<td>91</td>
<td>34946</td>
<td>29</td>
<td>45</td>
</tr>
<tr>
<td>Average</td>
<td>19</td>
<td>4788</td>
<td>9</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 1. Content analysis. Process eportfolio

At the very beginning of the construction of their eportfolios, two students created evidence and artefacts above the average of the rest of the groups. However, student 2, due to her initial scepticism, needed a year to see the usefulness of her eportfolio, and only in the second school year did she start to create her eportfolio above the average production.

Data about the use of images was collected differentiating the use according to Creative Common licenses, with the hypothesis that the more digital skills, the more respect for authorship. Thus, it can be observed that students in year two used more pictures respecting their licenses than in year one. Also, the use of artefacts made by themselves increased in the second year whereas those made by others decreased (in the case of students 1 and 2). Comments on their eportfolios were very few during the two first school years which can lead us to consider the initial difficulties for peer to peer support.
Knowing (scientific competence) | Knowing how (methodological competence) | Knowing to be (professional competence)
---|---|---
St1 | 52 | 24 | 21
St2 | 28 | 29 | 42
St3 | 33 | 35 | 34

Table 2. Content analysis. Product eportfolio

The product eportfolio meant a reorganisation of the artefacts and evidence collection over the years. The professional competence acquired through the Teacher Education programme at UIB were structured based on Delors (1998) three main competences: knowing, knowing to be and knowing how. As can be seen, students had collected many artefacts over the four years, and the chronological collection was reorganised based on professional competences.

Tools used by students

<table>
<thead>
<tr>
<th>2009-10</th>
<th>2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blogger</td>
<td>Slideshare</td>
</tr>
<tr>
<td>St1</td>
<td>x</td>
</tr>
<tr>
<td>St2</td>
<td>x</td>
</tr>
<tr>
<td>St3</td>
<td>x</td>
</tr>
</tbody>
</table>

Table 3. Content analysis. Use of Web 2.0 tools for the artefact creation. Process eportfolio

As it can be observed, the fact of constructing artefacts to demonstrate learning with Web 2.0 tools made students enhance the use of ICT for learning, which at least, it is about empowering the abilities for creation in the virtual world as part of their PLE.

Rubric implementation

<table>
<thead>
<tr>
<th>2009-10</th>
<th>2010-11</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5</td>
<td>6-11</td>
<td>12-17</td>
</tr>
<tr>
<td>BAD</td>
<td>ENOUGH</td>
<td>GOOD</td>
</tr>
<tr>
<td>St1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>St2</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>St3</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

Table 4. Rubric results. Process and product eportfolio

The implementation of the rubric clearly demonstrates the initial difficulties to understand eportfolio construction. Data from the first two years of experimental implementation allow us to observe the improvement of eportfolios, which started from low or very low marks to a pass in the experimental period. After the whole process, the presentation of a final eportfolio was successful for all students since they obtained the best possible results.

Student teachers’ attitude

<table>
<thead>
<tr>
<th>Technology ability (1-very bad-5-very good)</th>
<th>Total points</th>
<th>General attitude towards eportfolio and technology in education</th>
</tr>
</thead>
<tbody>
<tr>
<td>St1</td>
<td>5</td>
<td>54</td>
</tr>
<tr>
<td>St2</td>
<td>4</td>
<td>59</td>
</tr>
<tr>
<td>St3</td>
<td>5</td>
<td>57</td>
</tr>
<tr>
<td>Average</td>
<td>3</td>
<td>64.4</td>
</tr>
</tbody>
</table>

Table 5. Student teacher attitude. Process eportfolio

To measure student teacher attitude a Likert scale created by Lin (2008) was used. Student attitude was mostly positive during the first two years of experimental implantation even despite the difficulties
documented. However, it is important to see that student 2 was one of the few students who were
given points corresponding to a neutral attitude (neither for nor against).

**Interview**

The interview included ten questions from which we select the answers of the three students to the following question:

- What does the product eportfolio contribute to your learning?

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>General opinion</td>
<td>Satisfaction (G1)</td>
</tr>
<tr>
<td></td>
<td>Great effort (G2)</td>
</tr>
<tr>
<td></td>
<td>It has made my learning significative (G3)</td>
</tr>
<tr>
<td>Awareness of learning</td>
<td>My growing over time (A1)</td>
</tr>
<tr>
<td></td>
<td>Aware of my skills (A2)</td>
</tr>
<tr>
<td></td>
<td>Aware of my digital skills (A3)</td>
</tr>
<tr>
<td>Identity</td>
<td>It represents my identity as a teacher (I1)</td>
</tr>
<tr>
<td>Difficulties</td>
<td>Working in my professional development (D1)</td>
</tr>
<tr>
<td></td>
<td>I started it as if it was a compulsory assignment (D2)</td>
</tr>
<tr>
<td>Ownership</td>
<td>It is my own (O1)</td>
</tr>
</tbody>
</table>

Table 6. Student teachers perceptions after the presentation of their product eportfolio

These comments given by students in their final interview after the successful presentation of their product eportfolio allow us to observe their general satisfaction with their eportfolio experience. The product eportfolio was useful for them mainly because they could be aware of their true learning.

**Discussion and conclusion**

There is a lot of research on the affordances of eportfolios in Teacher Education (Lin, 2008; An and Wilder, 2010; Granberg, 2010; Mellado, 2010; Parker, Ndoye, Ritzhaupt, 2012; Karsenti, Dumouchel & Collin, 2014). Also, we have reported benefits and limitations of eportfolio construction during the process, such as development of digital skills and the enhancement of cognitive skills such as reflection on learning (Tur, 2011; 2013; Tur and Marin, 2013; Tur and Urbina 2012a; 2012b; 2013). However, these studies do not compare their results attending both process and product eportfolio. Thus, the contribution to the field of the current study is to show the role of process and product from a complementary point of view.

Data obtained during the process shows an interesting fact. One of the students who finally presented her eportfolio for capstone assessment was not successful during the process, especially in her initial steps. These means that scaffolding during the process is paramount for improvement. Based on the idea of Dewey (2011) on the complementary relationship of play and work, we argue that the process eportfolio without the product misses the importance of having an aim to achieve; and the product eportfolio without the importance of the process fails to grasp the importance of learning for the sake of learning.

The main limitation of this study is based on the very small number of students who concluded the cycle of process and product eportfolio. Also, the collection of data was carried out during the experimental implementation, when misunderstanding of the project aims was specially highlighted by students. After this phase, some changes were introduced in the eportfolio design which improved the whole project. Thus, the following graduating groups have not presented as many difficulties in their own initial steps.

This current study is the initial step of a line of research aimed at exploring process and product eportfolios and data obtained address their differences in a general way. Therefore, further research should analyse in greater depth the affordances and limitations of process and product eportfolios in the specific processes of eportfolios defined by Zubizarreta (2009): learning documentation, reflection and collaboration. Also, further research should give more detailed data of the potential of the product eportfolio to student learning.
References


Authors

Dr. Gemma Tur
University of the Balearic Islands
School of Education
Calvari, 1- 07800, Ibiza
gemma.tur@uib.es

Dr. Santos Urbina
University of the Balearic Islands
School of Education
Valldemossa Road, km 7.5- Palma (07122)
santos.urbina@uib.es
Show Me Your Badge: Using Open Badges to Provide Career and Educational Pathways for Pre-Service Blue Light Professionals

Bryan D. Eldridge, M.Ed.

Introduction

This paper will discuss how open badging strategies are being utilized to create and operationalize training, educational, and career pathways for pre-service blue-light professionals in the areas of law enforcement, jail officers, firefighters, and dispatchers. Through open badging, potential candidates have their prior certification and work experience credited toward both the completion of their pre-service basic mandate training and applied toward college credit via badging and certification offerings. This transformational approach of shifting traditional academy offerings to a higher education environment provides potential candidates access to federal and state grants to pay for their studies whereas they have historically had to pay for tuition and other related training expenses out of pocket.

Background

Benefits of Public Safety Officers with a College Degree

It is estimated that less than one-percent of state and local police agencies in the United States require officers to have a four-year college degree (Hickman and Reeves, 2006). To properly put that in perspective, most other professions, e.g. accountancy and banking, assume at least a four-year degree as rites to admission.

The Commission on Accreditation for Law Enforcement Agencies qualifies that higher education is not an "absolute answer," but proceeded to highlight in its 1994 Standards Manual that "Officers who have received a broad general education have a better opportunity to gain a more thorough understanding of society, to communicate more effectively with citizens, and to engage in the exploration of new ideas and concepts." Several additional studies conducted over the past five decades have suggested that a college degree does improve the quality of law enforcement. Some typical perceived benefits of having police officers with college degrees include (Bowman, 2006):

- Better behavioral and performance characteristics
- Fewer on-the-job injuries and assaults
- Fewer disciplinary actions from accidents and force allegations
- Less use of sick time
- Greater acceptance of minorities
- Decrease in dogmatism, authoritarianism, rigidity and conservatism
- Fewer citizen complaints
- Promotion of higher aspirations
- Enhancement of minority recruitment.

Even though research indicates that these perceptions are widely held across the nation, very little has been done to enable existing officers to begin or complete degree programs. A commonly heard anecdote is the widely held belief that requiring a four-year degree will severely limit the pool of potential candidates.

Creating New Advantageous Economic Models

Due to the fact that legacy candidate training programs did not offer academic credit through an accredited academic institution, participants were not eligible for government funded grant and financial aid available for myriad other professional and vocational training programs. This meant that the candidates had to cover expenses ranging from five-hundred dollars to four-thousand dollars depending on the state and the candidate’s program of choice. Converting the public safety training program to a credit offering through a partnership with a local state university automatically makes candidates eligible for the same financial assistance as other traditional college and university students.
In addition to the obvious financial benefits to the students, the participating institutions reap significant benefits as well:

- The public safety training center can attract more students because of the many grants and other financial aid packages available to them. This is enormously important given their recent struggles in attracting enough students to fill local and state positions.
- The public safety training center has now co-located on campus of the local state university in unused gymnasium space that they are using in at no additional cost. They would not have had access to this facility without the collaboration with the local state university.
- The local state university benefits by an immediate influx of over 700 students a semester yielding an overall increase in enrollment by over 7%. This enrollment increase results in over $500,000 a semester in additional revenue.
- The local state university nurtures a captive audience for matriculation into any of their four-year degree programs. A number of programs are being fine-tuned for articulation including an all online bachelor’s degree in Criminology.
- The very nature of the collaboration enables both parties do what they do best: the public safety training enter can focus on offering and delivering key field-based training in areas such as firearms, firefighting, and driving maneuvers and the university can deliver the more conceptual content around law, procedures, communications, and report writing.

Challenges in Delivering a Virtual Bifurcated Program

Given the dramatic differences between the existing public safety training center and higher-education delivery and operational models, paradigms, and processes, a number of challenges needed to be addressed from the beginning:

- **Enrollment process** – the enrollment process for candidates is initially made more challenging by the simple fact that they have to complete two distinct enrollment processes: enrolling in the local state university with all the normal obstacles required to get into college including recommendations, transcripts, college entrance exam scores, and state required exam scores and enrolling in the public safety training center which entails many of the same but slightly different enrollment requirements along with an extensive background check and approval by the state POST (Peace Officer Standards and Training Council) prior to even being able to apply to the public safety training center for courses.
- **Financial Aid** – in order to enable candidates to receive financial aid, many detailed reports needed to be created to demonstrate significant differences between current offering components of the public safety training center and the new offering at the university to appease financial aid accreditation boards.
- **Accreditation** – this issue created one of the biggest joint concerns given the intensity of focus by both parties from local, state, regional, and national accreditation and regulatory bodies that have disparate requirements and objectives.
- **Transcript management of badge achievements**-given how relatively new the concept of badging is to traditional higher education intuitions, this obstacle required a significant amount of internal education about open badging in general prior to resolution and the construction of a strategy.
- **Culture** – the public safety training center and the local state university had much different cultures demanding that all processes be carefully executed through a joint change management process.

Methods

Confirming the Cultural Suitability of a Digital Badging Strategy for Public Safety Officers

The culture within public safety at the local, state, and federal level has always embraced the status that comes with the badge, dating back to the days of the Wild West in the United States. The concept that equates a badge with authority and hierarchy is anticipated to drag additional identity and prestige to the acquisition of badges by both pre-service and in-service public safety officers.
Extending the Concept of Open Badging Model into a High-Stakes Profession

One of the strongest perception challenges that the leadership across the two organizations faced was that the Open Badging culture was perhaps too “open” and not governed at a level that was suitable for the high-stakes activities that the public trusts public safety officers to provide.

To address these concerns, badges that are focused on high-stakes skills such as First Aid and CPR require three key components:

- A transparent and publicly available inventory of what skills are associated with the badge and how the public safety officer was required to demonstrated competency in those skills (and at what proficiency level) available by “flipping” any digital badge
- A blended-badging approach that requires a proctored demonstration of the hands-on performance of critical skills against a standard industry rubric in addition to the online training that focuses more on the conceptual and cognitive elements of the content
- Temporal and agency information on when the badge was successfully completed, where it was completed, the supervising agency (e.g. the Red Cross), and the date when the badge expires and must be renewed by repeating the proctored hands-on component

Supporting the Student Experience and Career Pathway Development

Creating the optimal student experience required examining the typical candidate career trajectory over a continuum of time:

- PLAs (Prior Learning Assessments) are conducted during the enrollment process to recognize competencies obtained outside a traditional academic environment and convert them into academic credit
- Career tracks are selected from the current options of dispatcher, jail officer, peace officer, firefighter and mapped against the PLA to create a personalized badge and certificate development path for completing the basic mandate training
- Potential degree articulations and career paths are identified upon completion of participant’s basic mandate training program through a free advising and career counseling service
- Career and professional development badges are available for meeting both continuing education requirements and for building qualifications for career advancement or specialization

The current working model to support this continuum is depicted and described in figure 1.
Creating Degree Completion Pathways that Motivate Students

Selected badges will be offered for free to prospective candidates on a rotating basis as a means to market the program and recruit new students. There is also collateral being built for the program website that encourages potential participants to sign up for a PLA to see how their work and life experience can translate toward the short-term completion of an associate’s degree. After they set up a free account and complete the PLA, they are presented with a digital dashboard showing how close they are to completing an associate’s degree upon completion of the basic mandate training program. Some early applicants discovered that they were as close as 11 weeks away from completing an associate’s degree while the average time required for completing an associate’s degree for all applicants was approximately 32 weeks or roughly two semesters of college coursework.

Identifying the Categories of Badging Offerings

There are currently two categories of badges that comprise the basic mandate training program: badges that align with current standalone industry approved training offerings and those areas that do not align with existing training offerings and require new badges to be created.

Employing the blended badging model described earlier in this paper, existing certifications available to the public safety training center such as the FBI’s fingerprinting and crime scene investigation courses and the Red Cross First Aid, CPR, and AED certifications are offered as a fast-track to making progress toward completing large components of the basic mandate training at little or no cost to either the public safety training center or the local state university.

As part of an overarching effort to make the pre-service programs as modular as possible, gaps where standard outside programs were non-existent or proprietary, such as report writing and courtroom procedures, were filled by new badge offerings. In this model, a three credit hour course in a traditional higher education environment translates into roughly 4-6 badges in the redesigned basic mandate program. Individual badges created in this manner are now being utilized as modular building blocks to create new courses in other existing and new academic programs at the local state university. This strategy was not anticipated at the inception of the collaboration.

Constructing the Pilot

To assist expediting the rollout of the joint-program while still playing close attention to supporting the massive cultural change of the program, a pilot was designed in a manner that addressed all of the previously noted obstacles and key cultural disparities in a controlled and manageable environment.

Components of the pilot rollout include:

- A small pilot cohort group for the first semester numbering less than 35 students
- Participants will complete the online badging content in a computer lab on the campus of the local state university and will be facilitated by a current public safety training center instructor
- Technical support will be provided by the local state university to both troubleshoot any technical issues and to log any areas where additional support needs to be provided to both students and facilitators in the future
- Participating public safety training center instructors will be trained on how to use analytics to see how students are doing real time

Conclusions and Extensions

Expanding the Blue-Light Academy Program

Pending feedback collected at the end of the first full year of rollout, the public safety training center will expand their program by opening up enrollment to high school juniors and seniors for all non-lethal force and non-driving related content via several badging tracks. This program will include detailed and hands-on instruction in cyber-security, digital forensics, and UAV (unmanned aerial vehicle) operation as a strategy for attracting a wider and more diverse audience into law enforcement and as an overall unique selling proposition of the public safety training center.

For existing graduates of their basic mandate training programs, the public safety training center plans to extend their library of existing continuing education programs into a plethora of online badging programs in areas such as domestic terrorism, the patriot act, criminal use of drones and UAVS, and cyber terrorism.
Extending the Approach into Other Areas by Targeting Adult Learners

One of the largest social problems facing the geographic region serviced by both the public service training center and the local state university it partners with is its unemployed or underemployed adult population. Leveraging the model built in collaboration with the public service training center, the university is planning partnerships with local businesses in the aviation industry to construct similar programs in aviation supply chain management to support this extremely significant prevalent industry in the region. After completing a PLA, participants will be directed toward one or more potential career development pathways based on skills, time to employability, and employer demand.

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Author

Bryan D. Eldridge, M.Ed.
Independent Consultant
Athens, Georgia USA
bryan.d.eldridge@gmail.com
Ensuring Evidence in Research-Based Learning via ePortfolio

Petra Muckel, Birte Heidkamp, David Kergel, Sebastian Hartong, Stefanie Brunner,
University of Oldenburg, Germany

"Tell me, and I will forget.
Show me, and I may remember.
Involve me, and I will understand" (Konfuzius).

Evidence as a Key-Concept in Research-Based Learning

Research-based learning encourages learners to accept the challenge - the joy and risk - of a research process. Within research- or enquiry-based learning, to be seen as an umbrella term, processes of learning and conducting research are inextricably linked with each other. In the course of a didactical guided research process, (new) knowledge is produced, and learning takes place. Within this research-based learning process learners are inspired to reflect thoroughly on every single research-step (cf. Brew 2003; Hutchings 2007). In a research- as well as in a learning process evidence is seen as a result of grounding propositions in systematically/methodologically collected data. Gaining evidence is hard work for beginners: It requires to a large extent reflectiveness and responsibility for decisions in the own research- and learning-process. Furthermore, a dealing with uncertainty and making decisions, some of which may turn out wrong, is to be learnt (Hutchings 2006).

An Idea of Evidence has to be Learnt

From the point of view of research-based learning, the self-regulated and active learning process has to be amended and restated - on the learners' part - by a willingness for self-reflection and - on the teachers' part - by flexibly accompanying an open-ended and often highly individual process (cf. Brew 2003 about the changing relationships between teachers and learners under the paradigm of inquiry-based learning). Teaching and learning are carried out "in the atmosphere of imaginative enquiry that ... stimulates reflective learning and critical, creative thinking and at all levels" (Brew & Prosser 2003, 3). Accounting for a dominant kind of learning, which has nothing to do with personal interests and real questioning, this way of learning needs a learning culture of asking, experimenting and the possibility of failing. This implies to re-shape both, learning and research, from a product-based to a process-based approach.

The research-process under the paradigm of Research-Based Learning is to be seen as supported in multiple aspects by digital tools (Figure 1) on the one hand and multiple methodological based reflections and decisions on the other hand. Learners collaborate in small groups (3-5 students) and walk step by step through the research-process, accompanied by researchers/teachers and other students.

Figure 1: The research-based learning circle in the digital age (own figure).
“Soon enough, things [in a research process] move off course, and the path meanders and loops back. Experiments stop working, all assumptions seem wrong, and nothing makes sense. The researcher has entered a phase linked with negative emotions that may be called ‘the cloud.’ [Figure 2] Then, in the midst of confusion, one senses a new problem in the materials at hand. Let’s call this new problem C. If C is more interesting and feasible than B, one can choose to go toward it. After a few more detours, C is reached [...]; the typical meandering of research is seen as an integral part of our craft, rather than a nuisance. The mentors’ task is to support students through the cloud that seems to guard the entry into the unknown. And, with this schema, we have more space to see that problem C exists and may be more worthwhile than continuing to plod toward B” (Alon 2009, 3).

Gaining evidence in such a research-based learning-process is hard work for beginners, because struggling and uncertainty muddy the focus of evidence and empirically grounded knowledge. What is needed, when entering the cloud, is somebody to talk to, who encourages and supports you in finding your own way. The basic story-line of such a research-process is a development, starting up with ‘beliefs’ and ‘opinions’ and ending up with strong evidence-based propositions, deeply grounded in facts and observations.

The didactical challenge at this point is to enable a research-based learning in which strategies for gaining evidence in a qualitative-orientated or more general sense are taught: While a quantitative based evidence focuses more on statistically evidences, qualitative-oriented evidence could stress more the reasoning and reflection of the ongoing research process. A critical reflection and carefully framing of the research question, the explaining of the study design, reflections about the sample, reflections about ethical aspects for example are all parts of a methodological-leded research-process as well as parts of offering and producing evidence. All these aspects must be integrated in an authentic story of doing research, a story developed in many discussions among learners and teachers and among learners. We tried to develop this story together with our students by using an ePortfolio-seminar-blog. This way of critical thinking is part of research as well as part of deep learning that may be hard to learn, but may form “a difference that makes a difference” (Bateson 1972/2000, 459).

The e-Portfolio-Platform as a Didactical Tool in a Research-Based Learning Process

The e-portfolio as a didactical and process-oriented tool for reflections enables a dynamically mapping and representation of the research and learning process.

As a collective and shared tool the e-portfolio provides spaces for an ongoing (collaborative) communication among learners, who additionally were inspired to give and to get feedback from each others. These feedback-circles can be considered as supporting the searching for convincing arguments and growing evidence:

Within learning groups, a common understanding of research-based learning content can be achieved (collective knowledge production). Intersubjective valid meaning is produced in a dialogical process which thematizes an appropriate understanding of data and facts. His process shares individual knowledge and individual perspectives that are discussed (distributed knowledge). This aspect matches the model of social constructionism. Gergen who developed the model of social constructionism stresses, that the discourse about the world is less a reflection; an valid understanding of the world needs to be developed in a perpetually, multi-perspective discourse about
Via such a communal understanding process the knowledge of the world is produced:

"It is also important to realize that this continuous refashioning of meaning is not under any one person’s control. Even within a dyad the voices of other relationships continuously intrude. And as we enter directly into dialogue with others, so can the emerging patterns of coordination change all that once seemed clear and apparent" (Gergen 1999, 146f.).

According to Gergen social constructionism as an epistemological metatheory “(...) would remove knowledge from the data-driven and/or the cognitively necessitated domains and place it in the hands of people in relationship. Scientific formulations would not on this account be the result of an impersonal application of decontextualized, methodological rules, but the responsibility of persons in active, communal interchange” (Gergen 1985, 272).

Following this epistemological premise scientific knowledge is an mainly dialogical produced knowledge. With reference to the dialogical based production of valid knowledge within research-based learning, the model of social constructionism provides the epistemological basis of qualitative orientated evidence based learning. In other word: The production of common knowledge is the result of such a dialogical validation process within an evidence orientated researched based learning. The feedback seems to be the appropriate strategy to ensure this kind dialogical communication within research-based teaching and learning scenarios. It can be characterized as a didactical tool to enable a collective knowledge production in a systematized communication process.

The permanent visualization and discussion of rising questions and knowledge enable a kind of collaborative validation process which ensures in turn evidence as an important element of research-based learning. Via the e-portfolio-seminar-blog it is possible to collectively share, reflect, and frame the research question, to explain and to discuss the study design, the sampling-strategy, and so on. All the advances in knowledge which are produced in a research-based learning process can be openly and visibly reflected and discussed.

**Good-Practice**

To meet such complex requirements, a collaborative-shared e-portfolio-platform integrated in a research-based learning-design was developed: A WordPress based collective e-portfolio concept, which focuses on the four C.s - critical thinking, communication, collaboration and creativity (cf. Norris & Soloway 2014, 2) - was tested in some advanced seminars in educational sciences at the university of Oldenburg.

We chose WordPress because of ist aesthetically rich, but well arranged and easy handling on the one hand and because of its software-/system-independency on the other hand; so every information and learning-step can be exported and documented in a personal life-long/wide-ePortfolio.

The WordPress blog makes it possible to depict the rising questions, steps and results of a research process. These collective-shared representations function as a gateway for discussion and feedback actividades. The dynamically mapping and representation of the research and learning process open ways of prompt and ‘timely’ communication about questions and uncertainties. The WordPress blog once again serves as a scaffold (cf. Muckel, Heidkamp, Brunner 2012), which gives and visualizes structures in a meandering process: The steps of the research-process are depicted as menu-items in the navigation-bar.

The research question for example was implemented as one of the first categories/menu-items in the navigation-bar. Reflections upon the research design, the sample, literature and so on followed. Every new category/item was used to explain the ongoing research-process and to stimulate creative discussion on the way of gaining evidence. Framing strong arguments via presentations of thoughts and encouraging feedback supports the becoming of responsible researchers. Research-based Learning in the digital age has to empower the students to be part of a scientific culture as an ongoing communication process. At the same time the e-portfolio-platform functions as an archive for the progress in the research-process.

From this point of view, such a WordPress based blog at the same time could be interpreted as a developmental portfolio (Häcker 2011, 168f). The development which is depicted and reflected within such an e-portfolio is a mirror of the process of research-based learning. In other words: The process of the developmental e-portfolio reflects the process of the research-based learning process (for parallels see Walkington et al. 2011; Nicholson 2011).
Eitel and Steiner (1999) point out an example of how evidence could be produced in the above-described research-based learning process. Originally, the authors relate their ideas on healthcare. However, the model provides the flexibility for application to other disciplines. In the following the five steps (ask, acquire, appraise, apply, analyze & adjust) are briefly described:

1. **Ask**: The questioning of everyday social action and the generation of important issues.
2. **Acquire**: The development and procurement of the best available evidence to answer the prepared questions.
3. **Appraise**: The critical assessment of the evidence for validity with regard to the established issues.
4. **Apply**: The application and the comparison of evidence regarding the questions.
5. **Analyze & Adjust**: The evaluation and adjustment of the results from step four. Final publication of the findings.

Because of the development of future questions and recommendations in step five, the steps are to be understood as a circular sequence (Figure 4):

**Conclusion**

The research-based learning process is collaboratively discussed and reflected within the e-portfolio seminar blog as well as within the seminar by help of the e-portfolio. These continuous collaborative
discussions and reflections can be understood as a qualitative orientated evidence learning strategy: Collaborative validation of knowledge constructions can be ensured via the continuously discussions and reflection. These discussions, reflections, and presentations coin Research-based learning, and take place within the e-portfolio-seminar-blog.

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Learner Reflective Behaviours in Web-Based Portfolio Assessment
Cheng Chi-Cheng Cheng-Chuan Chen, National Taiwan Normal University

Abstract
This research attempted to categorize reflective thinking in a Web-based portfolio assessment using the Chinese Information Processing System (CIPS). Another aim of this research was to explore reflective performance in which individual differences were further examined. Participants were 45 second-grade students from a junior high school taking a computer course. The study results indicated that: 1) the words used most often in reflective journals fell into cognition and evaluation category in comparison to emotion and memory. Based on lexical attributes, reflective thinking was thus classified into cognition, evaluation and mix. Cognition was the most common type, and evaluation, the least; emotion and memory type failed to emerge. 2) Although reflective journals tended to be short, the average scores on reflection were acceptably high, which implied it was the quality rather than the length of journal entries that students were primarily concerned about. In addition, significant group differences were detected in terms of word counts and reflection scores. 3) The reviews of peer reflections were seldom fulfilled, and covered merely one-third of the peer work; there were notable group differences related to the number of reviews. 4) The duration of peer reflection reviews was usually short, and again, remarkable differences were found across various duration groups.

Keywords: Portfolio; Web-based portfolio; Portfolio assessment; Reflection; Chinese Information Processing

Introduction
The developmental process of learning portfolios entails projection of purpose, collection, selection, reflection, and presentation (Barrett, 2010; Barrett & Garrett, 2009; Falls, 2001). It is critical that portfolio development allows students to establish learning goals and to identify their strengths as well as weaknesses. Falls (2001) noted reflective practice plays an indispensable role in portfolio creation, for it is particularly instrumental for students. Tomkinson (2002) presented a four-stage scheme related to portfolio development—reflection, inspection, reaction, and documentation. It is commonly accepted that one of the advantages of portfolio assessment is the promotion of learner reflection (Coombe and Barlow, 2004; Lopez-Fernandez & Rodriguez-Illera 2009; Tubaisht, Lansari, & Al-Rawi, 2009; Wang 2009). Web portfolios, in turn, can be regarded as an authentic process that documents and fosters reflective thoughts (Avraamidou and Zembal-Saul, 2002; Carroll, & Markauskaite, Calvo, 2007; Milman, 1999; Morris and Buckland, 2000; Zembal-Saul, 2001). A study conducted by Hawkes and Romiszowski (2001) showed that computer-mediated reflections achieved a significantly higher level than did face-to-face reflections. Hence, it is concluded that learners’ involvement in reflective activities should be valuable and beneficial in the context of Web-based portfolio assessments.

Given that learner reflections are associated with cognition and emotion elements, an issue has been raised regarding how to organize, classify and evaluate reflection contents. With respect to reflective behaviors, Morgan (1999) reported a hierarchy with four levels of reflective thinking: Not qualified, Fair, Good, and Excellent. Teachers from South Brunswick schools adopted assessment criteria comprising purpose of reflection, supportability, systematicity, sentence structure and vocabulary and writing mechanics, each of which was accompanied with a four-level scheme (King-Shaver, 1999). Cheng (2002), who assessed reflective thinking in a Web-based portfolio setting, discovered that students generally performed medium level and failed to attain higher level of reflection. This study result was supported by several researchers. Lin (2004) indicated although shallow and deep types were found existing, students tended to perform the former type more frequently. Likewise, Wood (2001) concluded students had higher possibility to operate pre-reflective thinking, comparing to quasi-reflective or reflective thinking. A study conducted by Li (2002) suggested lower levels of reflective thinking appeared to be more accessible to high school students. In other words, previous investigations have revealed the tendency of reflective thinkers toward lower levels of reflection.

When it comes to the types of reflection, a number of researchers have made classifications from multiple perspectives. Santos (1997) categorized reflective thinking into four processes. Reviewing process refers to the improvement in learning for which one looks at the past and learns from it in order to avoid the same mistakes; contemplative process enables one engaged in self-observation or introspection; comparing process talks about a learner’s self-examination of the extent to which

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anticipated goals are fulfilled; juding process involves self-assessment on learning performances and progress. On the other hand, Kember (1999) treated reflection as a double-faced notion containing reflective and non-reflective action; more specifically, reflective action is made up for several subdivisions, such as content, process, and premise reflection. According to Lin’s (2004) categorization, students’ journals were generally characterized by affective, self-aware, and integrative reflection. In the study of vocabulary analysis, Avrramidou and Zembal-Saul (2002) identified a four-stage trend that reflection authors shifted from being descriptive to being explanatory, reflective, and elaborative. In conclusion, the essence of reflection lies in one’s knowledge, reasoning, conception and learning beliefs.

Recognizing the importance of learning reflections, scholars and researchers classified reflections into various levels and types. Due to the diversity of reflective practice, learners are expected to perform differently, leading to a variety of evaluation methods and ways of classification. In the context of Web-based portfolio assessment, however, what levels and types of reflection take place, and in which way it can be appropriately sorted out? Besides, another issue remained unanswered is concerned with the representations of reflective behaviors and its applicable methods of evaluation. Rama and Battistoni (2001) suggested that the number and duration of reflective practice can serve as powerful indicators in portfolio learning. Thus, to evaluate reflections assessors should not only take into account the quality of reflection work, but also word count of reflective journals as well as the number and duration of peer reviews. On the other hand, a study conducted by Irby and Brown (1999) revealed that students shared a similar length of reflective journals, drawing our attention to the question about whether or not there are patent differences between individual learner in reflective behaviors.

In response to the issues discussed above, the purpose of this study was to investigate reflective behaviors (types and performances), and to find the differences related to individual reflective performance. The research questions are as follows:

1. In reflective journals, what types of vocabulary are used? What is the frequency usage of each vocabulary type? How many types are reflections classified into? What is the frequency usage of each reflection type?
2. What are students’ reflective performance in terms of the number of words in journals, the number and duration of peer reflection reviews, and the overall quality of reflection?
3. Are there significant individual differences in reflective performance?

**Method**

**Participants**

The subjects were 45 students in a computer course at a junior high school. The duration of the study was a 10-week period with 2 sessions for each week. Students were required to undertake portfolio creation, self- and peer-assessment on the Web-based portfolio assessment system. To develop a portfolio, the students had to be engaged in the following activities, i.e. goal setting, reflection, on-line submission, work display, etc. The 2-unit computer course addressed “Computer Animation” and “Timeline Control”; for each unit, an assignment had to be completed by using software such as Photoimpact, Dreamweaver MX. The course content covered not only technical skills but cognitive and affective domain, which in turn offered students an ideal scenario for reflective practice.

**Framework**

In this study, the CIPS system was employed in order to sort out different types of reflections related to Web-based portfolio assessments. On the other hand, the researchers put together students’ recorded performances and scores in order to statistically compare the possible differences in reflective performance. Below are the variables involved in this study:

1. Reflective types were derived from the CIPS system, including cognition, emotion, evaluation, memory, and mix type.
2. Reflective performance were concerned with the word counts in a reflective journal, the number and duration of peer reflection reviews, and the scores on reflection.
Research process

Tool Selection and Design

To collect and document students’ reflective contents and behaviors, we designed a Web-based portfolio assessment system, and the quality of reflective contents was further discriminated using a reflection scale developed by Wu (2007). Vocabulary used in reflective journals was classified based on the CIPS system.

Procedure of Experiment

Stage 1 (preparation): The teacher began the course with a brief overview of Learning portfolios, and provided tips for writing reflective journals. After course introduction and demonstration of the Web-based portfolio assessment system, the teacher would help students to become familiar with the system functions by hands-on experiences.

Stage 2 (Unit 1): The first unit talking about “Computer Animation” was taught aligning with the assessment system. Outside the classes, the students were responsible for a number of course activities, such as portfolio development, on-line discussion, peer reflection reviews and self- and peer-assessment. To create a portfolio, the ensuing work must have been completed by filling out the forms available, including goal setting, reflection writing, work submission, and so on. Afterwards, the teacher and assistants would assess students’ performances on the basis of portfolio contents and learning behaviors.

Stage 3 (Unit 2): For better learning efficiency, the teacher gave instructions and assistance focusing on students’ problems or difficulties encountered in the previous course unit. Subsequently, this unit about “Timeline Control” was then started with the students repeating the coursework and activities as Unit 1.

Stage 4 (oral presentation): For this stage, students were required to deliver an oral presentation covering their portfolio contents, and to share experiences as well as advice on portfolio construction.

Data Collection

The recorded information available on the assessment system was collected, including a student’s written journals, scores and reflective behaviors centering on the number of words in journals as well as the number and duration of peer reflection reviews.

Data Organization and Analysis

Phase 1: Data Organization

(1) Data organization

The researchers started this part of work by carefully examining the reflective journal documents and having those incorrect words revised. Reflective contents were then compiled, according to its common attributes, and organized into textual data.

(2) Unit of Analysis

In this study, a “segment”, or “token”, was chosen as the minimal unit of analysis, based on the Chinese Word Segmentation System.

Phase 2: Data Analysis (see Figure 1)

(1) Input

The contents of reflection were uploaded to the CIPS system.

(2) Word Segmentation

The CIPS system dealt with this part of work by marking up the words in the reflection journals with corresponding part-of-speech tags.

(3) Extraction

The researchers specifically focused on various types of stative verbs in Chinese, e.g. intransitive verbs, causative verbs, transitive verbs, etc.

(4) Classification of Vocabulary and Word Frequency Count

The researchers, with the help of Mandarin teachers and expert, worked together on grouping up vocabulary (i.e. stative verbs) into types, and counting the frequency usage of each type of words within a journal entry.
(5) Types of Reflection

For this part, we continued to have the categorization of vocabulary well-examined by repeated comparison, organization and cross-validation. Three types of reflection were ultimately determined after we removed repeatedly categorized words, and wiped out barely used vocabulary types.

![Flowchart of data processing](image)

**Figure 1. Flowchart of data processing**

**Phase 3: Double-check**
The main purpose for this stage was to re-examine, at different points in time, our prior work related to data organization and processing.

**Research Instrument**

**Web-based Portfolio Assessment Scale**

**Assessment Scale**
The Web-based portfolio assessment scale created by Wu (2007) was adopted in order to measure students’ learning performances based on the quality of their portfolios. The assessment scale is six-dimensional and covers portfolio creation, learning goal, artifact, reflection, attitude, and other, among which reflection performance was of primary interest in this research project. Furthermore, scores were calculated using a five-point Likert scale.

In this assessment scale, “reflection scale” was specifically designed for the evaluation of a student’s reflection contents, looking at the following aspects: goal setting, artifact, learning achievement, attitude, peer review and feedback. A student’s reflection score was determined by the grade he/she acquired on this reflection scale.

**Scale Reliability**
With regard to the reflection scale, the Cronbach’s value for Unit 1 and Unit 2 was 0.819 and 0.864, respectively. The results indicated both tests achieved high reliability, and were parallel to Wu’s (2007) findings in which the Cronbach’s was measured as 0.923.

**Scale Validity**
In Wu’s (2007) factor analysis, the accumulated variance of the assessment scale was 72.09%, and the reflection scale, 89%. This implied that the assessment scale and the reflection scale had high validity.

An approach of factor analysis—Principal Component Analysis (PCA)—and the varimax method were used conducting the orthogonal rotation approach in order to examine the appropriateness and accuracy of the reflection scale. The Kaiser-Meyer-Olkin (KMO) values for each test were greater than 0.5, meaning that factor analysis could be applied. To construct validity using PCA, the accumulated variances for both unit courses exceeded 70%, which meant the reflection scale had a high validity.
**Chinese Word Segmentation System**

The CIPS system was employed dealing with word segmentation of reflection journal documents. The Chinese lexical database available in this system contains about 100,000 vocabulary words accompanied with pos tags, word frequencies, pos tag bigram information, etc. It is a state-of-the-art system, with unknown word identification and syntactic category prediction, which was ranked first at the International Chinese Word Segmentation Bakeoff. Due to its high accuracy and consistency (Tsai, 2004; Chen & Bai, 2000), we found it well-suited and efficient in data analysis: it is not only time- and labor-saving, but helps the improvement of reliability as well as validity.

In addition to word segmentation, the CIPS system is also equipped with word-tagging capability by dividing lexicon into active verbs, stative verbs as well as other parts of speech such as conjunctions, adverbs, nouns, and pronouns (Institute of Information, 2007). In Chinese a stative verb can be modified by an adjective; otherwise, verbs that do not belong to this kind are considered as active verbs. However, in psycholinguistics active verbs are not suited for the interpretation of psychological states. In this study, we then placed focus on stative verbs that served as references for our classification work of reflective thinking.

The following lists the process of reflection categorization using the CIPS system (Figure 1):

1. The contents of reflection were uploaded to the CIPS system.
2. The CIPS system dealt with this part of work by marking up the words in the reflection journals with corresponding part-of-speech tags.
3. The researchers specifically focused on various types of stative verbs in Chinese, e.g. intransitive verbs, causative verbs, transitive verbs, etc.
4. The researchers, with the help of Mandarin teachers and expert, worked together on grouping up vocabulary (i.e. stative verbs) into types, and counting the frequency usage of each type of words within a journal entry.
5. Three types of reflection were ultimately determined after the researchers coped with overlapping classification of certain words, and wiped out barely used vocabulary types.

**Results and Discussion**

**Types of reflection**

In each reflective journal entry, stative verbs were extracted using the CIPS system, and four kinds of psychological state words and its number of occurrence were summarized. Considering that some stative verbs might be categorized into more than one vocabulary type, the researchers continued to scrutinize and filter overlapping classification. For example, preliminary estimates suggested that Student 1104 wrote a reflective journal with cognition type of words used 22 times; memory, 0; emotion, 2; and evaluation, 24. After taking out repeated classified words (Appendix 3), the result was further refined as follows: cognition, 12; memory, 0; emotion, 2; and evaluation, 14.

Table 1 illustrates that, according to the frequency usage, cognition was the most commonly used vocabulary type following by evaluation; memory held the least users. This finding suggested reflective thinkers had preference to cognition and evaluation type in vocabulary use.

<table>
<thead>
<tr>
<th>Student ID</th>
<th>Frequency Usage of Stative Verbs (%)</th>
<th>Assigned Reflective Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cognition</td>
<td>Memory</td>
</tr>
<tr>
<td>1104</td>
<td>12(42.9)</td>
<td>0(0)</td>
</tr>
<tr>
<td>1105</td>
<td>31(53.4)</td>
<td>0(0)</td>
</tr>
<tr>
<td>others</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1201</td>
<td>13(50.0)</td>
<td>0(0)</td>
</tr>
<tr>
<td>1202</td>
<td>19(42.2)</td>
<td>10(22.0)</td>
</tr>
<tr>
<td>1203</td>
<td>34(45.3)</td>
<td>3(4.0)</td>
</tr>
<tr>
<td>1204</td>
<td>24(44.4)</td>
<td>0(0)</td>
</tr>
</tbody>
</table>
Initially, the categorization of reflection was determined by the degree to which each vocabulary type—cognition, emotion, memory, and evaluation—was used by individual student. It was discovered, however, emotion and memory words were nearly invisible in students’ journals. In light of this, we then proposed a 3-category scheme consisting of cognition, evaluation and mix in which emotion and memory were not put in. Below are detailed descriptions of eligible reflective thinkers for each type:

Cognition type refers to those reflective authors who are inclined to cognition words comparing to evaluation, and the rest two vocabulary types are barely occurred in this case.

4. Evaluation type talks about a reflective author who dominantly selects evaluation words over cognition, whereas the other two vocabulary types are barely used.

---

<table>
<thead>
<tr>
<th>Student ID</th>
<th>Cognition</th>
<th>Memory</th>
<th>Emotion</th>
<th>Evaluation</th>
<th>Total of Use</th>
<th>Assigned Reflective Type</th>
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</thead>
<tbody>
<tr>
<td>1205</td>
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<td>1(2.9)</td>
<td>0(0)</td>
<td>16(46.3)</td>
<td>34</td>
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</tr>
<tr>
<td>others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1301</td>
<td>23(57.5)</td>
<td>0(0)</td>
<td>0(0)</td>
<td>17(41.9)</td>
<td>40</td>
<td>Cognition</td>
</tr>
<tr>
<td>1302</td>
<td>33(50.0)</td>
<td>4(6.0)</td>
<td>8(12.0)</td>
<td>21(31.5)</td>
<td>66</td>
<td>Mix</td>
</tr>
<tr>
<td>1303</td>
<td>32(54.2)</td>
<td>1(1.7)</td>
<td>2(3.4)</td>
<td>24(40.3)</td>
<td>59</td>
<td>Cognition</td>
</tr>
<tr>
<td>others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1401</td>
<td>32(45.1)</td>
<td>0(0)</td>
<td>2(2.8)</td>
<td>37(51.8)</td>
<td>71</td>
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</tr>
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<td>Mix</td>
</tr>
<tr>
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<td>3(4.1)</td>
<td>28(38.6)</td>
<td>72</td>
<td>Cognition</td>
</tr>
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<td>0(0)</td>
<td>0(0)</td>
<td>6(48.0)</td>
<td>12</td>
<td>Mix</td>
</tr>
<tr>
<td>others</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1501</td>
<td>6(42.9)</td>
<td>0(0)</td>
<td>1(6.9)</td>
<td>7(48.3)</td>
<td>14</td>
<td>Evaluation</td>
</tr>
<tr>
<td>1502</td>
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<td>0(0)</td>
<td>0(0)</td>
<td>7(48.3)</td>
<td>14</td>
<td>Mix</td>
</tr>
<tr>
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<td>0(0)</td>
<td>10(44.4)</td>
<td>22</td>
<td>Cognition</td>
</tr>
<tr>
<td>1504</td>
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<td>0(0)</td>
<td>14(41.7)</td>
<td>33</td>
<td>Cognition</td>
</tr>
<tr>
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<td>6(14.1)</td>
<td>13(30.5)</td>
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<td>others</td>
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<tr>
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<td>16(43.8)</td>
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<tr>
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<td>20(50.0)</td>
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<td>1(2.5)</td>
<td>18(44.4)</td>
<td>40</td>
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</tr>
<tr>
<td>1603</td>
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<td>2(7.8)</td>
<td>10(39.1)</td>
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<td>Cognition</td>
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<tr>
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<td>3(4.8)</td>
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<tr>
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<td>19(47.5)</td>
<td>1(2.5)</td>
<td>2(4.9)</td>
<td>18(44.4)</td>
<td>40</td>
<td>Cognition</td>
</tr>
<tr>
<td>others</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>1702</td>
<td>19(50.0)</td>
<td>0(0)</td>
<td>0(0)</td>
<td>19(49.4)</td>
<td>38</td>
<td>Mix</td>
</tr>
<tr>
<td>1703</td>
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</tr>
<tr>
<td>1803</td>
<td>16(55.2)</td>
<td>4(13.5)</td>
<td>0(0)</td>
<td>9(30.3)</td>
<td>29</td>
<td>Mix</td>
</tr>
</tbody>
</table>

Table 1 Percentage of individual use of stative verbs (part of samples)
5. Mix type includes two kinds of circumstances of vocabulary use. It covers those who use nearly equal amount of cognition and evaluation words, and the rest two vocabulary types are scarcely used. Secondly, reflective authors can be also labeled as mix type if three or more types of vocabulary are found, and each type should be responsible for over 10% of word use.

6. As Table 2 outlines, the students fell into three categories, namely cognition, evaluation and mix, while memory and emotion failed to emerge. Additionally, it was also shown that cognition type held at least half of the students. Comparable study results were found by a number of researchers, such as Eppink (2002), Li (2002), Lin (2004), Kember (1999). In these previous investigations, it was concluded that meta-cognition or cognition type generally accounts for substantial portion of reflective practice.

<table>
<thead>
<tr>
<th>Percent of Students</th>
<th>Cognition</th>
<th>Memory</th>
<th>Emotion</th>
<th>Evaluation</th>
<th>Mix</th>
</tr>
</thead>
</table>

Table 2 Percentage distribution of reflective types

**Reflective performance**

**Word count in reflection journals**

Counting only relevant and meaningful text, Unit 1 had an average length of 345.6 words per person; Unit 2, 285.9 words. Adding it up, each person wrote on average 631.5 words. Each student was asked to edit a total of 69 journal entries, so that the average length of an entry was 274.6 words per person. This statistical analysis showed the general journal lengths were still far from satisfaction.

**Number of peer reflection reviews**

Reviews were taken out if it was occurred in the test period or did not exceed 5-second minimum. For both Unit 1 and Unit 2, the average number of reviews was measured as 4.5 times per person. To sum up, individual average for the entire course was 9.1, indicating that students read only some of the peer journals, or one-third of it at best.

**Duration of peer reflection reviews**

Reviews were taken out if it was occurred in the test period or did not exceed 5-second minimum. As the course unit went through, the mean duration per person reduced from 21.9 to 12.2 minutes. Taken together, the average duration per person for the entire course was 34 minutes; individual duration per review was 3.8. The finding suggested students seemed invest insufficient time reviewing peer journals.

**Quality of reflection**

At each stage of our research project, there were always approximately 77% of the students being ranked into high-score or medium-score groups, and only a small portion of them (23%) were not. This coincided with Cheng’s (2002) statement: the majority of students had the ability to show high-quality reflection outcomes.

**Overall reflective performance**

In Table 3, reflective performance were classified into high, medium and low groups according to four kinds of reflective performance. Table 4 outlines the study result using the analysis of variance (ANOVA), in which the F-value for each kind of reflective behavior achieved significance level (Table 5). In addition, “reflection score” yielded the largest estimated effect size (0.42), and “number of peer reflection reviews” had the least (0.218). That is to say, the differences among “reflection score” groups were the largest, and “number of peer reflection reviews” groups had the smallest differences.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>Total</th>
<th>Individual Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Word count in journals (words)</td>
<td>1165</td>
<td>552.1</td>
<td>279.6</td>
</tr>
<tr>
<td>Number of peer reflection reviews (times)</td>
<td>16</td>
<td>7.4</td>
<td>5</td>
</tr>
<tr>
<td>Duration of peer reflection reviews (minutes)</td>
<td>72.2</td>
<td>67.7</td>
<td>7.1</td>
</tr>
<tr>
<td>Reflection score (points)</td>
<td>81.3</td>
<td>73.9</td>
<td>59.6</td>
</tr>
</tbody>
</table>

Table 3 Analysis of reflective behavior groups
Reflective Behavior | F | Sig.  | Estimate Effect Size  
---|---|---|---
Word Count of Journals | 80.563 | 0.000*** | 0.396  
Number of Peer Reviews | 33.864 | 0.000*** | 0.215  
Duration of Peer Reviews | 42.203 | 0.000*** | 0.237  
Reflection Score | 90.663 | 0.000*** | 0.428  

Table 4 ANOVA of reflective behavior groups

| Reflective Behavior | Between-Group Difference (Sig.)  
---|---
Word count of journals | High > Medium > Low (0.000*** )  
Number of peer reflection reviews | High > Medium, Low (0.000*** ) ; Medium > Low (0.007**)  
Duration of peer reflection reviews | High > Medium, Low (0.000*** )  
Reflection score | High > Medium > Low (0.000*** )  

**p < .01, ***p < .001

Table 5 Post-hoc comparison test of reflective behavior groups

Conclusion

This research project was geared toward the taxonomy of reflection contents with the implementation of the CIPS system. According to the frequency of occurrence, the ranking of four types of vocabulary (i.e. stative verbs) is cognition, evaluation, emotion, and memory, from high to low. It was discovered the former two types were utilized a lot more than the latter two. In other words, students showed the ability to spontaneously become engaged in critical thinking and self-inspection given their preference for cognition and evaluation words. In order to have the categorization meaningful, we eliminated those barely used vocabulary types, i.e. emotion and memory, and eventually proposed three types of reflection—cognition, evaluation, and mix. Among them, cognition type was the most common one following by mix type, whereas evaluation type was rarely seen.

Although reflective journals in overall appeared to be short, the average reflection score was moderately high. That is to say, in writing journals students placed focus on quality over quantity. According to the ANOVA test, remarkable group differences were detected not only across word count groups (the average words per person) but also reflection score groups (the average score per person).

Furthermore, students generally had an inadequate number of peer reflection reviews, and they only read about one-third of the peer work. The ANOVA test revealed there were notable group differences in terms of the number of reviews. The time students spent on reviewing was scanty as well, with the average duration of 4 minutes per person each time. In the ANOVA test, significant group differences were also found across “duration of peer reflection reviews” groups.

In this paper, word counts in a journal were treated as independent variables, for our assessment system was not equipped with function to figure out how much time a student had invested in editing a journal entry. If not so, we would have been able to delve into reflective behaviors related to writing time. Besides, it seemed to be integral and full-fledged that students had access to guidelines and strategies for the composition of reflection, and teachers on the other hand were always ready to offer instructions. However, the truth was a handful of students still encountered difficulties including lack of vocabulary and inability to select proper words. It is desirable instructors should provide them with appropriate and abundant vocabulary, so that the quality of reflection contents will be enhanced.

This study aimed to gain further understandings of reflective practice by analyzing the word frequency in reflection journals. Even so, we yet found a great number of questions and topics researchable,
such as the extent to which reflection outcomes mirror a learner’s mental growth as well as academic achievements. It is recommended that researchers or scholars who are interested in related issues should deepen the scope of investigations into those underlying implications and messages within it.

References


Moodle me: An ePortfolio community of learning for the graphic design student

David Sinfield, Auckland University of Technology

Keywords: Graphic Design, New Technologies, Moodle, Blended Learning, ePortfolios, Digital Publishing, Enhanced Learning and Teaching, Digitizing Monitors, Community of eLearning,

Abstract

Graphic Design is a discipline that is undergoing major changes in its associated technologies; while underlying design principles may remain fundamentally intact, new digital technologies and publishing mediums provide new challenges. The graphic design student today is equipped with devices such as digital recorders, mpeg players, iPhone, iPads, Cell phones, Laptops, Smart Phones the list is endless as new models and devices.

In a recent review it is forecast that print would be a minor output in the graphic design industry within five years. Substantive changes are also occurring in approaches to teaching and learning, with new technologies offering new opportunities.

This project sought to redevelop the Graphic Design curriculum to incorporate the use of digital technologies and a personalised Moodle based ePortfolio site. Furthermore what is becoming more and more alarming is the reduced amount of contact time we have with the students. We are seeing increased classroom numbers, and having to deliver the same content. With ever increasing budgetary restraints the learning environment for the graphic design student is being pressurised to sit in the same mound as other education programmes that operate on a more financial economical basis.

The purpose of this project was to engage in out-of-class communications that would enhance the learning and teaching. This was seen as engaging with an on-line Moodle based ePortfolio area that was specifically tailored for the students so they could communicate with each other and the tutor of the class. There was also the need for the students to up-load their designs, to obtain critique from their peers and tutors whilst away from class. This would have several benefits as feedback could be given outside of class making the precious time in class much more productive. In doing so it also creates a healthy collaborative design community.

The current prescribed educational procedure is to embrace the constantly changing technology within the secondary and tertiary educational institutes. While this is seen as forward thinking and beneficial both to student and tutor, it does however lead to certain problems of trying to keep up with what is current and what is good, giving little time to analyse particular platforms. In other words the students and tutors are forced to work with what is on offer and to ascertain if it is worthy; in a lot of cases by hearsay or just working with what is available.

Students of today own and use a plethora of digital devices that can store, capture, and transmit information. They use social media sites for communicating on a regular basis for social and educations means. Whilst this idea is good in its functionality, it does however open up a discussion of being the right tool for the job within educational institutes.

This paper discusses the outcomes of a yearlong research project that looked into the technologies of learning and teaching through the use of digital technologies to enhance the graphic design students learning capabilities. The project looked at new and existing technologies not used in the current field of graphic design and introduced them into the leaning curriculum. The project also looked into what was on offer in terms of an ePortfolio platform that could enhance the students learning community and environment.

Introduction

The prescribed educational procedure is to embrace the constantly changing technology within the secondary and tertiary educational institutes. While this is seen as forward thinking and beneficial both to student and tutor, it does however lead to certain problems of trying to keep up with what is current and what is good, giving little time to analyse particular platforms. In other words the students and tutors are forced to work with what is on offer and to ascertain if it is worthy; in a lot of cases by hearsay or just working with what is available.
Students of today own and use a plethora of digital devices that can store, capture, and transmit information. They use social media sites for communicating on a regular basis for social and educational means. Whilst this idea is good in its functionality, it does however open up a discussion of being the right tool for the job within educational institutes. According to Traxter, (2010) "If institutions chose to work with student-owned devices, they would increase their capacity to deliver inclusion with innovation but would find the transformation challenging" (p. 3).

This paper discusses the outcomes of a yearlong research project that looked into the technologies of learning and teaching through the use of digital technologies to enhance the graphic design students learning capabilities. The project looked at new and existing technologies not used in the current field of graphic design and introduced them into the learning curriculum. The project also looked into what was on offer in terms of an ePortfolio platform that could enhance the students learning community and environment.

Graphic Design is a discipline that is undergoing major changes in its associated technologies; while underlying design principles may remain fundamentally intact, new digital technologies and publishing mediums provide new challenges (Gibson, 2008). The graphic design student today is equipped with devices such as digital recorders, mpeg players, iPhone, iPads, cell phones, laptops, smartphones the list is endless as new models and devices come onto the market each month. They communicate in a self-contained society amongst their peers. Traxler (2010) writes, 

"They are both pervasive and ubiquitous, conspicuous and unobtrusive, noteworthy and taken-for-granted. Their roles are new and completely different from older, static, and less personal information technologies such as desktop computers and TVs. Mobile technology is a quantitatively different phenomenon and the statistics are commonplace".

In a recent review it is forecast that print would be a minor output in the graphic design industry within five years. Substantive changes are also occurring in approaches to teaching and learning, with new technologies offering new opportunities (Toppin, 2011).

**Project Outline**

Graphic design continues to be a growing area within education and mainstream industry, especially in emerging economies of third world countries. The trends within these countries, both at education and industry levels, are somewhat lacking from a creative thinking and doing viewpoint, but prosper from the use of new technology investment from an industry and government level. Whilst in New Zealand we have the educational creative teaching ability and excellent industry knowledge, but suffer from the investment in technologies other countries have to offer to their students.

A small research grant was obtained and the project commenced in 2012 to establish ways of delivering content, and improving on the learning environment for the student outside the classroom. This research project involves graphic design staff working as a team to introduce new technologies into learning and teaching approaches with associated curriculum development. These technologies will focus on the use of ePortfolio sites for interacting with the students, digitizer monitors and other hardware and software for both in-class instruction, and the preparation of reusable resources e.g ‘online-lectures’ on topics relating to their course (Toppin 2011). This will enable teaching material to be available to students for independent learning in online and downloadable formats and will enable teaching staff to concentrate in other areas, while allowing students to develop as independent engaged learners. This is seen as the development of the graphic design discipline/curriculum and the development of teaching and learning approaches. It seeks to engage staff in the use of these technologies to build both discipline and teaching and learning expertise. A key aspect of the project will be the adoption of new digital approaches to the curriculum involving staff in an active, team-based exploration. It is expected that long-term changes will be more successfully embedded than through individual development approaches. Long-term resources will be developed that will be made available across disciplines, as appropriate.

This project looked into new and existing digital technologies that could enhance the learning and teaching environment for the graphic design student. The project consisted of three parts; online lecture series, new designing devices such as digital monitors/tablets, and an interactive ePortfolio web based platform.

**Online Lecture Series**

Like it or not one of the first ports of call for students referencing and knowledge collection is to access
the Internet and to search for their given topic. Coupled with the diminishing teaching contact time with the students can lead to an environment of confusion and wrong information gathering. Research suggests that the online sites are not necessarily correct in their content, which can lead to the students failing in their degrees if this is not carefully monitored.

With regards to the students studying, there are many resources available to the online today that can be accessed through sites such as YouTube, Google plus, Linda Dotcom etc., but raises the question, how do we know our students are accessing the right areas and getting the correct information if this is not monitored within the classroom.

Within the university I teach and as part of the curriculum on the programme a series of lectures are given to the students outlining particular content, which is needed within their curriculum. These lectures conventional in delivery will normally engage with theoretical and technical content and forms a workshop scenario on the processes concerned with certain techniques needed by the student to learn the given topic. These lectures form the technical aspirations of how certain techniques are executed using various software such as the Adobe suite and gives little to no engagement from the audience due to the time constraints and student numbers. These are normally processes dealing with production issues and can be intensely technical. Within these lectures the students are expected to take notes to aid them in their practical preparation of the paper they are studying.

The content of these lectures are inhibiting to the student and note taking cannot always give a concise understanding of what is to be achieved. Whilst recording the lecture can aid the student to refer back to can help, but by just recording the lecture and making this available is not necessarily giving the students the correct platform as these lectures can be in excess of an hour and not necessarily giving the student enough visual content.

To this end designing and producing a series of lectures detailing small amounts of content so the student can view these several times if necessary and focusing on just what is required, rather than recording the lecture and putting this available on line. These lectures can be recorded using image capturing software so the student views what is happening on the computer screen in detail rather than seeing the lecturer. There are several benefits of producing these recorded mini lectures in house, and these are as follows:

- Tailor making the videos to the exact content they can be presented without fear of confusion or the incorrect content.
- The student is familiar with the presenter so the students can relate to the person in the videos.
- By up-loaded to the ePortfolio website and offering the videos on a secure network the students are able to view and download them at their leisure.

Monitors/Tablets

A large part of the graphic design field consists of illustration, painting and drawing. It is moving away from the tradition form of ink, pigment paint and paper and is moving more and more into the digital realms of illustration (Czapracki and Burrows, 2011). This has significant implications for speed, colours, textures and varying styles and opens other avenues not normally associated with graphic design, such as gaming or interface design for mobile devices. This of course brings other benefits in the form of the research and processes the student has encountered. By this I mean the student will digitally document all the process they have gone through using these devices and publish them via the ePortfolio platform. This is a significant breakthrough for understanding how the student has evolved their designs and thought processes. In the past the students were expected to document this process within a paper environment, which proved to be haphazard at best (Maloney, 2007). By processing these online gives the tutor a greater understanding of the students and consequently can give greater feedback on this.

The tablets tested in the research project consisted of the 24” Wacom Cintiq monitors normally used for architecture/engineering but not usually in the graphic design field. Other research into this technology resulted in photographic manipulation and re-touching, to how calligraphy interacts with the stylus nib to monitor as apposed to pen nib on paper.

Researching into this area has meant the assessment and evaluating the changing trends of graphic design within the current industry and how the shape of graphic design should be implemented in the future.
A Blended ePortfolio Environment

What is becoming more and more alarming is the reduced amount of contact time and increased classroom numbers with the same amount of content to deliver (Gibbs and Jenkins, 1992). Graphic design is very much a tutor intensive learning environment. This means the students need more tutoring time than say a student studying business or law, as the graphic design student requires a continuing amount of feedback.

With ever increasing budgetary restraints the learning environment for the graphic design student is being pressurised to sit in the same mound as other education programmes that operate on a more financial economical basis. So how can we keep our standards of excellence and still provide the level of learning under these conditions (Maloney, 2007).

In short we have to re evaluate how we teach and adjust our way of contact with the students. We have to teach smarter if we want to maintain the high teaching standards. As an educator and a practicing graphic designer I have seen many changes to the industry over the years, and one of the main areas that has seen significant changes is the ability to communicate on-line regardless of time frames or location. This has opened up the level of communicating, as one no longer has to be in the same room or indeed the same country.

Is this a good thing? Like everything in this world there are always the positive and the negative sides to consider. By means of communicating via the Internet of Web conferencing platforms such as Skype, MSN, Google+Hangout etc, we are able to communicate with a multiple of people with no two people in the same room or even the same country. So if we are communicating on a wider scale this can only be a good thing?

But what about the negative side of communicating online? One of the major drawbacks I see in communicating via online is not being in the same room as the person you are communicating with. This is because as human beings we need to communicate ‘face-to-face’ (Hiltz, Johnson, and Turoff, 2006). One cannot communicate truthfully or effectively if one cannot engage with the person as it were in the same room. There is a need to see their body and subtle facial language or sensing the atmosphere in the room. If we go back in time to the Palaeolithic period of early man, we know they had to communicate with only body and facial expressions as verbal communicating skills had not evolved at that stage (Bahn and Vertut 1988). The evolution process of man has meant that our body expresses and communicates as much as our tongue does. These forms of body expressions we still have and can be seen with examples such as the dilation of the pupil or the rush of blood to the lips extenuating the colour when we are attracted to another person, for example. These are our body signals communicating and they are as important as our verbal communication skills are today.

Further examples of this can be seen when we feel the need to converse using more than language, for example when giving an oral presentation we like to move our hands for expression or walk up and down and to look and engage with the audience. If we were to stand still with our hands in our pockets we would find it very difficult to express ourselves fully. Equally as an audience when participating in a conversation or presentation we are not only listening to the words but also we are looking at their face and body for visual content. Subconsciously we are analysing the situation. Is he sincere, is he telling the truth? We need more than spoken words (Scheflen, 1972).

So there needs to be a balance and an understanding of these new forms of communicating technologies and how we embrace and deliver curriculum to our audience. Like all new technologies there is always an insurgence to leave behind what has been used in the past in favour of the new, but new technologies have to be seen as supportive and not as a superseding component.

Project Aims

One of the purposes of this project was to engage in out-of-class activities that would enhance the learning and teaching (Czapracki and Burrows, 2011). This was seen as engaging with an online ePortfolio area that was specifically tailored for the students so that they could communicate with each other and the tutor of the class. There was also the need for the students to upload their work to ascertain critique from their peers and tutors whilst away from class. This would have several benefits as feedback could be given

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6 Web conferencing refers to a service that allows conferencing events to be shared with remote locations. These are sometimes referred to as webinars or, for interactive conferences, online workshops. In general the service is made possible by Internet technologies, particularly on TCP/IP connections. The service allows real-time point-to-point communications as well as multicast communications from one sender to many receivers. It offers information of text-based messages; voice and video chat to be shared simultaneously, across geographically dispersed locations. Applications for web conferencing include meetings, training events, lectures, or short presentations from any computer.
outside of class making the precious time in class much more fulfilling and productive. To this end several existing ePortfolio platforms were considered such as public social media\(^7\) forums as Facebook, Tumblr, Wordpress, Twitter, Blogged, etc. Public sites such as these although good in content and functionality did cause several concerns from both tutors and students alike. These concerns consisted with issues such, as placing images in the public domain would then open areas of ownership and copyright issues. It is also worth noting that once you publish a photograph or an image on a site such as Facebook this image is no longer the property of the author and becomes the property of the site where it sits. Other concerns were raised by the students in terms of the progression of there working designs and these progressions would not want to sit in the public domain and be viewed as this would possibly cause an unjustly analysis of their designs.

It was established that an internal university ePortfolio area be used for the purposes of this project. This led to the investigation into the possibilities of what was on offer within the university in terms of availability and support. There was an internal existing university ePortfolio site named Mahara\(^8\) which has been used in the past by various schools within the university and indeed other overseas universities. This was trialled by the group of students and tutors but seemed complicated in its functionality and usage for this particular group, as they were mainly dealing with image-based content. A trial period of three weeks was established but it was becoming frustrating to use by both tutors and students and was discarded by the students soon after. This was an interesting exercise as the graphic design student are used to easy functionality and if faced with a complicated process will chose not to engage, as was the case here.

In light of these findings it was established that we would need to tailor make a specific ePortfolio site, as nothing 'off the shelf' would suffice. Therefore an ePortfolio area that was specifically designed for the needs of the graphic design students at Auckland University of Technology, New Zealand. Careful consideration and consulting took place with the students, and through this it was established that there was certain criteria the students wanted, in conjunction with what the tutors wanted whilst still maintaining what was expected of the paper. This was a good opportunity to establish exactly what was required for the students within a site like this.

- **So what did the students want from this ePortfolio site?**

  - The students wanted an area where they could easily up-load their images without the need to resize or compress them. This was a major factor, as the students wanted their image to maintain its original size as this was often seen as having detail that needed to be seen at its original format.

  - The ability to also upload moving image files or animated GIF files easily.

  - Working in a safe environment that they control.

  - The students wanted an exclusive area that was only for that particular class with anonymity to other classes and indeed the general public.

  - An area where their up-loaded images could be shared with peer and tutor critiquing.

  - To be able to give comments on the work.

  - The students wanted this area to be fun and user friendly.

**What was required from the tutors in this ePortfolio site?**

- The need to easily see the images and associate them against the students profile picture and name as well as seeing them as a group in their entirety.

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\(^7\) A social networking service is an online service, platform, or site that focuses on facilitating the building of social networks or social relations among people who, for example, share interests, activities, backgrounds, or real-life connections. A social network service consists of a representation of each user (often a profile), his/her social links, and a variety of additional services. Most social network services are web-based and provide means for users to interact over the Internet, such as e-mail and instant messaging. Online community services are sometimes considered as a social network service, though in a broader sense, social network service usually means an individual-centered service whereas online community services are group-centered. Social networking sites allow users to share ideas, activities, events, and interests within their individual networks.

\(^8\) Mahara is an open source electronic portfolio, blogging and social networking tool, which enable users to demonstrate their life-long learning, skills and development over time to selected audiences. It provides users with blogging tools, a file repository, resume builder and the innovative views framework, which allows users to lay out their portfolio using a drag and drop interface. Users can interact with each other through social networking features like groups and friends, all in a safe environment that they control.
To be able to comment on the images and see all comments from students and tutors together.

The ability to send email from this area without having to exit into another programme.

The uploading of finished projects and work works (PDF files) so marking is that much easier without the need of ploughing through extensive paper work.

Being able to critique work, give feedback and to grade work on line and send comments and notes back as a PDF file. This will help in the process of making the grading and comments much simpler whilst giving the students better feedback and quicker.

When files have been up loaded a date stamp against the file as to keep a record of when the student handed the work in. This is most important if there is a deadline associated with the hand in of a project.

Contact details of the students so easily contact can take place.

A area within the site so resources can be up-loaded, such as the mini lecture series of moving image files associated with their project to help aid in the learning process.

A news section for quick notes such as a bulletin board.

The ability for the tutor to have editing access to this area so that items can be changed or indeed added if required. This feature has been especially useful when specific situations spring up which often happens.

The ePortfolio Site — ImageBlog

One of the main purposes of this site was to have the ability for the students to up-load images that they are designing to gain critical feedback. To this end the decision was made to name the site ‘ImageBlog’ as its main function was engaging in blogging on the students images. The ‘ImageBlog’ ePortfolio area is a Moodle\(^9\) based and has been specifically designed for the graphic design student’s needs as opposed to the university supported Mahara ePortfolio platform. This was also a contentious step as it was going away from the recommended and supported site of Mahara into unknown unsupported territory. To begin with, this was very much an experimental period and a lot of the areas were continually modified and added as we progressed. Continual consultation and feedback from the students was given to ascertain the exact requirements that were needed. To this end I worked with a small group of ten undergraduates students in their final year of study, so if any problems arose they could be rectified rather than escalated if it was a larger group. We worked our way through this and towards the end of their graduating year we had pretty much set out what we wanted to achieve.

At the end of their teaching year I interviewed\(^{10}\) a small number of the students to talk about ImageBlog and to ascertain the outcomes from our new site. I wanted honest answers to see if we had created a site that they wanted and was suitable and could be used by other groups within our department. A series of questions were directed at the students to consider the outcomes from this research project.

I asked a series of open-ended questions not wishing to bait or direct them in any shape or form (Connelly and Clandinin, 1990). I first asked what they thought about Mahara in comparison to the ImageBlog area. One of the main comments the students mentioned was the fact that the ImageBlog area only took them a few hours to understand how it worked and functioned in comparison to Mahara which they never really understood its functionality. Also the students question the validity of a site like Mahara in its complexities and it is worth noting that the students will simply not engage in an area such as Mahara if it is too difficult to use. I am not suggesting that Mahara is not a valid interface, but what is most apparent is when it comes to image based content then Mahara is not the site I would use.

Conclusion

This research project looked at the possibilities of engaging students and teachers in out-of-class communicating to enhance the learning and teaching environment and to involve graphic design staff working as a team to introduce new technologies into learning and teaching approaches, with

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\(^9\) Moodle is an open source Internet based system for e-Learning and educational purposes.

\(^{10}\) Visit the URL link here to see the video interview with the students. http://aratika.aut.ac.nz/adpgn_movies/Staffwork/david/Image_Blog_MaharaipPhone.m4v
associated curriculum development.

As educators I believe that we have to make the educational learning pathway fun and easy accessible as possible. By doing this the students will learn quicker and be much more creative and engaging. I also believe that there is not one site that will cater for all of the programmes within an educational institute, as these are far too diverse and complex for one site to be able to cater for. I am not suggesting that each programme has its own unique ePortfolio area; this would be far too complicated. But what I would suggest is that we tailor our systems to accommodated rather than enforce.

As part of a university faculty that has an array of differing educational programmes and students are always going to want different needs by programmes and students alike. This is always going to be a challenging requirement especially when trying to accommodate a resource area that suits all. It has been made evident that the student's requirements for areas such as these will require a different approach and style as well as functionality. In the faculty I teach this ranges from engineers, computer sciences, visual artists, chemists and business students; so one-disciplines requirements will be completely different from each other.

With this in mind why would we expect one ePortfolio site to suit all? By the pure nature of the differing students and the way they think has to be taken into consideration when embarking on such a resource as this ePortfolio site. Graphic design students think in images, colour, shapes and form not in numbers, forms of written texts. Therefore the comparison between these different students needs another approach to construction and functionality.

At the start of this research project and the experimentation of existing ePortfolio sites it soon became apparent that students were not willing to engage with areas such as these if is too difficult to use, they simple give up which, is totally the opposite to good learning and teaching and what we are trying to establish as educators.

If we are serious about wanting out-of-class communicating to enhance the learning and teaching environment then we need to look at what we want to deliver within our programmes and more importantly we need to ask our students what they want.

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Evidence-Based Learning – Organisation of ePortfolio in Academic Education and further Education at the West Saxon University of Zwickau

Eric Forkel, Christian-Andreas, University of Zwickau

Introduction
In today’s digital age, an application is hardly put to a group in paper form. Many data will be uploaded online through the respective company’s website and also further information will gather on forms in the company’s ERP system (enterprise resource planning system) by the candidate. Through these standardized processes, it is difficult for a candidate to make the application unique, individual and striking. For that, ePortfolios are a good help for this offer. For bringing this possibility closer to the prospective applicants – the students at the West Saxon University of Zwickau – ePortfolio was added to the course called „media competence“. Here, the students will know how to deal with the creation of a personal ePortfolio and on the other hand the functionalities of an ePortfolio Management System. Ravet (2007) [3] has displayed graphically this context in a position paper (figure 1: ePortfolio according to Ravet).

The Issue
The issue can be characterized by a lot of different framework conditions as follows:

▪ global knowledge society
▪ lifelong learning
▪ competence outcome orientation
▪ entrance of the new millennium learners
▪ demand for quality-driven reforms
▪ development of learning environments.

For supporting these conditions new ways of learning are important. On the one hand activities by the learner in a proactive way, learning for knowledge and competence outcomes as well as integration of knowledge structures and balance of concepts, skills and meta-cognitive competence. On the other hand it is relevant to build up complex knowledge structures and objects bottom-up and to use explicit knowledge for organizing implicit knowledge in the mind. Additionally, in today’s digital age special challenges of applications are exist. There are written versus multimedia applications, online upload of big data by companies’ web sides, standards of application process and individualisation of applications. One option to solve these challenges is evidence-based learning with application of portfolios.

Education at the West Saxon University of Zwickau
The West Saxon University of Zwickau is currently training more than 5,000 students in 40 degree programs. The higher education is characterised by academic foundation, practical approach, modern facilities and a very good ratio of 1:30 between teachers and students. By targeting the university to the needs of economic and social development, trends in the fields of technology, health and energy are taken up. As a research-based University close contacts are maintained with the industry. The research profile lines are oriented to mobility and motor vehicle – innovation meets tradition, energy efficiency – climate-friendly and affordable and also health – technically, socially and economically secured. The University of Zwickau still consists of nine faculties. One is the Faculty of Business Sciences. At this study approximately 1,100 students in nine degree courses. These include bachelor, master and diploma degree programs, as well as an MBA degree. These can be studied full-time or part-time.
At the Faculty of Business Sciences the module media competence is offered among others. This module belongs to the module group "personal and social skills". Students must provide 8 ECTS credits from a range of modules in the course of their studies. The module is offered with 6 ECTS credits.

Using ePortfolio exemplified at the Course "Media Competence"

Organisation of the Course "Media Competence"

As mentioned in previous chapter, the module media competence is part of a portfolio of modules in personal and social skills. The students must choose, depending on their field of study (such as business and engineering, business administration or public utilities management), which module they attend. At the end of the study the students must prove a certain number of ECTS credits. Furthermore, it is possible that this module can attended by cross-faculty (i.e. outside the Faculty of Business Sciences) degree programs, e.g. mechanical engineering or automotive engineering.

The module is offered with a capacity of 6 ECTS credits, i.e. a working capacity of 180 hours. These are further divided into 60 hours (4 hours per week) seminar lecture including coaching as well as 120 hours of self-study. The part of the self-study will be covered by means of e-learning. Here, the students are taught the basics and methods. The contents are organized as follows:

- media studies
- media theory / analysis
- media law
- media policy / media sociology
- media design
- media psychology and
- media education.

The elaboration of the content was also carried out by students in the context of the module media competence and was supported by „Mitteldeutsche Akademie für Weiterbildung e.V.“ under the direction of Prof. Christian-Andreas Schumann at the West Saxon University of Zwickau. The Construction of the module media competence is shown in figure 2.

The basics and methods will mediated by the e-learning module. The content in the seminar lecture added on the one hand the e-learning part and on the other hand is flexible in topic. Last addresses current research topics and significant trends in the media sector. Currently in three introductory lectures latest content and development trends for media competence skills and social media are taught. The latter is mainly aimed at the handling and use of social media from a corporate perspective. Thereby, it also addresses current emphases such as the social media controlling with the four success factors customer care, commerce, content and community [4]. After these introductory events, students have time to work on their first examination until the middle of the semester. This consists of the preparation of an image video. This is done through self-study and is supported on the one hand by the accompanying e-learning courses and on the other hand through regular consultations with the lecturer. Therefore, students work in teams up to five people. The content of the 3-5 minutes short video is the introduction of a certain range of the university for a better communication and information gathering for students of the institution as well as for prospective students. Hence, students must be able to adapt to the target audience of the video and therefore put together the correct and useful information. The video should be made under observance media-known scientific principles and methods. This examination enters with a weighting of 80 % in the final grade (compare figure 3: examination content).
For the evaluation of the video following criteria are used:

- own shoots
- video / photo
- music
- language
- interviews
- quality
- originality
- content and
- effort

![Fig. 3: Examination content](image)

Image videos that match throughout a very good quality, will be published on the homepage of West Saxon University of Zwickau. At that, it is important to consider the copyrights.

After this examination has been provided until half of the semester, the second part of the module follows. This part has been prepared on the basis of [2], in particular “didactic fundamentals of ePortfolio work”. This point will be discussed in the following paragraph.

**Integration of ePortfolio in the Course**

In the second half of the semesters begins the part of ePortfolio. This includes a total of three presence lectures. First, a theoretical introduction will take place in the subject area with the following contents:

- What is an ePortfolio?
- evaluation with advantages and disadvantages
- purpose and integration in learning and teaching
- presentation of selected software
- insights in ePortfolio types

After these introductory points, an exercise lecture shows an example of an ePortfolio step by step. Therefore, moodle Exabis is used. The decision was made because of already using moodle as the e-learning portal of the Faculty of Business Sciences. By connecting Exabis to the existing moodle the effort of implementation and organisation has been significantly reduced (e.g. registration of students in the portal). In addition, the software moodle Exabis is freeware. After creating an exemplary ePortfolio by the lecturer, a common exercise lecture with students follows. In this, the students should learn the use of the software and become familiar with the various functions with assistance by the lecturer. Based on the theoretical foundations as well as the exemplary exercises a self-study phase in order to create the second examination follows. During this phase, there are regular opportunities for consultation. Students must create their own ePortfolio. The following functions are to be used here:

- information about the person
- my portfolio with creating different folder categories and filling with files, links, notes in a meaningful way
- create different views for different audiences (e.g. friends / fellow students, employer etc.) in terms of a representative collection of content like a personal profile
- implementation of import and export of ePortfolio profiles
- sharing of their own portfolio with fellow students or the lecturer.
In figure 4 an example of an ePortfolio, which the students must create, is shown. In detail, the creation of different folders and files, links, etc. Finally, a representative ePortfolio of the student will be created. In order to evaluate, the following criteria are used:

- integrity
- quality
- effort / scope
- content
- logical structure
- links

For the evaluation, it also was orientated on the criteria for the evaluation of ePortfolio systems to [1]. The submission of the ePortfolio examination happens by sending of screenshots. These include the documentation of the activities performed. A sharing of the respective ePortfolio with the lecturer to provide the examination has due to software errors in moodle Exabis too unreliable. There were missing some documents or views and often a sharing was not possible.

These challenges will take following courses, so that finally the examination can be provided from the software moodle Exabis. For summary, figure 5 shows the evidence-based change of enhancement of competences.

![ePortfolio in moodle Exabis](image)

**Fig. 4: Example of an ePortfolio in moodle Exabis**

![Evidence-based change of enhancement of competences](image)

**Fig. 5: Evidence-based change of enhancement of competences**
Conclusion

The West Saxon University of Zwickau has integrated at the Faculty of Business Sciences the subject area of ePortfolio in the module media competence. This module can attend both for all courses at the Faculty of Business Sciences as well as for cross-faculty courses. In this module, the students are taught basics about media sciences and social media in the first part and in the second part the topic of ePortfolio. The examination includes firstly the production of an image video and on the other the creation of a personal ePortfolio. The module part media sciences with the creation of an image video is already mature through several courses. However, the part ePortfolio needs to be further developed. Here, the next target is to share the prepared ePortfolio by the students as a second examination directly from the software moodle Exabis out to the lecturer.

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Authors

Prof. Dr.-Ing. habil., Christian-Andreas, Schumann
West Saxon University of Zwickau (Germany), Department of Business Informatics
Dr.-Friedrichs-Ring 2A, D-08056 Zwickau, Germany
christian.schumann@fh-zwickau.de

B.A., Eric, Forkel
West Saxon University of Zwickau (Germany), Department of Business Informatics
Dr.-Friedrichs-Ring 2A, D-08056 Zwickau, Germany
eric.forkel@fh-zwickau.de
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S1.1A: Balancing the two faces of ePortfolios

Vanguard Classroom - QA165

Balancing the two faces of ePortfolios: emphasis on process/learning or product/evidence?

Helen Barrett
Independent consultant, United States of America

- Discuss how the ePortfolio development process can support both personal learning environments (reflection) and capturing/documenting/presenting evidence for external evaluation, including badges. Examine how ePortfolios are created for low-stakes vs. high-stakes purposes. Includes a discussion of free online tools.

http://electronicportfolios.com/balance/

S1.1B: Create your Open Badge

Session Chair: Don Presant
Session Chair: Eric Rousselle
Victory Classroom - QA175

P1: Opening Plenary Session

Royal George Lecture - QA180

Welcome Address: Serge Ravet, ADPIOS, Europortfolio

The future of learning

Gill White
CIPD, United Kingdom

We’re at a tipping point in learning – research into behavioural science tells us that the way we teach, educate and develop our children and employees isn’t the “right” way for the brain to actually learn. What can we, as practitioners, do in order to recognise the science and start to design and deliver with the brain in mind? We’ll explore themes of Behavioural Science, Curation, Enabler, Social Learning and Personalisation to really look at what the Future of Learning might mean for us.

Open Badges and lifelong learning in the workplace: A trade union perspective

Richard Speight
Unison Cymru Wales, United Kingdom

Abstract: “In this short talk, Richard Speight shares his experience of experimenting with and promoting the use of Open Badges as part of his efforts to transform learning in the workplace. In Wales, lifelong learning at work is often led by trade unions through Union Learning Representatives (ULRs) and Wales Union Learning Fund projects who organise activities and opportunities for their colleagues in partnership with employers and learning providers. The talk will focus on how the learner-centred nature of the Open Badges Infrastructure creates exciting opportunity for trades unions in their campaign to encourage learning, skills development and career-progression amongst non-traditional groups of workers.”

A little bio of me: “Richard Speight is the Project Manager for DigiSkills Cymru a Welsh Government funded lifelong learning project created by UNISON Cymru Wales aimed at improving the digital skills of the public service workforce in Wales. He has a background in academic political science, politics and front-line public services, and aims to bring a co-design and citizenship-based approach to digital skills learning in the workplace. He is the chairperson of the JISC/Colegau Cymru Wales Learning Technologies Forum for 2014-15 and is based with WEA Cymru in Bangor, Gwynedd.”
S1.2A: mPortfolios
Session Chair: Helen Barrett
Vanguard Classroom - QA165

mPortfolios (using mobile devices to support reflection)
Helen Barrett
Independent consultant, United States of America

- Mobile devices (iOS, Android, Kindle Fire) can support reflection through regular planning & goal-setting, capturing the learning experience (in text and multimedia), and metacognition (reflecting on change over time). Share your favorite mobile apps that can support all aspects of the portfolio development process.

https://sites.google.com/site/mportfolios/

S1.2B: Open Badge for Competency Recognition
Session Chair: Don Presant
Session Chair: Eric Rousselle
The objective of this session is to respond to the question: who are the people, resources and processes I need to make Open Badges work in an organisation to recognise competencies?
Victory Classroom - QA175

S1.3A: ePortfolios to replace standardized assessments
Session Chair: Helen Barrett
Vanguard Classroom - QA165

ePortfolios to replace standardized assessments
Helen Barrett
Independent consultant, United States of America

- Use collections of evidence to replace standardized measures of achievement (such as the TOEFL to test English language proficiency); incorporates examples of developing effective rubrics to evaluate evidence based on consistent criteria, especially for awarding badges.

https://sites.google.com/site/assess4learning/rubrics

S1.3B: Open Badges: Beyond Institutional Boundaries
Session Chair: Don Presant
Session Chair: Tim Riches
The objective of this session is to explore Open Badge initiatives going beyond institutional barriers like Badge the UK or Cities of Learning: what benefits? How to proceed?
Victory Classroom - QA175
What have we learned from Open Badge Factory statistics and user feedback?
Eric Rousselle, Heli Karjalainen
Discendum Oy, Finland

Open Badge Factory is an Open Badge management system developed by Discendum. It is a cloud service offering tools for organizations to create, issue and manage their Open Badges. The service is being developed within a project funded by TEKES (the Finnish Funding Agency for Innovation). The final version of OBF will be released at the end of 2014. We are, however, developing our service in co-operation with its users and the first version of OBF was released for piloting use in January 2014. At the moment, around 100 organizations from 19 countries are taking part in piloting OBF and it is our goal in this presentation to show what we have learned during the OBF piloting phase through its statistics and user feedback.

First of all, we can state that the interest in the Open badge concept is global. We have piloting organizations from Europe, Africa, Oceania, North America and South America. At least 50% out of 98 organizations have created at least one badge and around 20% of organizations have issued badges. This tells us that many organizations are still at early stages with their badge system and they are testing the concept in practice. We have trained several Finnish organizations and we have learned that badge creation is a demanding process, which requires teamwork, assessment of organizational operations, changes and strategic decisions. One of the challenges is that pioneers taking part in the piloting phase cannot raise the organization’s management’s interest in the matter.

So far 147 badges have been created in OBF, out of which 90 have been used in issuing. 3050 users have been issued badges. So far, 16% of issued badges have been added to users’ own backpacks. Conclusions should not be made based only on this percentage because the acceptance percentage of an individual badge varies from 10% to 80%. It seems that several things affect the acceptance percentage:

- Backpack use and technical problems related to it
- What is the value of the badge for the earner
- The familiarity of the Open badge concept and its benefits

Several organizations have emphasized that adding badges to the backpack and sharing them in social media is too challenging for their target groups. A bigger problem is that the backpack is merely a technical repository. There is a need for organization- or industry-based badge passports that could function as micro-portfolios.

Badge management and statistics are important issues according to feedback from piloting organizations and the role-based user management, templates and tracking tools have received praise. In addition to these features, the possibility to create metabadges which support learning paths, has been expressed.

The goal of our presentation is to show the OBF features which are important to our user base (such as badge application, metabadges and reports). Additionally, we will interpret the OBF statistics and the feedback from our users and based on them present the challenges, which have become apparent when implementing the Open Badge concept. We will also present our views and possible solutions to these challenges. We will bring up challenges related to the backpack concept and present our ideas on a general and an organization-based badge passport and its relation to the portfolio concept.

Open Badges and ePortfolios: "We Don't Need No Stinking Co-Curricular Records"

Don Presant
Learning Agents, Canada
Co-Curricular Records, also known as Co-Curricular Transcripts are enjoying a tremendous surge in popularity in colleges and universities across Canada. Their intent is to track, measure and authenticate learning that students experience outside the classroom, typically in on-campus co-curricular activities, such as student government or sports.

The underlying idea is that providing an authenticated record of these broader learning experiences will give students an advantage when applying for post-graduate positions or for jobs in the “real world”.

And indeed, there are potential benefits: "Decades of research have highlighted the intrinsic value in co-curricular engagement, which complements the students’ academic studies, and enhances a more robust and satisfactory experience."(bit.ly/18J9xTL) Co-curricular web portals can connect students to rich learning experiences in various campus organizations, helping those organizations recruitment and communicate along the way. These experiences can be linked to important summary outcomes and produce an experiential learning record that complements an academic transcript. An ideal vision of a good liberal education.

`But strangely, the product is another signed piece of paper, looking very much like an academic transcript. Why is that?

One of the assumptions is that employers will welcome co-curricular records (CCRs) in the recruitment process. But in a survey of conducted by Trent University in 2013, employers emphatically rejected the notion of another piece of paper suggesting instead that:

- “Students use the document as a tool for reviewing their co-curricular experiences and reflecting on what skills/learning achievements were gained from each.”
- “Any relevant co-curricular experiences should be incorporated into the resume, and potentially referenced in the cover letter.”
- “Students reference the skills identified in the job posting….accuracy and conciseness are valued in applications.”

In addition, the range of activities permitted in the CCR tends to be limited to on-campus activities whose hours can be rigorously tracked and totaled. Doesn't that sound like contact hours rather than competencies? And was there no learning to be had from your off-campus employment, your summer travel, or your community volunteer activities?

Reflection is encouraged or required when making entries in the CCR, but this tends to be piecemeal compliance, with little or no opportunity for overarching reflection. A laundry list. The result is another paper silo ranged alongside the academic transcript. It's up to the resume and cover letter to make sense of it all for employers.

All of which makes Co-Curricular Records half of a good idea, an archaic solution in a networked world. Why not do this and more with Open Badges and ePortfolios?

Open Badges can become the individual records in a Co-Curricular Record. The summary Co-Curricular Record could simply be a collection of relevant achievements from your Backpack, if that's all you want.

But an ePortfolio allows you to expand on the achievement with evidence and context and your reflections about all this can evolve over time.

Co-curricular recognition can now be integrated with academic recognition in dynamic ways, for different purposes. Experiences from other parts of your life can also be rolled into the mix, asserting your values, ability to work with others, leadership potential, problem-solving abilities, resilience under pressure, persistence over time, or whatever you wish to authentically demonstrate.

You can use this interoperable mashup of technologies as an online shop window or private workshop, or both. It's your Personal Learning Environment. It can be linked to criteria repositories, evidence archives, social media and other elements of your Web 2.0 life. The badges of your skills and achievements can advertise your authentic capacities across a multitude of community and professional networks, opening new pathways to learning and achievement.

Isn't all that better than another piece of paper?

This presentation will probe in detail how Open Badges and ePortfolios can both replace and go further than the Co-Curricular Record, inspired by the example of one Canadian university which chose not to follow the CCR herd.
This proposed short paper concerns an innovative approach to open online learning and assessment. This approach embraces situated view of knowing & learning and prepares learners for “21st century” networked contexts. A more general framework and specific course features emerged in extensive design-based refinements of a fully online graduate course on educational assessment. These refinements were intended to foster participatory culture, connectivist learning, and “geeking out,” which in turn were intended to foster productive forms of disciplinary engagement enduring individual understanding, and conventional achievement.

As described in a peer-reviewed 2013 article, this approach organizes students into “networking groups” around shared interests. Disciplinary interaction is organized around individual “wikifolios” where students consider the relative relevance of course knowledge for their own experience, interests, and aspirations. Even though completed wikifolios count towards the majority of the course grade, wikifolio contents are not directly graded (and commenting is not technically required). Rather, the wikifolios are summatively assessed “through” a brief public reflection on consequential, critical, and collaborative engagement. Enduring conceptual knowledge is assessed with time-limited essay items, while achievement is assessed with time limited multiple-choice items from the textbook item bank.

A grant from Google allowed the course to be scaled up as a “Big Open Online Course” and offered to up to 500 students in fall 2013. This “BOOC” was delivered using Google’s Course Builder open learning management system, allowing existing course features like participatory learning analytics, social feedback, and assessments to be streamlined or fully automated. A new peer endorsement & promotion feature instructed (but did not require) students to endorse at least three peer wikifolios as being “complete” and to promote one (and only one) peer wikifolio as being “exemplary.”

Another new feature awarded open digital badges for completing the wikifolios and the exam in each of three course sections (Assessment Practices, Principles5, and Policies). Students who earned all three badges and completed the final received an Assessment Expert badge. The students who received the most peer endorsements in their networking group received a version of the four badges that was emblazoned with the word Leader6. Students who turned their wikifolios into a term paper the met the instructors (relatively strict) criteria were offered a customizable Expert badge in which earners could specify the domain in which they had developed assessment expertise7. The digital badges contained detailed claims and evidence supporting those claims, and were web-enabled. Earners were able to choose what evidence to include in their badges (i.e., completed wikifolio, number of comments, endorsements, & promotions, and warrants for all promotions) and whether to accumulate and annotate them in their Mozilla digital backpack. The ten students who enrolled in an accredited section were required to complete all of the optional wikifolio elements and interact with peers, and received formal points and a regular grade.

Compared to other open online courses, the levels of persistence were quite high: of the 460 students who registered for the course, 160 completed the first assignment and 60 completed the course. Relative to other open and conventional online courses, learning analyses revealed impressive levels of engagement. The average number of words per wikifolio posted was 10 accredited students, 60 non-accredited completers, and 90 droppers 1398, 1207, and 1137, respectively. For the three groups, the average number comments received per wikifolio was 5.6, 3.0, & 2.5, the average number of endorsements was 7.4, 5.1, and 4.0., while the average number of promotions received per wikifolio was 1.31, .68, and .30.

The vast majority of observed engagement was disciplinary (about assessment) and productive (likely to support enduring knowledge). Essentially all of the wikifolio contents concerned the particular assignment. Coding comments made by four average students in each of the three groups revealed that the vast majority of interaction (over 85%) concerned the topic of the assignment, and that over half of the of the comments made reference to a specific educational context. Most of the remaining interactions concerned assessment and education more generally; less the one percent were unrelated to the course. Average exam scores for the accredited students were .89, .83, .78, and .83 across the three midterms and final; average scores for the unaccredited completers were .85, .76, .78, & .75. Seven students submitted a final term paper for extra points and the customizable badge, but only four of the papers met the criteria needed to earn the badge.
S21B: Assessment
Victory Classroom - QA175

ePortfolio as a tool for formative assessment of knowledge and skills
Tanja Rupnik Vec, Leonida Novak
National Education Institute Slovenia (NEIS), Slovenia

This presentation explains the training and support program provided by The National Education Institute of the Republic of Slovenia (NEIS) to the Slovenian teachers involved in the EUfolio project implementation process. Our project activities are aiming at ePortfolio classroom implementation at two levels, namely, as a professional development tool for teachers and as a self-regulation and self-assessment tool for their pupils.

The Slovenian pilot project is a part of the international project European ePortfolio Classrooms – Eufolio in which thirteen partners from seven countries participate. Each country has slightly different objectives inside the frame of the general project aims. Four out of the thirteen countries work with schools, supporting teachers in the process of implementing different kinds of ePortfolios in their classroom practice. We work with fifteen Slovenian schools with eighty teachers of different subject groups being actively involved in the process. The presentation focuses on the principles and strategies used and the results of the first evaluation of ePortfolio implementation in Slovenia.

In the first part of our presentation we will explain two basic concepts at the core of all our activities: the developmental ePortfolio as a professional development tool for teachers and the (self)-assessment ePortfolio as a formative assessment tool for students. We will also explain the strategy of implementing the two concepts in Slovenian schools. We define the developmental ePortfolio as a personal space for teachers and other educational specialists where they plan, monitor and evaluate their professional development. We have created a complex initial teacher training program that consists of tasks through which teachers raise awareness of their personal philosophy about teaching and learning, assess their own professional strengths and weaknesses, define long and short term goals, learn from each other, collect and reflect on their formal and informal achievements, and create a plan for using ePortfolio as a tool for supporting their students' self-assessment and self-regulation skills. Teachers have created impressive ePortfolios – the evidence of the complex training and useful professional journey. The next challenge teachers faced was transferring their experience into everyday teaching practice. They were expected to use ePortfolio as a tool to enhance their students' self-reflection, self-assessment and self-regulation skills. They were provided extra training on this issue.

As one of the two general aims of the ePortfolio pilot in Slovenia is implementation of the assessment for learning (formative assessment, AFL) principles using the e-portfolio, teachers encourage students to self-evaluate their knowledge and skills. Doing so, they get an opportunity to identify their strengths and weaknesses and then, considering this, they specify their personal goals and success criteria in the context of the goals set by their teachers. Teachers organize discussions based on students' ePortfolios about their achievements, which prove that the objectives were reached, so students can choose the kind of evidence they want to use for each goal. During the stage of self-reflection, students use a variety of devices (cues, questionnaires etc.) and receive feedback (from teacher, classmates).

For the purpose of ePortfolio creation and organisation of all the above mentioned activities, an open code application Mahara has been used with a new feature, My learning rubrics, programmed and integrated into the Slovenian version of Mahara, following the AFL principles. The feature consists of five elements: Aims of learning, Prior knowledge, Strategy, Evidence, Self-assessment.
The second part of our presentation focuses on the results of our first evaluation of the ePortfolio implementation process. We will answer the questions about how successfully teachers have grasped the idea of ePortfolio as a formative assessment tool and how successfully they have implemented this idea in their everyday teaching. Two sources of data were used in the evaluation process: a. a self-assessment questionnaire, collecting data about implementation of different elements of the AFL process using ePortfolios, b. teachers’ lesson plans and focus group interviews, collecting qualitative data. We will highlight the strengths and weaknesses of the ePortfolio implementation in the first year of the project, look at the dilemmas faced and discuss possible solutions. The presentation will be an opportunity to discuss and share ideas about how to support schools and teachers in the change implementation process.

Learner Reflective Behaviors in Web-based Portfolio Assessment

Chi-Cheng Chang, Cheng-Chuan Chen
National Taiwan Normal University, Taiwan

Introduction

Reliability or validity investigations of web-based portfolio assessment so far have paid little attention to rubrics analysis, largely focusing on the interpretations of assessment results. If a portfolio assessment is to be significant, rubrics that can accurately predict learning achievements need to be developed, and the reliability as well as validity should be investigated. Moreover, another question is being asked: do Web-based portfolios differ from those of paper versions in terms of rubrics, reliability and validity? Therefore, our research attempted to set up meaningful rubrics and to verify its reliability and validity in a Web-based portfolio assessment.

In discussing reliability issues, rubrics are not easy to manipulate when utilizing portfolio assessment. There are several factors making the reliability dubious, including inconsistent scoring rubrics, ambiguous comments and limited capacity of peer-assessment. Questionable reliability evidence is partly responsible for barriers to utilization of portfolio assessment.

In validity research, with little qualitative and quantitative research available, portfolio studies on reliability and validity primarily rely on self-narratives from students and instructors in order to investigate teaching and learning effectiveness. Digital portfolios yet remain unexplored despite considerable amount of evidence available for paper-based formats. However, due to similar ways used to examine these two types of portfolios, reliability and validity evidence based on paper portfolios can be applied to another type. It is evident the establishment of rubrics will increase assessment reliability and validity; however, the level it achieves and whether or not it is sufficient still remain unknown. It is a matter of great urgency developing assessment rubrics and verifying their reliability or validity.

With above implications in mind, the purpose of this study was 1) to determine the reliability of Web-based portfolio assessment through teaching experiments; 2) to determine the validity of Web-based portfolio assessment through teaching experiments.

Method

The subjects were 72 eleventh-graders with 34 males and 38 females in the “Computer Application” course. The duration of the study was a 12-week period with 3 hours for each week. The students were taught 2 units of the computer course that addressed “Word Processing: Page Setup and File Edition.” Students performed portfolio creation, inspection and self- and peer-assessment via the Web-based portfolio assessment system developed by this study. Teachers, on the other hand, employed this system in order to monitor learning progress as well as to review learning performances. The coursework of both units was digital-based that covered students’ operating skills and abilities to design. In this manner, students were allowed to electronically upload their work to the platform, which was ideally compatible with the process of Web-based portfolio assessment.

Our rubrics were developed after reviewing the literature and collecting opinions from the 4 teachers and other experts in order to construct the face and content validity. The rubrics comprised 6 aspects with a total of 27 items, which were portfolio creation, learning goal, artifact, reflection, attitude and other entries. Scores were given ranging from 1 to 5, with a 0.5-increment in order to precisely distinguish the assessment results. In each rubric, various levels of performance were defined for precise scoring.

Results

The results indicated that: 1) the Web-based portfolio rubrics achieved an acceptable level of reliability; 2) Web-based portfolio assessment, producing a strong level of inter-rater reliability and inner-rater reliability, can serve as a reliable assessment tool; 3) the Web-based portfolio rubrics demonstrated an acceptable level of validity; 4) portfolio scores were highly consistent with students’
achievement test results, implying Web portfolio assessment can be perceived as valid. Future studies are recommended to create feasible portfolio rubrics, and to examine the reliability or validity with concentration on self-built digital portfolios via digital tools such as PowerPoint, Word, or Frontpage software.

What will we need to learn, and have evidence for?

Simon Grant
University of Bolton, United Kingdom

Increasing challenges invite learning in new areas

In a world where inequalities are growing ever wider, the learning agenda changes. We need to learn more about how we can share our capabilities, our potential, and our good ideas, with other people in peer-to-peer (P2P) contexts, for the common good; about how to govern ourselves by consensus, efficiently as well as effectively.

In the portfolio world, we have long experience of using systems and tools to gather and present evidence for knowledge, ability, skill, competence, etc. There is little evidence of "authenticity" being valued in any real labour market.

Identity can be seen as constructed from the union of our interactions with other people. Who we are for someone else relates to what we mean for them, and the interplay between what we do and their ideas, concepts, dreams, plans, etc. We can learn more about who we are, in relationship, through conversations with these other people.

Holding evidence of these matters invites much more than an individual portfolio. It needs to be co-authored, not just self-authored, though we retain control. To understand what evidence could be in these areas, we need to consider the practice that leads to the evidence. A variety of practice is emerging. This paper describes just one new example of such practice, called "re-co-venturing" (RCVI).

Re-co-venturing

Re-co-venturing ("RCVI") is a collaborative, peer-to-peer approach to the hand-in-hand development of both individuals and good ventures — projects, organisations or businesses that contribute to the common good — through reflection and conversation. It is completely independent of any information technology.

Commonly, business support gives little emphasis to co-operative, collaborative models, and very little to personal values (with some notable exceptions). It does not nurture tentative ideas for good collaborative ventures. Unlike current business support, RCVI is fully peer-to-peer and mutual.

The first stage of the RCVI process involves reflection with a guide, considering personal values, to stimulate the writing of two hundred-word "b Briefs." The second, conversation stage may look a little like a recruitment event, or even like speed dating, but it is quite different in character. Each participant brings both an individual brief and a "venture" brief. The individual brief describes concisely what the participant offers -- the kinds of roles that they would be good at, using the skills and knowledge they find satisfying to use. The venture brief outlines a venture -- anything from a dream idea to an up-and-running enterprise that wants to grow -- that the participant values highly. A series of one-to-one conversations are held, each between one participant in the individual position and one in the venture position, finding a "best agreed role" for that individual with that venture. After each conversation, the participants move on, until every participant has talked with every other one, twice -- once each way round.

The RCVI process is a powerful stimulant for learning, growth and development in the highlighted new directions. Our identities can grow, we can start developing our abilities in new directions, and our concepts of good ideas mature. It stimulates learning at a deep level about what others value in what we offer; and about how our ideas for good ventures might or might not engage others collaboratively.

Evidence, collection, visualisation, interpretation, practice, technologies

What people learn about in RCVI is closely related to what they and others value. Previous work has already pointed at portfolios as one of the few plausible approaches for managing evidence relating to values. The "best agreed role" summaries are a good start, being short testimonies to what an individual is valued for in the context of a venture, and mutual by nature, not just invented by the individual.

RCVI practice points to the context of collection of relevant evidence as being in conversation, not alone. There is a point when we have done enough self-centred learning, and it is time to move on from self-authorship (vital though this is as a stage) towards co-authorship of ourselves, our identities.
and values. Collecting useful evidence for this is helped by the fact that the RCVI process is completely mutual, everyone taking both roles, modelling respect and equality of status.

RCVI has little to say as yet about visualisation, interpretation and technologies.

But as for practice, it speaks clearly. To learn what is needed, and to develop ourselves and our ideas to meet the world's emerging challenges, we should be developing collaborative, peer-to-peer, mutual practices such as RCVI, which are more proof against acquisition and subversion by those on the upper side of increasing inequality and inequity.

S21C: Parallel Session

Edinburgh room - QA075

Electronic portfolio to support career growth throughout the continuum

Joshua Jacobs
Association of American Medical Colleges, United States of America

In the United States of America, individuals on their career journey to practice medicine cobble together the information required for them to transition from one part of the continuum to the next in idiosyncratic and ad hoc ways. The application services provided by various associations and societies help standardize the material required, but there is a dearth of services to help curate artifacts that reflect experiences and help guide individuals along the way.

Furthermore, as an individual transits the continuum, there is a notable break at the end of graduate (also known as ‘post-graduate’ in the United Kingdom and in many Commonwealth countries) education in the amount of guidance and information, feedback on knowledge, skills and attitudes, and on competency development. After graduation, most individuals do not have access to systems that continue or extend what has gone before, and that help continue to track experiences, assessments, and highlight learning opportunities for tailored continued professional development.

The systems that exist to support the organizing function and the lifelong learning function highlighted above have, to date, been developed with a largely institution-centered framework. From the perspective of the individual who is crossing the continuum, this framework results in a discontinuous experience, lack of a consolidated and personalized database, and a limited view of the 'map' for career progression that extends much beyond the current phase.

To serve the needs of the individual throughout the career continuum, the Association of American Medical Colleges (AAMC) and the National Board of Medical Examiners (NBME) have come together and developed a new platform named Pivio™. The AAMC is a not-for-profit association founded in 1876 representing all 141 accredited U.S. and 17 accredited Canadian medical schools; nearly 400 major teaching hospitals and health systems, including 51 Department of Veterans Affairs medical centers; and nearly 90 academic and scientific societies. Through these institutions and organizations, the AAMC represents 128,000 faculty members, 75,000 medical students and 110,000 resident physicians. The most well-known AAMC services include MCAT®, AMCAS®, and ERAS®. Founded in 1915, NBME is an independent, not-for-profit organization that serves the public through its high-quality assessments of healthcare professionals. One of the well-known assessments of the NBME is the US Medical Licensing Exam (USMLE®). The two mission-driven organizations are considered stalwarts of medical education with similar visions to promote the health of all, via different mechanisms and expertise.

In developing Pivio, the AAMC and the NBME conducted research that identified needs that cut across the continuum and developed features within the platform to meet those needs as they manifest at different phases along the career path. Pivio was developed using technology standards, security and privacy standards, and medical education data exchange standards with the explicit intention of future integration with other systems, such as learning management systems. This will reduce redundant information entry and tracking and provide greater access to source-verified data, while putting control of data access in the hands of the individual. Pivio will be available to the public in 2014 with the organizing function and features fully developed. Competency management and analytics will be added in the near future.

Let’s Connect: ePortfolio’s, competence data & labour market data in the Southeast of the Netherlands

Maartje Geenen¹, Marius Monen²
¹Provincie Limburg, The Netherlands; ²Brainport Development
During the past 3,5 years the use of ePortfolio’s within companies and educational institutes, as well as the knowledge about competence data, mobility and labour market data experienced enormous growth. This is the result of a governmental project in the Southeast of The Netherlands called Let’s Connect.

Let’s Connect is a project that started in December of 2010 and ended last June. Brainport Development (Eindhoven region) and the province of Limburg joined forces to encourage companies and educational institutes to implement and use ePortfolios for labour market purposes. Furthermore, the aim was to exchange data which is stored in ePortfolios to enhance and facilitate employment mobility. Finally, the project’s partners developed a proof of concept which explores an innovative way to combine and present current labour market data. It draws on various sources (large scale, as well as detailed on a personal level) that can present unprecedented insights. These insights can prove to be a valuable basis for several target groups: unemployed individuals, employed individuals, employers looking for candidates, educational institutes anticipating on the future labour market and policy makers who are interested in long-term trends.

The three most important aspects of the project and the achieved results were:

1. Implementation of ePortfolios

ePortfolios as a part of human resources policy was fairly new at the beginning of the project. With the support of Let’s Connect, seven companies in the Southeast of The Netherlands were provided with the opportunity to first experiment with ePortfolios. They could select an ePortfolio provider which matched best with their local needs. Each company got started with a small group of employees. There were a few requirements that companies had to comply with. One requirement was that the system had to be compliant with the NTA2035-standard. This is a national application of the international IMS ePortfolio specification. This requirement was set to make sure that ePortfolio-data exchange would be possible between companies or between companies and educational institutions. Looking back, all 7 companies experimented with ePortfolio’s in different ways, one more successfully than the other. An important finding is that the implementation of ePortfolios in a company is not a mere technical operation but mostly a process of organizational change. A PhD student from Tilburg University was involved in collecting, documenting and monitoring all company data and experiences gathered.

2. Competence-data exchange

During the pilots, employers expressed their need to have information on their employees’ competences. They use competence data, stored in ePortfolio’s, to compose better teams with individuals that have complementary competences; to improve conversations between managers and employees about their development; and for strategic workforce planning purposes. As many graduates, especially from vocational education, are familiar with competence assessment, ePortfolios competence data can be used to improve the match with their first job or internship. However, the exchange of competence data between different ePortfolio systems and competence frameworks is no easy task. Because most of the organisations use their own competence definitions, competence data expressed in one competence framework has to be converted to the competence framework used by the receiving organisation. During the project a ‘universal competence set’ was developed: an intermediary competence framework to map one competence framework to another. In this way, the receiving organisation can interpret the competence data correctly and express it in their own framework.

3. Regional Dashboard of labour market data

In The Netherlands, numerous parties collect, analyse and present labour market data: some on a large scale, others focusing on a particular region or industry such as logistics. The users of this data are mostly governmental parties and not so much employers or employees. The similarity between all these existing sources is that the generated data is static and mostly presented in papers that only remain relevant for a few months. Another shortcoming is that the various data sources are all presented separately from one another and are not combined to create new insights. The regional dashboard combines various existing real time labour market data online for target groups (government, employers, employees, educational institutions). In addition to the combination of existing data the tool introduces new technologies. For example, it adds semantic technologies to ‘read’ sets of data and extract new insights which weren’t visible before. Another innovation is the use of the O*net classifications of competences, skills etc. to provide better insights in what certain jobs encompass. Moreover it provides better job-matches than searching potential jobs using traditional characteristics such as location, years of experience and education level. This improved matching is used in a powerful feature called ‘match my profile’. The user can compose a profile that can be easily filled with data from LinkedIn, an ePortfolio or from a Word-file containing a CV. By semantically analysing the data a match is made with current vacancies and the possibilities to find work in the coming years.
Higher education staff face a paradigm shift in the transformation of learning and teaching fit for purpose in the 21st century

“The eMatrix – a pilot multi-purpose web platform for learning and teaching through informal open education and accredited professional development pathways”

Through early research carried out as part of an MA dissertation (‘An exploration of key factors influencing (promoting or hindering) current & future use of technologies in Learning and Teaching’), it became clear that current support and training mechanisms for uptake of technology enhanced learning and teaching amongst academic staff were not working. Key hindering factors shown by the study were lack of adequate training support as well as lack of pedagogical support for faculty to develop courses suitable for 21st century learners. Whilst there may be a variety of solutions to these problems, the London Met E-learning Matrix (the eMatrix) is a possible solution to some of these issues. It has become a focal point for developing further mechanisms to help train and support academics at London Metropolitan University in their personal skills development as well as their knowledge of possibilities and pedagogical approaches to technology enhanced learning.

The eMatrix is a complex category driven online content management system that offers multiple authors the opportunity to create related articles in the field of e-learning which can then be cross categorised into appropriate themes and topics. It is a practical piece of work that attempts to build an online community of practice and learning, both for the authors themselves as well as others who would use the material in their learning, teaching and elsewhere. Centred around one institution (London Metropolitan University), it seeks to provide content for pathways of accredited learning for the continuing professional development of its own and other academic staff, as well as offer more informal connected learning content for a variety of areas of technology enhanced learning and teaching.

It is a pioneering web application, seeking to blend articles from e-learning technologists, academics, admin and library staff, and even students if practicable. The process of creating articles has been made especially user friendly and straightforward, with as little technical ‘know-how’ required as possible, yet allowing for multimedia webpage content to be authored and navigated with ease.

The aim is to provide a technology that ‘meets its users on equal terms’ in order to encourage use by all, not only a few technical specialists. A strong emphasis has been placed on the social functions of the articles, to encourage as much sharing into social and professional online networks as possible, therefore promoting further discussion in the wider community.

The next phase of the Ematrix is to become fully ‘mobile responsive’, so that using the site on a small Smartphone or mid sized Tablet can be as engaging as on a full size Laptop or Desktop computer. Coupled to this, extending author accounts to a wider selection of practitioners who are involved in the whole student lifecycle would enable sets of content to be developed and shared by the whole learning community, and where academics could develop approaches together with their colleagues in support roles such as librarians or student support teams and in so doing seamlessly connect and share articles together on the site, into social networks and farther afield.

The eMatrix also encounters some problems, for example privacy of author data, copyright management, robust system admin provision and technical skills required to ensure maintainability. These are problems are common to all applications of this nature and serve to demonstrate many of the hurdles that must be overcome by any who wish to harness the power of technology in more bespoke ways for learning and teaching, as well as for the benefit of the wider student lifecycle as a whole.

**S22A: Open Badges Track**

**Vanguard Classroom - QA165**

**Show Me Your Badge: Using Open Badges to Provide Career and Educational Pathways for Pre-Service Blue Light Professionals**

Bryan Donald Eldridge
High5U, United States of America

**Introduction**

This paper will discuss how open badging strategies are being utilized to standardize training and educational pathways for pre-service blue-light professionals in the areas of law enforcement, jail...
officers, firefighters, and dispatchers. Through open badging, potential candidates have their prior certification and work experience credited toward both the completion of their pre-service basic mandate training and accumulated toward college credit. This accommodation further provides potential candidates access to federal and state grants to pay for their studies whereas they have historically had to pay for tuition and other related training expenses out of pocket.

Background

Benefits of Public Safety Officers Earning a Degree

The Commission on Accreditation for Law Enforcement Agencies notes that "Officers who have received a broad general education have a better opportunity to gain a more thorough understanding of society, to communicate more effectively with citizens, and to engage in the exploration of new ideas and concepts." Numerous other studies conducted over the past forty years have suggested that a college education enhances law enforcement.

Creating New Advantageous Economic Models

Converting the basic mandate program to a credit offering through a partnership with a local state university immediately makes candidates eligible for the same financial assistance as other traditional college and university students.

In addition to the significant financial benefits to the students, the participating institutions reap significant benefits as well:

The public safety training center can attract more students because of the myriad grants and other financial aid packages now available to them.

The local state university benefits by an immediate influx of over 700 students a semester yielding an overall increase in enrollment by over 7%.

Methods

Supporting the Student Experience and Career Pathway Development

Creating the optimal student experience required examining the typical candidate career trajectory over a continuum of time:

Prior work experience and educational achievements that may include prior academic work, certifications, or work experience that may count toward academic credit

Career track of choice within the academy: dispatcher, jail officer, peace officer, firefighter

Potential degree articulations upon completion of their mandatory career track including undergraduate programs in criminology and masters level programs in public administration

Creating Degree Pathways with Open Badges

Pre-service candidates go through a certification-validation process to receive badges for prior experience and existing competencies. For example, existing certifications from the Red Cross in first aid or the American Heart Association in CPR (cardio-pulmonary resuscitation) provides badges in these areas that count toward academic credit in the area of Emergency Preparedness, pending the completion of a brief online module and an in-person hands-on evaluation by a certified proctor.

Creating New Badging Offerings

As part of an overarching effort to make the pre-service programs as modular as possible, gaps where standard outside programs were non-existent or proprietary were filled by new open badge offerings. In this model, a three credit hour course in a traditional higher education environment translates into roughly 4-6 badges in the redesigned basic mandate program.

Conclusions and Extensions

Expanding the Blue-Light Academy Program

Pending feedback collected at the end of the first full year of rollout, the public safety training center will expand their program by opening up enrollment to high school juniors and seniors for all non-lethal force and non-driving related content. This program will include detailed and hands-on instruction in cyber-security and UAV (unmanned aerial vehicle) tracks as a strategy for attracting a wider audience into law enforcement and as an overall unique selling proposition and differentiator of the training center.

Extending the Approach into Other Areas by Targeting Adult Learners

One of the largest social problems facing the geographic region serviced by both the public service training center and the state university it partners with is its unemployed or underemployed adult
population. Leveraging the model built in collaboration with the public service training center, the university is planning partnerships with local businesses in the aviation industry to construct similar programs in aviation supply chain management.

Harnessing informal learning for accreditation: using open resources and personal learning records for academic and professional development

Charlotte May Fregona, Pen Lister
London Metropolitan University, United Kingdom

The development of digital literacies is currently at the forefront of UK higher education thinking. Of concern has been the interface between formal University arrangements for the protection of students, and the standards of learning, teaching and assessment of workplace and other informal learning opportunities on the one hand, and, on the other hand, the wealth of open educational resources and applications available at low, or no, cost to students. The tracking of informal learning online has been a particular issue in relation to student personal development planning (PDP) and to the creation and pedagogical implementation of e-portfolios. ePortfolios which take into account informal and workplace learning have remained somewhat of a holy grail in the face of the rapid development of digital learning. Piloting of tracking, recording and presenting informal learning online via a personal learning record which belongs to, and is controlled by the student without cost or impact to the University infrastructure may suggest, therefore, direction to university policies regarding the use of internal and external digital resources for learning.

These digital forms of learning emphasise the development of learner capacity and capability – or “heutagogical” approaches to learning and teaching. Formal learning is generally classroom based and highly structured, while informal learning control of learning typically rests with the learner. Interest-driven learning and incidental learning are not normally captured for accreditation purposes although research indicates that as much as 80% of learning is done outside the formal boundaries of taught delivery. Where highly autonomous and self-determined learning are required, new and innovative pedagogies which challenge existing assumptions, practices and arrangements for the delivery of higher education are called for - as is the case with, for example, MOOCs (Massive Open Online Courses).

We have been piloting the capturing of informal learning of participants for the purposes of accrediting the professional development of lecturers at Master’s level, by using digital badging within a controlled digital learning space which allows us to capture the informal learning activities of participants. Given the plethora of open educational resources that are available, and the lack of time lecturers and learning support staff actually have to explore and examine them in terms of their relevance and quality, we have provided a collaborative, connecting space to share professional findings and discoveries as well as collections gathered by knowledgeable experts (the eMatrix) and informal learning proprietary tracking software in the form of a personal learning record (the eMosaic) which uses badging principles for recording informal learning activities. This combination of resources was designed to serve the notion that well informed lecturers, tutors, students and support staff, adept at using digital technologies themselves, will, in turn, be able to enhance the digital literacies of their students by embedding these acquired skills in their teaching delivery; while allowing professional accreditation and recognition for the effort these staff make to keep up to date.

Lecturers who wish to be formally accredited are guided through the eMatrix use the badging software to explore guided themes and topics. They may then submit an e-portfolio for HEA and SEDA accredited certification to the University’s Centre for the Enhancement of Learning and Teaching. One of the major advantages of the badging application we are using is that it gives control to the individual student of what is recorded, and what is submitted to the University. This takes the form of a personal learning record (PLR) which is encrypted and maintained in the Cloud and which remains portable at a small cost to the student for life-long learning. The student has the ability to work with the eMatrix and all other online affordances without impacting on the infrastructure of the University, yet is able to document and record online activities for use within assessed reflective learning, if they so desire, in assessment exercises. Any web-based activities that take place outside of the eMatrix resources may also be badged as evidence for assessment. The activities of the participants are gathered as learning analytics and reported to us and used in evidence to support e-portfolio claims. This paper describes the initial phase of the work in progress.

Connecting Recognition, Assessment, and Motivation around ePortfolios with Open Badges

Rebecca Itow, Daniel Thomas Hickey
This proposed long paper for the Open Badges track describes how open digital badges were used to support the recognition, assessment, and motivation of learning in the three awardees in the 2012 Badges for Lifelong Learning. All three awardees included some sort of e-portfolio in the larger learning ecosystem in which badges were incorporated.

Overview

Our evidence comes from a two year project that documented the intended practices outlined in the original 2012 proposals, the enacted practices revealed in interviews conducted as projects got underway, and the formal practices revealed in interviews after the funding cycle was complete. Other evidence includes contextual factors within each project that allowed projects to formalize some practices but not others.

In order to build generally useful knowledge, the specific practices and contextual factors have been organized into more general design principles. These principles have then been linked to relevant peer-reviewed research and digital media in order to help connect this new knowledge to the broader scholarly literature.

This evidence is used to examine (a) how larger contextual factors impacted open badges and e-portfolios, (b) synergy between badges and e-portfolios, (c) the consequences of practices for using badges and e-portfolios for other practices for using open digital badges, and (d) how these findings can inform and be informed by external literatures.

General Findings

One general finding was that the most clearly articulated intended practices concerned recognition and assessment. While all projects intended to use badges to motivate learning and foster identities, these intentions were articulated very generally in project proposals (if at all). As such, most of the motivational practices and principles were inferred by the research team based on current research knowledge of the motivation literature. As each badge system took shape, projects began to recognize (a) how broader factors were impacting recognition and assessment practices, (b) interactions between recognition and assessment practices and (b) the consequences those recognition and assessment practices might have for motivation and identity. Because these effects are multi-directional and occur at multiple levels (i.e., fleeting interactions, individual characteristics, and communal functioning), they are ultimately quite complex. The full paper begins to explore some of the most salient relationships and relevant contextual factors across the three projects, with a particular focus on the practices that concern e-portfolios.

Another general finding is that three projects differed significantly in terms of context and the manner in which badges and e-portfolios were introduced. Supporter 2 Reporter Medals (S2R Medals) added open badges to an existing web-based network that helped middle school students in the UK craft articles and videos about sporting events; University of California, Davis’ Sustainable Agriculture and Food Systems (SA&FS) program was building open badges and e-portfolios while designing an entirely degree program and curriculum; 4H/USDA Robotics3 introduced e-portfolios, open badges, and a new robotics curriculum into a long-running agricultural/rural educational and civic organization.

Specific Findings: Supporter to Reporter (S2R) Medals

By successfully incorporating open badges into an existing networked community, the Supporter to Reporter (S2R) project fostered synergy between open badges and e-portfolios that allowed them to formalize many other intended practices. Given its journalistic focus, it made sense that the S2R portfolio system was open to the public. Teachers, parents, coaches, peers, interviewees, and community members were encouraged to comment on entries in each learner’s e-portfolio; this formalized the assessment practice foster discussion around artifacts. In terms of recognizing learning, they formalized intended practices including provide routes or pathways, credential via an accredited community, external value, external communication; while the project did not originally intend to recognize educator learning, they formalized that practice as well.

In addition to the two portfolio assessment practices, S2R also was able to formalize assessment practices of assess competency levels, use human experts, use internal standards, provide both peer and expert feedback, and use rubrics. By formalizing these recognition and assessment practices, the research team concluded that S2R also managed to formalize all of the motivational/identity practices that were intended or inferred in their proposal. This included offering mentorships and internships, identifying with roles in a system, involving local community, giving academic credit, and providing real life application. Significantly, the more prestigious badges that were associated with these more advanced motivators were scarce; this was intended to stimulate competition.
Capstone experiences have become widespread in U.S. higher education as opportunities for students to apply and demonstrate the learning and skills developed through study in the major field and beyond. Traditionally, these experiences involve a substantial independent research project, undertaken individually or as part of a team effort, or, in applied fields, a project that addresses a real-world need for an external organization or community. But, increasingly, as institutions take more deliberate approaches to students’ personal and professional development, capstone experiences have also begun focusing on integrating learning and aiding students’ transition to graduation and beyond.

For the past ten years, the Capstone Seminar in English at IUPUI has addressed these new purposes—supporting integrative learning and students in transition—through a culminating capstone ePortfolio, in combination with several other strategies. Early in the semester, students work with one another and with Career Office advisors to identify transferable skills and develop an effective resume. They read and discuss essays and studies that speak to the value of liberal arts learning in the workplace and meet with English major alumni pursuing a variety of careers. Most important, they compose ePortfolios that include artifacts and reflections wherein they are guided to think integratively about their learning experiences throughout the English major, across disciplines, and within and outside the formal classroom.

We use a range of pedagogical approach to support students’ ePortfolio work and the integrative thinking and planning encompassed in that work. These approaches include, among others, online discussion forums, peer and instructor review of reflection drafts, use of a rubric that describes stages of “Development in Reflective Thinking,” and reflective prompts designed to offer some guidance and structure for reflections without unduly constraining students’ thinking. All of these strategies are works in progress, of course, changing each year to accommodate changing student needs and demographic shifts in our student body at IUPUI.

Ten years of refining our ePortfolio practices in the capstone seminar have yielded outcomes beyond those we initially expected. On an urban campus dominated by professional programs, English majors often enter the capstone lacking confidence in the value of the liberal arts degree they are about to complete. Selecting artifacts for an ePortfolio work showcase prompts these students to review their early college work in comparison with recent work and to find evidence of increasing sophistication of research, critical thinking, writing, and other skills. Integrative reflection prompts them to articulate what their cumulative learning “adds up to” and to identify skills that can serve as foundations for lifelong learning. As students engage in making sense and meaning of their learning experiences through ePortfolio development, they begin to approach the transition to the workforce or postgraduate training with a greater sense of purposefulness, agency, and accomplishment. As they use hypermedia to compose representations of self for various audiences through ePortfolios, they construct and integrate academic, professional, and personal identities. Ample evidence for these outcomes can be found within the portfolios themselves.

In this session, we will describe our use of ePortfolios to support integrative learning, identity development, and students’ transition from undergraduate education to the next phase of their lives,
and consider how our approaches can be adapted to other disciplines and settings. We will focus on the pedagogical strategies that have worked most effectively for us in ensuring that students engage in meaningful integrative ePortfolio work; share our reflective prompts and rubric for “Development in Reflective Thinking”; and show evidence of integrative learning and identity development drawn from our students’ ePortfolios. We will also engage session participants in suggesting improvements to our practices and in discussing application of our work with ePortfolios to theirs.

**Authenticity: An Essential Characteristic of Evidence for Digital Myself**

Janice Smith\(^1\), Shoji Kajita\(^2\)

\(^1\)Three Canoes LLC, United States of America; \(^2\)Kyoto University, Japan

Building on our previous work associated with ePIC (Kajita and Smith 2011, Smith and Kajita 2012), we continue to explore the ePortfolio construct we call Digital Myself by further examining the concept of authenticity. ePortfolio practitioners often stress the importance of assessing authentic evidence of learning. But what do we mean by authenticity? And how can we measure the authenticity embodied within a specific learning artifact? In what ways can evidence of learning be said to be authentic? When or how can evidence of learning be judged as inauthentic? If a learning artifact is thought to be inauthentic, can it even be said to represent learning?

The Merriam Webster Dictionary defines authenticity as “a) worthy of acceptance or belief as conforming to or based on fact, b) conforming to an original so as to reproduce essential features, or c) made or done the same way as an original” (http://www.merriam-webster.com/dictionary/authentic). This definition is in keeping with our description of Digital Myself as a representation of Analog Myself. The closer Digital Myself comes to a mirror image of Analog Myself, the more authentic Digital Myself can be considered to be.

In this paper we will continue our project’s focus on language ePortfolios by analyzing the authenticity of evidence put forward in publicly shared language portfolios. Among the criteria we propose to characterize authentic evidence of learning are **personal ownership**, **evidence of development over time**, **documentation of meta-level thinking**, **attention to the affective domain**, and **self-expression**. By analyzing evidence of learning that is purported to be authentic, we will be able to comment usefully on the quality of that evidence as well as that of our proposed criteria.

**Personal Ownership:** If creators of ePortfolios merely gather evidence created by others to represent their ideas or document their accomplishments and this evidence has not been personalized to represent their own unique perspective, then it cannot be said to represent their own learning. To create a digital representation of one’s self is to identify one’s own perceptions, thoughts, and emotions in ways that are unique to one’s own experience.

**Development Over Time:** No self is static over time. Evidence of learning can be said to be more authentic when it clearly illustrates the changes individuals experience as they acquire new ideas, develop new skills, and learn from past mistakes.

**Meta-Level Thinking:** Evidence of learning clearly benefits when portfolio owners step back to consider when and how they developed the evidence, why they consider it to be significant, and how it relates to other evidence of their learning. By demonstrating that they can see themselves as others might see them, learners greatly enrich the mirror image they project in their ePortfolio.

**Affect:** Attention focused solely on the cognitive aspects of evidence of learning is incomplete. The full spectrum of learning includes the affective dimension. How learners feel about their accomplishments as well as their challenges provides important evidence of how and why they learn.

**Self-Expression:** The means by which learners choose to organize, display, and illustrate their learning offers evidence of their ability to express their own unique identities. Not all ePortfolio platforms allow self-expression, but those that do offer valuable information about the authenticity of learning artifacts.

Through our work with Digital Myself, we posit that the ultimate purpose of an ePortfolio is to create an accurate and dynamic digital representation that is as close as possible to the analog self. Only by infusing aspects of one’s personal authenticity into this digital re-creation can one hope to approximate the analog self in the digital world. By better understanding what authenticity means and how to begin to achieve it digitally, ePortfolio practitioners can guide learners toward more and more effective practices for representing themselves in a digital context.
Dynamics of the learning process and specificities of the digital being in the university

Samuel Nowakowski¹, Manuel Schneewele², Isabelle Houot³, Nathalie Issenmann⁴
¹Université de Lorraine, LORIA, MSH Lorraine France; ²MSH Lorraine; ³Université de Lorraine, LIS; ⁴Université de Lorraine, Service Universitaire d'Ingénierie et d'Innovation Pédagogique

With the Internet and the multiplication of its tools and services, individuals develop more within an ecosystem in which they become what we call, “digital interconnected beings”. In this virtual space, each is known by a set of traces (written, audio or video content, messages on forums, login, purchase or acts of consultation, etc..) left here and there according to our navigations, consciously or unconsciously, and which form a so-called digital identity (Merzeau, 2013).

The observation of these traces, means to rethink the principles of being together around new ways of sharing, exchange and exhibition (Alloing, 2013) in which the real and virtual maintain an ambiguous relationship (Georges, 2009). We find them at the university with the implementation of Personal Learning Environments (PLE), educational resources, ICT tools (Information Technology and Communication for Education), social networks, through the online services available to students. Thus, an ecosystem composed of communities and knowledge sharing between students is introduced. Therefore, have a digital existence suggests changes in academic strategies for sharing, treatment and broadcasts information (Arnaud, 2012, Chomienné & Lehmans, 2012).

Under the ADN (Learning and Digital Identity) project, we propose, on the one hand to define this "digital being" and its ecosystem for sharing knowledge, secondly, to study the impact of a strong digital identity on the learning process and the relationship to knowledge. Do we assist to a reconfiguration or a (r)evolution of students practices? A project whose aim is also to provide a better understanding of how their digital identity is built to go to new learning models and online professional support taking into account the characteristics of these media.

Therefore, this paper will first focus on the explanation of our problem and the used theoretical backgrounds. In a second time, we will report and analyze preliminary observations obtained from an exploratory survey of a sample of approximately one hundred students from the Master Information and Communication of the University of Lorraine. We then conclude with some recommendations and perspectives.

References


S22C: Teacher Education

Edinburgh room - QA075

ePortfolio and identity construction. A program for newly hired teacher training

Lorella Giannandrea, Stefania Quattrocchi, Pier Giuseppe Rossi, Patrizia Magnoler
University of Macerata, Italy

The paper aims to investigate the construction of a professional identity of teachers during their training, especially for newly hired teachers. The issue of identity has been the subject of numerous studies in recent years, perhaps because we are witnessing a crisis of professional identity linked to a more general questioning of social identities (Dubar 2004). As pointed out by Barbier (1996), identity is a construct that social actors operate on themselves or about other social beings with whom they
are in contact, within a specific situation. To support the development of professional identity, newly hired teachers were prompted to use an ePortfolio in their first year of access to the teaching profession. Thanks to the contribution of the studies on the “didactique professionnelle” (Mayen, 1999; Pastré, 2005), it was decided to start from real situations of lived experience and from their analysis, to build relevant and contextualized pathways to training. The results, emerging through the reading and the coding of the materials produced by the teachers involved in the program, show the dynamics involved in the construction of the professional identity of newly hired teachers and the ability of an ePortfolio to explain these movements and to favor them.

This study has been conducted in the context of a professionalization course based on the construction of an ePortfolio. Twenty-four teachers of diverse school grades attended the course in 2013, during their first year after the hiring as a teacher. The “first year” is a crucial moment in the career of the Italian teachers because it is used as a preparatory phase before the assumption of a stable position. This new professional identity positioning usually places the teachers in a tension between their project for themselves, in line with their identity aspirations, and the project that others attribute to them - in this specific case the educational Institution - which sets out what they will be expected to be and to do. The evolution of a professional identity, moreover, can be seen in the shift from an “ideal vision” of the teaching to a “real profession based on experience” (Wittorsky, 2008). It is within these dynamics that could take place, according to Dubar (2004), the identity transactions.

The course was delivered in a blended way, with the support of the Mahara platform, where the teachers collected the artifacts built during the activities of review of experience, analysis of practice and reflection.

In the frame of a qualitative research analysis and assuming a phenomenological perspective we have analyzed the artifacts developed by the participants during the course and the interviews we realized one year later, to identify signs of identity dynamics.

Through the analysis of the participants’ writings in a diachronic way – at the beginning and at the end of the course and one year later - we observed, first of all, a greater professional self-awareness and the following identity dynamics: the assumption of identity, the identity reinforcement or consolidation, the self-recognition and the confirmation of their own professional identity.

The analysis also shows, for some of the participants, the tension between the identity they recognize for themselves - or which represents the aim of their project for themselves - and the identity attributed by others. So, for examples, there are teachers that consider this institutional transition as a starting point to develop their identity project, while some others have such a representation of the teacher profession that in taking this step they see mainly the risk to be forced/constrained in it. Finally, particularly from the analysis of the interviews emerges the transition, occurred during the course development, from a student's posture, focused on a strict relationship between task and assessment, to a professional's posture where the focus is shifted on taking responsibility of their own decisions and actions and on assuming the risk to experiment new teaching strategies.

The construction of the ePortfolio, thanks to its specific process of gathering evidence and artifacts and the reflection involved, has favored especially to give meaning to the identity dynamics occurred. We therefore believe that the training model implemented can be useful also for in-service teachers who hardly in their careers are put in the condition to reflect on their professional self. Finally, we want to report the different participation’s quality between the teachers involved that emerges both from the writings and from the ePortfolio final pages. This can be justified, according to Kaddouri (2002), by the fact that the training path was imposed by the institution and not chosen by the subjects. In these cases, indeed, a training path can be effective only if it meets the identity project of the subject, in which case it becomes a useful strategy for him/her to bring him/her closer to the realization of its objectives.
Using E-portfolio in Teacher Education: A Case of Hong Kong

Wai-Mui Christina YU
Hong Kong Institute of Education, Hong Kong S.A.R. (China)

Background
E-portfolio has been used for enhancing the outcome-based assessment in teacher education. Student teachers can make good use of the e-portfolio to document their learning process and plan for their professional development in a continuous way. E-portfolio has been shown to have the potential to change the teaching environments and ways in student teachers learning. On the other hand, Field Experience (FE) is a cornerstone that provides a platform for student teachers to put their theory learning into practice. Hence, during 6- to 8-week FE period in a teacher education programme of Hong Kong, pre-service student teachers are required to document their significant learning experiences by creating a “ePortfolio” to (1) demonstrate their professional growth in teaching practice over time, (2) to see the relationships between theory and practice and (3) to reflect how they grow in learning. Such electronic learning portfolios, in contrast to standard university assessments, requires students to see the connections between and among their learning experiences by aligning their evidence with the outcomes and reflecting about why the evidence shows their growing proficiency in ability.

Objectives
Based on the use of FE e-portfolio of the teacher education programme in Hong Kong, this paper aims to examine how e-portfolios provide pre-service teachers with a platform to document their learning progress in FE and bridge the gap between theory and practice through a series of learning activities as well as critical reflection on FE. A set of authentic assessment forms with rubric design will be addressed to guide and evaluate the evidence-based performance by the pre-service teachers. The challenges that the various stakeholders including student teachers, school heads, mentor teachers and university supervisors face and ways to tackles these challenges will be discussed too.

Summary of results
Through a mixed research design, the key findings highlight how e-portfolios as a learning platform to enable pre-service teachers to witness their professional growth through a documentation of teaching and learning evidence, make their professional judgments, reflect upon their existing teaching and learning practices, keep reflective dialogues with professional companions, share teaching resources with others, and plan their own professional learning tracks from time to time. However, pre-service students may not able to reach such high level of learning demands without an adequate guidance and supervision. For example, pre-service teachers’ ability of providing evidence to bridging theory and practice as well as professional judgment and critical reflection is a doubt if there is no adequate training on empowering them to demonstrate the best samples of their work. Providing sufficient training workshops for those key stakeholders is also identified as a crucial factor to sustain the use of FE ePortfolio.

Recommendations
The key strategies that have been adopted to address the challenges include future implementation of e-portfolios and capacity of pre-service teachers to constructively reflect upon their existing practices, embedded practices of practicum arrangements and communication, and roles of mentor teachers, university supervisors and pre-service teachers. A series of training workshops on creating, using and assessing FE ePortfolio for different stakeholders is urgently needed.

From single evidence collection to reflection on learning over time: process and product eportfolio in Teacher Education. A case study.

Gemma Tur, Santos Urbina
University of the Balearic Islands, Spain

Background
There is a wide range of definitions of eportfolio that consider different aspects and issues raised by technology, collaboration and ownership, among others. However, this paper focuses on one of the most interesting classifications of eportfolios: process and product (Barberà and Martín, 2009; Zubizarreta, 2009; Barrett, 2010; 2011; Cambridge, 2010; Coromina, Sabate, Romeo and Ruiz, 2011). The former is aimed at showing the evolution of learning, reflecting on single evidence, which is periodically updated (Rubio and Galván, 2013); the latter is aimed at demonstrating the result of this
learning process. Both concepts are not mutually-exclusive but in fact complementary (Barberà and Martín, 2009).

**The study**

Since the school year 2009-10, an eportfolio project has been implemented in the Early Childhood Teacher Education programme of the University of the Balearic Islands, in Ibiza. The experimental implementation finished in the school year 2012-13 when three students of the first graduation class presented their eportfolio for capstone assessment.

We have reported benefits and limitations of eportfolio construction during the process (Tur and Urbina 2012; 2013), but the current study aims to analyse the role of a product eportfolio to present and link evidence documented during the process. Based on the theoretical framework briefly developed above, students built their process eportfolio with blogs and they created artefacts with all kinds of Web 2.0 tools. Afterwards, they used Google Sites to present their product eportfolio in which they were asked to link evidence amassed over the years and reflect on their learning process.

From a qualitative perspective, and based on a case study methodology this research focus on three eportfolios built over a four-year process and presented for capstone assignment. Two main instruments have been used for data collection. First of all, eportfolio content has been analysed to obtain data on artefact collection, evidence documentation and reflection during the process; also, reflection on learning in the final step of presenting the product of learning was observed. Secondly, students interviews were carried out and analysed in order to see their perceptions of the role of both processes.

**Conclusions**

Our conclusions will discuss the role of presenting an eportfolio in order to conclude the process of constructing it over a period of time. Also, conclusions will raise issues for further implementations and research.

**References**


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**P2: Plenary Session**

**Session Chair:** Don Presant

**Alfie Kohn, author of** *Punished by Rewards*

- Alfie Kohn keynote: [www.youtube.com/watch?v=p_98XcxJqkw](http://www.youtube.com/watch?v=p_98XcxJqkw)
Followed by a conversation with
Daniel T. Hickey, Indiana University, author of the contribution Connecting Recognition, Assessment, and Motivation around ePortfolios with Open Badges

- Daniel T. Hickey responds to Alfie Kohn: www.youtube.com/watch?v=-laB8N6P4lc

Royal George Lecture - QA180

S23A: Europass/ Open Badges Workshop

Vanguard Classroom - QA165

Europass and Open Badges

Dik van der Wal, Erik van den Broek
DUO / Europass, The Netherlands

Presented by Dik van der Wal, manager International Services at DUO and head of the National Europass Center, The Netherlands

(knowledge about Open Badges will be considered present. But if necessary, some extra attention on this subject could be added to the presentation)

Part I. Europass introduction

This will be a brief introduction of Europass, as an initiative of the European Union.

Focus will be at the main product: the European Skills Passport (ESP). (we think knowledge of the ESP is useful for people at ePic, interested in e-portfolio)

The European Skills Passport is based on the Europass CV. But it is in fact much more a showcase e-portfolio than a CV, because other (Europass and non-Europass) documents such as a certificate supplement, copies of attestations, scans of qualifications or digitally signed diplomas (as delivered from within DUO's diploma register) can be added to it.

Those documents can be linked from textual sections within the CV, functioning as a proof for stated competencies and qualifications.

Part II. Europass & Informal learning

Within the Netherlands we lacked the availability of a document that would help citizens make their skills, acquired during “lifelong learning” visible on the labour market. Thus we missed a document that would be useful to document experiences gained through trainee ships, youth activities or volunteer work, and could be added to the European Skills Passport (or another e-portfolio).

Also most Europass documents are more geared on formal learning. But there was one Europass document suitable to be validated by a “third party” (But in fact only used by schools, and not intended for domestic use): the Europass Mobility.

The third party could be training centers, schools, voluntary organizations, enterprises, etc. In comparison to a CV, (which is “self assessment”) the added value of the Europass Mobility is that a third party confirms what the citizen has learned (which is not self assessment). (On the other hand, these skills should not be considered as “validated”, as they have not been the object of a real assessment.)

So... we took this document and started a successful pilot “Europass Mobility for Volunteers”. We promoted this pilot and the idea of domestic informal learning within the Europass network. A new document is planned: The “Europass Experience”. But the EU moves not swiftly...

Part III. Europass & Open Badges

When we got to know the Open Badges initiative, we realized Open Badges are also very well suited for recording skills acquired through informal learning e.g. from job experiences, leisure activities or volunteer work. Like the Europass Mobility for volunteers, it is a third party that records the skills acquired. Also important: Open Badges look far more inspiring than an old-fashioned paper document, or even a PDF.

At this moment we are including Open Badges within our Mobility for Volunteers project. This follow-up project should start shortly after summer. Within this project, Badges will be issued together with the document (and in the future: leave the document away). The content of the document (the description of what is done, learned and achieved by the learner) will be available by clicking on a link in the badge-meta data.
Our goals: building up experience with Open Badges and being able to advice the commission on this subject.

Part IV. Discussion

We would like to reserve really enough time for a fruitful discussion (it should be a workshop) on a number of questions, to see how the audience respond to the ideas above, and get more insight.

Topics for discussion:

- What do you think of the idea of a “Europass Experience” implemented as an Open Badge.
- When issuing badges within this context, this could be done centrally, in a dedicated “Europass” tool. But then “Things” (logo, competency standards, other?) will be added to the free Open Badge format. Will that be a Plus or no?

… more topics to be added...

S23B: Parallel Session
Victory Classroom - QA175
Evidence-Based Learning – Organisation of ePortfolio in Academic Education and further Education at the West Saxony University of Zwickau
Eric Forkel, Christian-Andreas Schumann
West Saxon University of Zwickau, Germany

The West Saxony University of Zwickau is using evidence-based learning strategically as well as in its operatively education. In case of knowledge transfer by evidence-based learning ePortfolio has been an important contribution at the faculty of economic sciences at the West Saxony University of Zwickau. A variety of concepts to use ePortfolio reasonably in education are developing. A first concept is to use ePortfolio in the course media competence at the West Saxony University of Zwickau.

In this course, ePortfolio has a crucial share. The main focus of this seminar is on transfer of media skills. The course is offered in the classification “personal and social competences” at the West Saxony University of Zwickau. The target groups of this course are full-time students, who strongly dominated, correspondence courses and further education.

First part consists of communication of knowledge about the basics of media competence. This contains the most common parts of media competences, for example media sciences, media law, media politics, media design, media psychology and media didactics. The students get an overview of which parts of media competences exist and how to classify. This part is structured in a few lectures at the beginning followed by self-study periods with online learning and accompanying consultations. The online courses are prepared in previous courses of media competence from students. At the end of this first part students get the assignment to prepare an image-video about introduction of special fields at the university. At it students work in groups up to five persons. The image-video shouldn’t take not longer than five minutes.

The second part of this seminar, during the second half of the semester the students get an introduction in the field of ePortfolio. There will be an emphasis on the one hand on theoretical foundations and on the other hand practical exercises. In our education, especially in this course we are using the software “moodle exabis ePortfolio”. This is due to the use of “moodle” for education at our faculty of economic sciences. Moodle exabis is an add-on for moodle. The students use it web-based in their “normal” moodle account. With their account they register in the course an than they have the link to moodle exabis. Therefor, the students create an ePortfolio for the individuals themselves for their second examination. This examination is an individual achievement.

The last part of the course media competence introduce into social media. How to use social media effectively and responsibly for oneself and how can companies use there are the questions that will come up throughout the last part of the course programme. The final grade will be based on the image-video and the ePortfolio of the students. The main part and relative to the effort of assessment is the video.

The structure of the course media competence, especially the organisation, content and assessment of ePortfolio in detail as well as the concept of evidence-based learning at the faculty of economics sciences at the West Saxony University of Zwickau will be described in the paper.
Student Engagement: An evaluation of the effectiveness of explicit and implicit Learning Analytics

Ed de Quincey, Ray Stoneham
University of Greenwich, United Kingdom

Background
Retention and the measurement of student engagement are long standing problems within HE. A number of studies have investigated how students at risk of failing or withdrawing from University courses can be identified but the issue still remains, and looks set to be a key concern with the rapid development of MOOCs within the sector. One area of research in this field that is receiving increased interest is the use of implicit data collection and analysis, commonly known as Learning Analytics (LA). Traditionally a student’s progress and level of engagement has been measured by assessment and physical attendance. However, in a student’s day-to-day interactions with a University, other real-time, implicit measures are being generated that are currently not being fully utilised e.g. VLE server log data, library usage data, Web 2.0/social media usage.

Objectives
This study has identified potential sources of implicit data that represent student engagement levels from an academic perspective by analysing the server log data generated from the usage of the School of Computing and Mathematical Sciences (CMS) Intranet by Undergraduate and Postgraduate students. This data has then been compared with traditional metrics such as attendance and coursework marks to determine the value of these implicit measures in determining a student’s progress and whether they can be used to identify “at risk” students, at various points in the academic year.

Results
Server log data generated by 3,576 students across the School since September 2011 has been collected and during this time there have been 7,899,231 interactions with the CMS student intranet. For this study, the period from September 1st 2012 to May 29th 2013 has been analysed, to represent an academic year, with 2,544,374 interactions from 2,634 students being recorded.

In order to identify which implicit measures might determine/represent a student's progress, two Computing Undergraduate modules have been considered; a first year course called “COMP1314: Digital Media, Computing and Programming” and a 3rd year course “COMP1640: Enterprise Web Software Development”.

Preliminary results indicate that in COMP1314 there is a strong positive correlation between the final module mark and overall attendance at tutorial and lab sessions (0.64) and equally strong positive correlation with the number of interactions with resources related to COMP1314 e.g. views of lecture slides, and the module mark (0.63) i.e. students that have high levels of activity both physically and virtually with the module tend to have higher marks.

There is also a strong positive correlation between the number of intranet interactions and a student’s overall attendance (0.44), perhaps countering the generally held belief that making materials/services available online decreases attendance in lectures. Interestingly there was a weak positive relationship (0.23) between the number of times the coursework specification had been viewed and a student's final mark. A possible explanation for this is that students with higher levels of digital literacy (and therefore might be expected to do well in a Digital Media module) save or print the coursework specification on first view instead of downloading it multiple times when needed.

The distribution of intranet activity shows that the pattern of usage is similar to begin with for students on COMP1314 that eventually receive first class marks and those that fail, with relatively high levels of activity during October and November and a decrease in December. First class students then have a similar pattern of activity to that in the first semester whereas failing students tend to remain at low levels. On average, failing students have half the number of interactions with the intranet than first class students throughout the year.

For the third year course, there was similar, strong positive correlation between attendance and the final mark (0.42) but weak correlation between interaction with module resources/pages and final mark (0.18) and there was in fact no relationship between views of module lecture/tutorial materials and the final mark (-0.07). Whether this reflects improved digital literacy, less reliance on module materials or simply the nature of the module is currently being investigated.

Conclusions
The results from this study indicate that attendance and interactions with a student intranet are useful measures for student engagement and predictors of success, particularly in a student's first year. Reasons for the difference in effect observed between first and third year modules have been tentatively identified, and further investigation is currently being undertaken using Bayesian Belief Network Analysis. This work shows that there are clear implications for LA, and for educators in general, regarding expected patterns and levels of activity for different types and levels of student.

Ensuring Evidence in Research-Based Learning via ePortfolio

Petra Muckel, Birte Heidkamp, David Kergel, Sebastian Hartong, Stefanie Brunner
University of Oldenburg, Germany

Evidence as a Key-Concept in Research-Based Learning

Research-based learning encourages learners to accept the challenge of a research process. Within research- or enquiry-based learning, to be seen as an umbrella term, processes of learning and conducting research are inextricably linked with each other. In the course of a didactical guided research process, (new) knowledge is produced, and learning takes place. Within this research-based learning process learners are inspired to reflect thoroughly on every single research-step (c.f. Brew 2003; Hutchings 2007). In a research- as well in a learning process evidence is seen as a result of grounding propositions in systematically/methodologically collected data. Gaining evidence is hard work for beginners: It requires to a large extent reflectiveness and responsibility for decisions in the own research- and learning-process. Furthermore a dealing with uncertainty and dealing with decisions is to be learnt (Hutchings 2006).

An Idea of Evidence has to be Learnt

From the point of view of research-based learning, the self-regulated and active learning process has to be amended and restated - on the learners’ part - by a willingness for self-reflection and - on the teachers' part - by flexibly accompanying an open-ended and often highly individual process. The didactical challenge is to enable a research-based learning in which strategies for gaining evidence in a qualitative-orientated or more general sense are taught: While a quantitative based evidence focuses more on statistically evidences, qualitative-oriented evidence could stress more the reasoning and reflection of the ongoing research process. A critical reflection and carefully framing of the research question, the explaining of the study design, reflections about the sample, reflections about ethical aspects for example are all parts of a methodological-leded research-process as well as parts of offering and producing evidence. All these aspects must be integrated in an authentic story of doing research, a story developed in many discussions among learners and teachers and among learners. One of the important story lines is a development, starting up with ‘beliefs’ and ‘opinions’ and ending up with strong evidence-based propositions - this is the kind of deep learning that may be hard to learn, but may form “a difference that makes a difference” (Bateson 1972/2000, 459).

The e-Portfolio-Platform as a Didactical Tool in a Research-Based Learning Process

Here the e-portfolio as a didactical and process-oriented tool for reflections gets relevant: The e-portfolio enables a dynamically mapping and representation of the research and learning process. As a collective tool the e-portfolio provides spaces for an ongoing communication among learners, who additionally were inspired to give and to get feedback from each others. These feedback-circles can be considered as supporting the searching for convincing arguments and growing evidence. The permanent discussion of rising questions and knowledge enables a kind of a collaborative validation process which ensures in turn evidence as an important element of research-based learning. Via the e-portfolio it is possible to reflect and frame the research question, to explain the study design, the sampling-strategy etc. All the advances in knowledge which are produced in a research-based learning process can be openly and visibly reflected and discussed.

Good-Practice

To meet such complex requirements a collaborative-shared e-portfolio-platform integrated in a research-based learning-design was developed: A WordPress based collective e-portfolio concept, which focuses on the four C.s - critical thinking, communication, collaboration and creativity (see Norris & Soloway 2014, p.2) - was tested in some advanced seminars in educational sciences at the university of Oldenburg.

The process of the developmental e-portfolio reflects the process of the research-based learning process. The research-based learning process is collaborative discussed and reflected within the e-portfolio and within the seminar by help of the e-portfolio. These continuous collaborative discussions and reflections can be understood as a qualitative orientated evidence learning strategy: Collaborative validation of knowledge constructions can be ensured via the continuously discussions and reflections. These discussions, reflections, and presentations coin Research-Based learning, and take place within the e-portfolio.
Within the London-lecture the described e-portfolio-concept, which meets the requirements of a research, and evidence based learning will be presented.

Literature:


S23C: Parallel Session
Edinburgh room - QA075

Becoming and Belonging: The Web of Identity Development in an Interprofessional Community of Practice

Mandia Mentis
Massey University New Zealand, New Zealand

Professional identity development is not just about gaining specific knowledge and skills, but involves a process of ‘becoming’ a particular kind of person through joining and ‘belonging’ to professional and interprofessional communities (Wenger, 1998). This paper will describe and evaluate the use of ePortfolios as a tool for providing evidence of this process of ‘becoming and belonging’ for practitioners in the area of Inclusive Education across New Zealand.

The metaphor explored in this paper for ‘becoming and belonging’ is Māwhai, which is the Māori term for ‘web’ and ‘net’. Using Māwhai, practitioners provide evidence of ‘webbing’ their interprofessional identity through ‘networks’ of interprofessional practice. The context is a formal, distance, postgraduate program, where Māwhai is used in ePortfolios to document learning and provide evidence of achievement of professional competencies. The online national postgraduate program is for specialist-practitioners to gain further skills and knowledge to work in a variety of educational contexts alongside teachers, parents, students, and other professionals to improve educational outcomes for all learners. The program is a joint initiative funded by the New Zealand Ministry of Education and managed by a consortium partnership of two New Zealand universities, one in the north, and one in the south island. The program cohort of 400 specialist-practitioners are drawn geographically from all regions across New Zealand and from seven specialist areas including: Autism Spectrum Disorder; Blind and Low Vision; Complex Educational Needs; Deaf and Hearing Impairment; Early Intervention; Gifted and Talented; and Learning and Behaviour.

Within this program, the specialist-practitioners’ ‘web’ represents their professional identity, which is anchored in their personal and cultural context. From this core, specialist-practitioners then weave each strand of professional competence in the areas relating to the competencies of their practice. The program facilitates the development of an online interprofessional community of learners whereby, despite the geographical distance, specialist-practitioners ‘network’ with each other to learn ‘with, from and about’ each other’s specialist area. When professionals learn together, a shared understanding is developed that beaks down misconceptions across disciplinary boundaries. Professionals from different specialist and geographical areas who learn together within the formal, online, distance program, practice better together in their ongoing field-work as their interprofessional connections are strengthened.

The boundary between formal learning and ongoing professional practice is blurred in this program through the use of ePortfolios to evidence continuing competence for performance reviews,
accreditation or professional registration. In documenting ongoing learning and practice, practitioners are able to provide evidence of consolidating ‘becoming and belonging’ within their communities of practice. ePortfolios are used to collect and share professional resources nationally, and connect and network across interprofessional and geographical communities. This enables specialist-practitioners to demonstrate evidence of, and reflect on, Māwhai as a way of webbing an interprofessional identity and network.

The paper presents findings on the use of ePortfolios to document Māwhai from both the formal program and ongoing practice. Evidence is captured from three sources, which recognizes the dynamic intersection and integration of evidence in specialist-practitioners’ work. These include: research, the experience and expertise of the teacher-practitioner, and the experience of the child or young person and their family. Using Māwhai in ePortfolios provides visible evidence and visual mapping of practitioners ‘becoming and belonging’, as they strengthen their professional identity through interprofessional networks of practice.


Self-assessment - an appropriate tool for e-portfolios?

Alex Haig, Karen Beggs
NHS Education for Scotland, United Kingdom

Background

Self-assessment is widely used across the health professions for a variety of purposes, including appraisal, CPD and revalidation. Despite numerous reported short-comings, the use of self-assessment is increasing, frequently on the requirements of regulatory bodies. Traditionally it has been a paper exercise, but in recent years self-assessment has appeared in electronic portfolios – a medium often used to collate assessments and other educational requirements.

This paper evaluates the effectiveness of self-assessment delivered via an e-portfolio, to determine if it:

- Improves the accuracy of perception of learning needs
- Promotes appropriate change in learner activity
- Improves clinical practice

This paper is a synthesis of two systematic reviews and a case study.

The first of two systematic reviews examined the evidence for effectiveness of self-assessment in the three research questions. The second evaluates the effectiveness of portfolios as a medium for postgraduate healthcare education. The final research component is an exploratory case study that tests the questions against a large data set (an entire training year of Scottish Foundation doctors) collated by the NHS ePortfolio. The case study provided the opportunity to separate groups of self-assessors identified by the literature, and compare the groups’ self-scores against those of their supervisors and peers in the first and final post rotations; additionally, the groups’ behaviour was matched against the literature for related educational activities recorded by the ePortfolio such as personal development planning. The case study also allowed the medium of e-portfolios to be itself evaluated in practice as an educational infrastructure.

Results

With both reviews, the original research questions were unable to be fully answered due to the paucity of evidence of sufficient quality; however, both did discover relevant related evidence. The self-assessment review found competent practitioners are the best able to self-assess whilst the least competent are the least able to self-assess. Peer assessment was found to be more accurate than self and better aligns with faculty/supervisor assessment. Feedback and benchmarking can improve self-assessment accuracy, especially for the most competent, and video can be seen to enhance this. There is no conclusive evidence that gender or culture effect self-assessment ability. Practical skills are better self-assessed than knowledge-based or “soft” skills. The portfolio review found summative assessment reliability improved with multiple raters and discussion between the raters. Evidence on whether portfolio use aided reflection was mixed, possibly because it was dependent on individual conditions. The engagement and support of supervisors is key to portfolios being used properly, and there is some evidence portfolio learners are less passive then non-users. The time required to effectively use a portfolio is rarely considered. Although many of the literature’s findings were born out by the case study, the data also revealed (often by omission) many flaws in the use of self-assessment and related activities, many of which can be ascribed to the training year examined. Much of the qualitative examination of text corresponded with the wider literature with low self-raters being over-critical of their often superior skills and high self-raters being over confident. However,
there was some dissonance with the literature in the final component in that supervisor scoring conflicted with expectations whilst there text comments continued to match the literature.

Conclusions

Assessment in post-graduate health care is high stakes and resource-intensive. Self-assessment, and its use within an electronic portfolio, is demonstrated to have enormous potential if properly implemented.

**EPIC at EPIC! E-Portfolios for International Competence: Introducing Evidence-Based Learning E-portfolios for Healthcare Students on International Elective Placements**

**Kirstie Coolin, Richard Windle, Mary Brown, Chris Booth, Helen Parsons**
School of Health Sciences, University of Nottingham, United Kingdom

**Context**

Placements are a core part of the undergraduate Nursing Curriculum in the UK in giving students real-world knowledge and understanding of clinical practice.

Contemporary healthcare has a global perspective therefore it is essential that students/practitioners develop a level of international and cultural competence. In year two of The University of Nottingham’s Bachelor of Science in Nursing, 450 students undertake an ‘Elective Placement’ - a 4-week placement arranged by the students themselves giving them the opportunity for international travel if they choose. Students often follow their own professional interest and their final choice is often a very personal one.

E-portfolio-enabled Elective Placements are new for 2014. Previous placements were assessed via paper workbooks whereas the 2014 Elective Placement is assessed via a student-centred e-portfolio with students collecting and reflecting on evidence to demonstrate their learning while on placement. The team are interested in evaluating added pedagogical value that an e-portfolio provides over paper-based methods. Students are expected to curate and share a variety of evidence in their e-portfolio which ought to provide them with the opportunity to be more open, reflective and creative in producing their assessed e-portfolios.

This session will present the e-portfolio model developed for the programme plus initial evaluations as the students return from placement with their e-portfolios.

**Objectives**

Key aims for using e-portfolio for the Elective Placement are:

1. Institutional change - using technology to encourage new methods in teaching/learning and to:
   further embed and widen use of an e-portfolio tool within the academic School
   expand the perception of e-portfolio functions for learning and assessment
   support e-portfolio roll-out and the understanding of what else an e-portfolio can provide in addition to its existing form-based institutional and administrative benefits.

2. Learning - promoting self-directed and transformative learning through:
   familiarising students with portfolio working and self-directed learning (while e-portfolio is embedded into other areas of their course, using e-portfolio in this way will support more personal and student-centred functions, establishing good learning habits for reflection and lifelong learning as required by their profession)
   developing extra professional skills in evidence selection, curation and presentation of skills
   synthesising theory and practice learning
   enabling student collaboration at a distance on a student-set group learning outcome to enrich and share learning experiences
   introducing e-portfolio as a tool for employability.

3. Assessment, feedback and evaluation - introducing new assessment methods to support a modern curriculum by:
   introducing a showcase e-portfolio as an assessed piece of work to include reflection on learning outcomes
learning about the types of evidence collected by students; how these are assembled and synthesised; what evidence of reflective learning/high-level cognition emerges from this group assessing the students’ learning journey and demonstration of learning processes including pre-placement planning activities within the e-portfolio (Risk Assessment and Elective Plan) facilitating feedback from tutors, mentors and peers throughout.

Summary

E-portfolios were introduced into the School of Health Sciences in 2012 for students on the Nursing Undergraduate programme, initially as part of a long term e-learning strategy. Introducing e-administration processes alongside the portfolio has been beneficial for staff and students in reducing paperwork and manual processes and has increased buy-in within the School. Learning and teaching benefits have developed alongside, and use of the e-portfolio has expanded over the last 18 months to form a core part of the e-learning provision offered within the School. Roll-out of the system and its processes is extending to the whole School (Nursing, Midwifery, Physiotherapy, Learning Beyond Registration programmes).

For the Elective Placement, the e-portfolio was used in the pre-placement stage and students first submitted a Risk Assessment and an Elective Plan using forms developed within the e-portfolio. Here, students set their learning objectives for the placement, using the Plan as a live document with continuous feedback and mentoring throughout the placement lifecycle. Both pieces are assessed.

Training was delivered to all students/tutors alongside detailed training materials. An extra member of staff was employed to support students in developing and managing their evidence. In addition to using written reflections as evidence, students have been encouraged to collect a range media (images, video, and audio) to include in their e-portfolio. A particular challenge in collecting healthcare-related evidence is confidentiality, consent and copyright restrictions. Students and tutors were given guidance on the necessary procedures in relation to students’ own photographs and recordings so students could collect evidence creatively within legal and ethical boundaries. Students may also add creative-commons images from the internet and stock photographs supplied by the placement providers to their work.

As well as creating their e-portfolio, students collaborate towards a shared learning objective in small groups and create a joint e-portfolio to share evidence and reflections from their own placement.

Conclusion

By the time of the conference students will have returned from their placements and we hope to show some examples of student portfolios
Enhancing Evidence-Based eLearning Performance by Teaching eFolio Thinking Competencies

Bruno Kappes, Mi Cao
University of Alaska Anchorage, United States of America

Introduction

Internationally and across the US at all education levels, academic eportfolios have increasingly become a prevalent progressive technology for evaluating, assessing and showcasing both the process and product of ones’ learning achievements. Scholars have long recognize successful student learning is more likely achieved if it includes active meaningful exploration, critical thinking and most specifically deliberate “reflection” for facilitating and enhancing engagement and knowledge. When a reflective cognitive teaching process is implemented as a core academic element as found in “efolio thinking” assignments, it may provide a valuable teaching practice specifically relevant to processing evidence-based demonstrations in elearning environments. An efficacious approach to developing comprehensive efolio thinking skills in elearning environments might be to embrace a dedicated sequential training experience built directly into curriculum tasks. Coursework scaffolding may be designed to teach and provide student practice and experience with: select, collect, reflect, connect and equally relevant -- respect, as the customary ethical acknowledgement cultured by proper citation and referencing rather than cut and paste leading to unconscious plagiarism. eFolio Thinking in effect becomes a viable pedagogy with built in observable results.

Method

In this cross-sectional research study, final evidence-based reflections and critical thinking term papers are weighed against objective multiple-choice exams and final grades across several large upper and lower divisions elearning psychology classes. These eight independent samples include (fall 2011, N=200), (spring 2012 N=222) and (summer 2012 N=98) for a total 520 students in five lower-division introductory psychology classes as well as three upper-division abnormal psychology classes across three independent semesters. Students enrolled with the same professor were randomly populated via the university’s online self-registration process. All course sections were double blind whereby students as well as multiple independent evaluators (ten teaching assistants) were unaware of the designed hypotheses nor subsequent analyses performed. Essentially students were trained weekly to demonstrate their experiential elearning skill, acquisition and “efolio thinking” outcomes through the following detailed process and product activities depicted in Table 1. These assignments basically required each student to present weekly Key Concept topics to the rest of the class using this format. Below are the following goals and rationales for each corresponding process product activity.

TABLE 1

eFolio Thinking Protocol

Experiential Learning eFolio Thinking Skills

Goals Process Product

Engagement,Ownership Select Present Key Concept
Critical Thinking, Discrimination Collect Professional Examples
Personal Meaning, Relevance Reflect Personal Examples
Understanding Relationships Connect Prior Learning
Ethics, Acknowledgement Respect Provide Sources
Social and Teaching Presence Respond Peer/Instructor Feedback

Results
Final grade results were statistically assessed across all psychology elearning classes to reveal potential differences in either objective exam performance versus subjective final term paper assignments. As seen in tables 2-4, exams were consistently poor predictors of final grades, whereas critical thinking papers were significantly related to final grade across all courses. Reflection term papers however were also significant predictors of final grades but only for upper division course. Data for general psychology students, where 90% are non-psychology majors, across several semesters consistently revealed that only critical thinking papers were superior predictors of final grades over reflection papers or exams.

**Discussion**

Objective multiple-choice exams versus subjectively written reflection papers or critical thinking papers differ in final grade predictive power. It appears memorization recall tasks common to objective exams may not inherently require much critical thinking or personal reflections and as such do not appear to be indicative or predictive of superior elearning performance. Perhaps since major exams are timed, open-book, open-notes and responses require immediacy, students lack the deeper learning, ownership and personal engagement found to exist with efolio thinking skills assignments. In this study several hundreds students using their efolio thinking performance demonstrated better prediction of final grades than traditional objective exam performance.

**TABLE 2**

Predicting Final Grades by Major Exams and Reflection Papers

**2011 Fall Semester**

**COURSE N EXAM1 EXAM2 EXAM3 Reflection Paper**

<table>
<thead>
<tr>
<th>COURSE</th>
<th>N</th>
<th>EXAM1</th>
<th>EXAM2</th>
<th>EXAM3</th>
<th>Reflection Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Psychology-111</td>
<td>83</td>
<td>.21 r</td>
<td>.21 r</td>
<td>.19 r</td>
<td>.17</td>
</tr>
<tr>
<td>General Psychology-112</td>
<td>71</td>
<td>.18 r</td>
<td>.21 r</td>
<td>.16 r</td>
<td>.23</td>
</tr>
<tr>
<td>Abnormal Psychology-345</td>
<td>46</td>
<td>.13 r</td>
<td>.02 r</td>
<td>.33*</td>
<td></td>
</tr>
</tbody>
</table>

*(p<.05*, p<.01***)

**TABLE 3**

Predicting Final Grades by Major Exams and Critical Thinking Papers

**2012 Spring Semester**

**COURSE N EXAM1 EXAM2 EXAM3 Critical Thinking Paper**

<table>
<thead>
<tr>
<th>COURSE</th>
<th>N</th>
<th>EXAM1</th>
<th>EXAM2</th>
<th>EXAM3</th>
<th>Critical Thinking Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Psychology-111</td>
<td>80</td>
<td>.11 r</td>
<td>.11 r</td>
<td>.14 r</td>
<td>.29*</td>
</tr>
<tr>
<td>General Psychology-112</td>
<td>93</td>
<td>.15 r</td>
<td>.10 r</td>
<td>.10 r</td>
<td>.33*</td>
</tr>
<tr>
<td>Abnormal Psychology-345</td>
<td>49</td>
<td>.34 r</td>
<td>.26 r</td>
<td>.37*</td>
<td></td>
</tr>
</tbody>
</table>

*(p<.05*, p<.01***)

**TABLE 4**

Predicting Final Grades by Major Exams and Critical Thinking Paper

**2012 Summer Semester**

**COURSE N EXAM1 EXAM2 EXAM3 Critical Thinking Paper**

<table>
<thead>
<tr>
<th>COURSE</th>
<th>N</th>
<th>EXAM1</th>
<th>EXAM2</th>
<th>EXAM3</th>
<th>Critical Thinking Paper</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Psychology-111</td>
<td>59</td>
<td>.28 r</td>
<td>.17 r</td>
<td>.18 r</td>
<td>.32*</td>
</tr>
<tr>
<td>Abnormal Psychology-345</td>
<td>39</td>
<td>.24 r</td>
<td>.16 r</td>
<td>.40*</td>
<td></td>
</tr>
</tbody>
</table>

*(p<.05*, p<.01***)
The learning outcomes-based ePortfolio implementation: a three-year journey

Barbara Anne Nicolls
Buckinghamshire New University, United Kingdom

In higher education, learning outcomes based on competencies are used to underpin the assessment of job related skills especially where the curriculum is “projectional” outward facing to employers and the economy rather than “introjectional” facing inwards to the discipline; therefore it is important to satisfy the sponsoring stakeholders by evidencing achievement of the curriculum learning outcomes and graduates who are fit for purpose. Such a curriculum is usually designed to accommodate an embedded personal and professional development planning (PPDP) programme emphasising not only the essential academic and clinical skills development through various modules but also the development of highly flexible, integrative and adaptive life-long learners who are capable of keeping pace with the rapidly changing demands of new knowledge, emerging work roles and changing work environments. Pedagogically, learning outcomes give a clear indication of the goal, that the education provider intends the learner to achieve. Knowledge of the destiny, in turn can help the learner to chart their own journey to this destination. It is this potential for empowerment which allows the proponents of outcomes based education to claim its “student-centredness”

Electronic/digital portfolios use has increased in the disciplines such as healthcare, social work and psychology for assessing the achievement of course learning outcomes as they have been found to enable students to document their development and growth and motivate learning through reflection on experiences. This leads course teams and students to examine skills such as higher order thinking, communication and collaborative working which is not possible in traditional assessments.

This paper investigates the implementation of the Google Sites ePortfolio as a means of assessing student development and achievement of the course learning outcomes in the two-year Diploma in HE in Operating Department Practice course at Bucks New University. The curriculum was developed in collaboration with the local National Health Service (NHS) Trusts and the College of Operating Department Practitioners (COPD) and adheres to the COPD’s Curriculum Document 2008 as well as the UK Health Professions Council’s (HPC) Standards of Education and Training and the Standards of Proficiency which advocate the principles of autonomous and accountable practice with practitioners exercising their own professional judgement. The paper discusses the process of embedding and developing the ePortfolio through the two years and the stages of formative assessment leading to the end of course summative assessment. It examines the role of the ePortfolio in the students’ achievement of the course learning outcomes focussing on self awareness, IT and organisation skills and the transferrability of professional knowledge and skills.

As the course team, we have monitored the ePortfolio process since 2011 and gathered evidence at the end of the year enabled us to identify challenges and address them in a timely manner to inform the future design taking into account the diversity of each cohort recruited annually. Students’ reflective writing in their ePortfolios, anonymous surveys conducted via Google forms and from focus group interviews and discussions, observations of their engagement with the process were collaboratively documented in Google docs. Reflection on these findings informed improvements to the delivery of the curriculum the following semester though no formal changes could be made to the curriculum till the end of the 2-year period. However, we noted the changes to be made especially in the design of the ePortfolio and the management of the process for the following cohort. This was considered a service evaluation at Bucks and ethical approval was not required.

The findings indicated factors such as the structure of the ePortfolio, frequency of tutor engagement with the trainees’ reflective accounts in their ePortfolios creating opportunities for dialogic reflections, availability of a rubric indicating quality and level of engagement with the ePortfolio influenced how the trainees engaged with the ePortfolio for PPDP. Structure according to the curriculum encouraged engagement only when the assignments are submitted with little or no spontaneous reflection on the experience of writing the assignments resulting in a showcase ePortfolio minus the reflections. This could have been improved with regular tutor engagement with some of the reflections in the ePortfolios developing a dialogue for learning. This led to the need to develop a rubric so the trainees were aware of the quality of the reflections in their ePortfolios. The crucial finding was that a checklist with a timetable of tasks would be an effective way to manage the entire process of PPDP by ePortfolio.

These changes were implemented as we progressed through the two years improving the delivery of the curriculum both for the 2011 cohort as well as for the 2012 and 2013 cohorts the following years. These timely changes could be attributed to the technology landscape available to us especially the Google forms and spreadsheets for conducting surveys and collecting data and their user friendliness.
ePortfolio Practice: From Tertiary Classrooms to the Workplace

Dominique-Alain Jan
Gymnase de Nyon, Switzerland

My paper presents the first results of my thesis research I made for the Doctorate in Education with the OpenUniversity UK. My research project investigates graduates' ePortfolio practices during the first three years of their career. I examine what graduate employees do with the ePortfolios they have used during their higher education, and explore what motivates them to sustain or abandon their engagement with ePortfolios. I also investigate the relationship between graduate employees' practices and the expectations of their educators, and their employers.

There is an absence of critical studies around the question of what graduates do with their ePortfolios when they move from higher education into the workplace. This is significant, because my research into the adoption of ePortfolios in higher education has suggested that this is often driven by the assumption that the ePortfolios would contribute to their employability (Patent, 2007), as well as their continuing professional and personal development (Halstead & Sutherland, 2006) and that they would continue to be used throughout an individual's lifetime (Cohn & Hibbitts, 2004).

By investigating how graduates use their ePortfolios at the start of their careers, I suggest a conceptual framework to identify and clarify several areas; not least whether they use them at all. Research about ePortfolios focuses predominantly on the students (e.g. Patent (2007) on student's engagement, Bollinger & Shepherd (2010) on students' perception or Kernan (2010) on students' employability), rather than around other stakeholders. This empirical finding is also noted by Ritzhaupt & Singh (2006) who suggest that research should also question the implications for other bodies such as employers and educators. I therefore developed my research questions so that they cover the perceptions and expectations of each of these two groups, both significantly involved in the transition period through which students become graduate employees.

In the research project, three main questions were formulated:

• RQ1 What are graduates' ePortfolio practices after having left higher education for professional life?

• The first research question looks at what graduates do with the ePortfolios they have used during their higher education, once they have completed their education and within the three first years of their professional careers.

• RQ2 What are educators' expectations of graduates continuing to engage with their ePortfolio after graduation?

• I then investigate how educators expect that their students will continue their ePortfolio practices after graduation, considering how appropriate training; teaching methodology and encouragement support and sustain these expectations.

• RQ3 What are employers' expectations of graduate employees engaging with an ePortfolio at the start of their professional career?

Finally I investigate how employers expect graduate employees to build new or continue previous ePortfolio practices in the first three years of their professional career, considering how these expectations are sustained by internal policies and technical and human support.

The outcomes of these research questions are two-fold, and complement each other. By investigating the first question, I give an empirically based overview of what students do with their ePortfolios after leaving higher education and starting a job, and present both a qualitative account of their motivations, the obstacles that may face them, the technologies they use and the impact of their practices at the start of their professional careers.

By investigating the second research question, I do compare educators' expectations against actual student practice. The result of this investigation gives new data with which to re-process the results of the first research question, in accordance with a grounded theory (GT) approach. With this approach, I have found patterns, causes (students’ or educators’ perceptions, technological or sociological reasons) that may explain the effects (graduates' ePortfolio practices).

By investigating the third question, I am comparing employers' needs and expectations to those of educators and institutions. The results of this investigation should outline areas of difference or coherence between them that could be valuable in terms of aligning or improving taught ePortfolio practices in line with employers' expectations.

The overall projected aims of this research project are to give educators valuable information and guidelines for adapting or reinforcing their current practice in introducing and using ePortfolios in their institution. These adaptations might be to bring them closer to employers' actual requirements, or
graduate employees’ actual practices: this will depend on the results of my research. Furthermore, this information will be of use to businesses that design and provide free or commercial ePortfolio solutions, and direct them how to improve their tools for increased use and adoption.

During my talk I will present the actual result of my research project based on the interviews of 15 stakeholders (graduate employees, employers and educators) this will encompasses the conceptual framework, the methodology and the findings. The final thesis is due to be presented at the beginning of 2015.

S31B: Parallel Session
Victory Classroom - QA175
ePortfolio and badges for job applications – insights from the German qualification program “Credit Points”
Ilona Buchem
Beuth University of Applied Sciences Berlin, Germany

This paper describes current research and development related to the integration of badges into individual ePortfolios as means for employment application in a qualification program for migrant academics in Germany. The program is called “Credit Points for migrant higher education graduates with engineering degrees (short: “Credit Points”) and is the first supplementary qualification program for migrant academics in Germany applying open badges for competence recognition and employment application. The program “Credit Points” is anchored at Beuth University of Applied Sciences Berlin at Gender and Technology Center and is part of the German federal IQ Network.

The IQ Network focuses on promoting Integration through Qualification (IQ) and aims to achieve a sustainable improvement in the labor market integration of adults with migration background. The project “Credit Points” is an educational innovation program designed to complement academic and occupational qualifications of migrant academics with degrees in technical fields. The aim of the project is to help migrant academics supplement their existing qualifications based on individual academic backgrounds and career plans in order to facilitate the entry into the labor market in Germany.

To reach this aim, “Credit Points” applies innovative pedagogical models, career counselling services and cutting-edge learning technologies to support migrant academics in developing, recognising, documenting and communicating skills for employment and employability. “Credit Points” builds on the ePortfolio approach and uses both Mahara and WordPress as ePortfolio software to enhance documentation and presentation individual competencies relevant for the labour market in Germany. Each participant in the qualification program “Credit Points” co-creates an individual study plan for two semesters with the help of a counsellor.

Within these two semesters new qualifications and competencies are acquired to establish a strong job applicant profile matched to the specific expertise field (e.g. engineering, architecture, biotechnology) and to the specific job application area (e.g. research, project management, young professional, senior professional). One of the key concepts in the project “Credit Points” is the application of open badges to supplement the formal “credit points” included in higher education certificates, i.e. course titles and the number of the acquired ECTS points. Digital badges are symbolic representations of an accomplishment, skill, quality or interest that can be easily shared and communicated across contexts such as academic and work-related contexts. Open badges can be viewed as boundary objects, which can be used to cross boundaries between existing divisions such as formal and informal learning or academic and professional context.

The paper will present an examplary case study of a qualification participant including selected examples of open badges designed for this participant and integrated into an individual ePortfolio of the participant. We believe open badges is a promising concept and approach which may be used to capture, recognise and communicate employment-relevant competencies across contexts. However there are a number of challenges to be addressed when designing and integrating badges into application ePortfolios including sustainability of information represented by badges, recognisability of skills, acceptance on the labour market and technical manageability of open badges. As such the concept of open badges extends the traditional understanding of “credit points” and opens new pathways of conceptualising “credit points” in education.

MOODLE ME: An ePortfolio community of learning for the graphic design student
David Lewis Sinfield
Auckland University of Technology, New Zealand

Graphic Design is a discipline that is undergoing major changes in its associated technologies; while underlying design principles may remain fundamentally intact, new digital technologies and publishing mediums provide new challenges. The graphic design student today is equipped with devices such as digital recorders, mpeg players, iPhone, iPads, Cell phones, Laptops, Smart Phones the list is endless as new models and devices.

In a recent review it is forecast that print would be a minor output in the graphic design industry within five years. Substantive changes are also occurring in approaches to teaching and learning, with new technologies offering new opportunities.

This project sought to redevelop the Graphic Design curriculum to incorporate the use of digital technologies and a personalised Moodle based ePortfolio site. Furthermore what is becoming more and more alarming is the reduced amount of contact time we have with the students. We are seeing increased classroom numbers, and having to deliver the same content. With ever increasing budgetary restraints the learning environment for the graphic design student is being pressurised to sit in the same mound as other education programmes that operate on a more financial economical basis.

The purpose of this project was to engage in out-of-class communications that would enhance the learning and teaching. This was seen as engaging with an on-line Moodle based ePortfolio area that was specifically tailored for the students so they could communicate with each other and the tutor of the class. There was also the need for the students to upload their designs, to obtain critique from their peers and tutors whilst away from class. This would have several benefits as feedback could be given outside of class making the precious time in class much more productive. In doing so it also creates a healthy collaborative design community.

The current prescribed educational procedure is to embrace the constantly changing technology within the secondary and tertiary educational institutes. While this is seen as forward thinking and beneficial both to student and tutor, is does however lead to certain problems of trying to keep up with what is current and what is good, giving little time to analyse particular platforms. In other words the students and tutors are forced to work with what is on offer and to ascertain if it is worthy; in a lot of cases by hearsay or just working with what is available.

Students of today own and use a plethora of digital devices that can store, capture, and transmit information. They use social media sites for communicating on a regular basis for social and educations means. Whilst this idea is good in its functionality, it does however open up a discussion of being the right tool for the job within educational institutes.

This paper discusses the outcomes of a yearlong research project that looked into the technologies of learning and teaching through the use of digital technologies to enhance the graphic design students learning capabilities. The project looked at new and existing technologies not used in the current field of graphic design and introduced them into the leaning curriculum. The project also looked into what was on offer in terms of an ePortfolio platform that could enhance the students learning community and environment.

Identity construction: a personal portfolio and e-branding plan for an academic purpose

Ana Maria Belmonte Jiménez
MALAGA UNIVERSITY, Spain

In the past, portfolios were shown in paper folders; however, although the traditional media can live with digital media, we cannot forget the importance of having a digital portfolio and a good visibility and online presence, opening our cv to employers who want to meet possible employees, not only in a national market, but international, with an economic crisis context, where mobility is no longer a problem when it comes to search and find a job, but in many cases, the solution.

When we talk about an e-branding plan, we are referring to the constitution of a personal brand and its visibility, positioning, reputation and communication on internet; through a digital portfolio, we can show and spread our personal brand.

There are many important reasons for creating our own portfolio and e-branding plan; first, its important to stay in the online world, which has already become a precedent for our presentation in the physical world. We can be known on internet and to extend our professional network of contacts in
a specific sector in an easier and faster way than if we would had to do it in a personal way; it gives us added value in a current professional context of high competition and finally, it gives us access to specialized information which would be more difficult to find without having a digital portfolio and a personal brand.

"Know yourself" would be the first step to begin creating a strategy and a portfolio of e-branding plan: it is impossible to build a personal brand plan without knowing our strengths and weaknesses, to emphasize the former and minimize the latter. In addition, we have to be clear about what we offer to the labor market and in what we are specialists; all considering "threats" and "opportunities" that we may face in the workplace, particularly in the professional field to which we must focus professionally.

The next question we should ask ourselves is why I want to build my portfolio and my e-branding plan, what goal or goals intend to achieve with it: promote our reputation? To have digital visibility in order to obtain a job? maintain our image and business contacts? To change our current work? As a result, we have to keep updated our portfolio as well as our digital presence.

Then we should set our target and our work sector. Finally, we have to decide through what tactics and tools we intend to achieve our goal: the creation of our portfolio and e-branding plan.

This communication gives us guidelines and tools to build a personal portfolio and an e-branding plan, by exposing the own personal portfolio and e-branding plan of the author (Professor of Advertising and Public Relations in the Faculty of Science of Communication at Málaga University) for the acceptance of a research stay at the University degli Studi di Florence, Italy.

S31C: Parallel Session
Princess Caroline Classroom - QA220

Telling the Whole Story: Using ePortfolios to Assure Quality Learning

Romy Lawson
University of Wollongong, Australia

Assuring learning outcomes is a critical component of educational quality assurance and curriculum enhancement principles. The process is defined as the way educational institutions measure the learning outcomes of students against a specific set of program goals (Hall & Kro, 2006). Institutions are adopting this outcome based approach to education but are often finding challenges in getting staff and student engagement, as well as finding strategies that are efficient for large cohorts of students (Lawson et al., 2012). Another challenge centres on analysing students' achievement using final percentage marks (Yorke, 2008). This is a common method for assuring learning as the data is more easily accessible. However there is concern about adopting this evidence alone as there is no agreement on how student performance should be graded, and no understanding of how grades are cumulated into an overall index of achievement (the Australian Vice-Chancellors Committee (2002) found thirteen different grading scales in operation for reporting student overall achievement in undergraduate degrees). This gives rise to questions about what a percentage or GPA (grade point average) or degree classification (2:1 etc) really does tell us, which capabilities were actually assessed, at what level and how the grading was decided (Oliver, 2010).

Yorke (2008) has proposed that evidence of the achievement of standards can (some might say 'should') be created by students, in order to widen the assessment frame so that valued achievements can be recognised, and meaningful information conveyed to interested parties such as employers/external agencies. However with the emphasis on final percentage marks, students tend to gather evidence of achievement in a "bottom up" way, collecting marks and grades during a course, until they have sufficient to graduate. This creates a focus on marks, grades and summative assessment. This is problematic because in reaching the conciseness of an overall grade a loss of detail is inevitable, which prompts the need for supplementary material. Yorke proposes doing assessment differently through a 'top down' method, asking students to question 'How have you satisfied, through your work, the learning outcomes stated for your particular program of study?' This opens up the possibility of the student making a case that they merit the award in question, by stressing their individual profile of achievement. It allows for a mixture of evidence including, qualitative assessments of performance in naturalistic settings (such as work placements), and claims of achievements that are not formally assessable by the higher education institution but can nevertheless be supported by evidence. The making of claims of this sort implies that the student has the relevant information to hand, which would require the collation of a portfolio of achievements.

ePortfolios allow students to demonstrate competencies and reflect upon experiences, documenting academic preparation and career readiness. Creating ePortfolios is said to enable students to
enhance their learning by giving them a better understanding of their skills and attributes, as well as where and how they need to improve to meet academic and career goals (Yancey, 1999). The introduction of ePortfolios to Higher Education programs is not novel however limited examples show ePortfolios being used in a whole of program approach (where students take ownership of developing their program goals through collecting, collating, evaluating and selecting evidence from day one of the degree till graduation and beyond in some cases). This engages students with the learning outcomes and the expected standards at different stages, allowing both them and academics to monitor progress throughout the degree, as well as providing an evidence repository for internal and external quality assurance.

This session looks at how portfolios can be used in this ‘top down’ approach to provide supplementary and/or additional evidence to assure achievement of learning to students, the institution and external parties.

**Monitoring student progress and enhancing student engagement in a flexible environment with eportfolio blogs in a postgraduate medical sonography course: A case study from the University of South Australia**

**Nayana Anupam Parange**  
University of South Australia, Australia

**Objective:**

The objective of this paper is to discuss continual online blog via eportfolios as a formative assessment tool to enhance student learning and engagement in one of our postgraduate sonography courses-fetal echocardiography (RADY 5027) . This course RADY 5027 was newly designed and delivered from 2009 onwards.

**Background/context:**

Learning is a complex task, especially in a student centred environment. Deeper methods of learning involve critical thinking, scholarly thought and reflective practice, as discussed in Bloom’s taxonomy (Bloom et.al, 1956); it enables application of knowledge in real-world situations and teaches the necessary skills and abilities to be able to address problem-solving in unfamiliar situations. It involves interaction, collaboration and excellent communication, all of which are prerequisites for a health professional.

University of South Australia offers postgraduate medical sonography Programs which are completely external. The course Fetal Echocardiography ( RADY 5027) is one of the courses offered as a Masters elective. This course is completely delivered online, using flexible delivery. The aim of this course is to provide ultrasound professionals experienced in obstetric scanning with an opportunity to improve their knowledge of fetal heart imaging with ultrasound.

This course is undertaken as a semester-long course online, at a Masters level, and helps students learn to diagnose complex congenital heart disease in the fetus. Students in this course are clinicians, practising sonographers or sonologists and most often, are senior tutors or heads of sonography departments.

**How this was addressed:**

Eportfolios via the Mahara MOODLE platform were introduced across the postgraduate medical sonography programs in the University of South Australia.

Eportfolio blogs were embedded within the curriculum into a structured, semi-prescriptive framework as formative assessment to promote student involvement with the course and deepen their knowledge base.

Eporfolios were utilised to develop their problem-solving skills, reflect on their own current professional practice, develop critical thinking about the existing practice, use collaborative learning and promote ongoing dialogue and peer feedback as well as demonstrate a change in their clinical practice after acquiring new knowledge and skills.

This paper will report on preliminary experience and demonstrate some samples of student work, and demonstrate the use of eportfolios in blogging as a means for enhancing student learning and engaging students in the online environment. It will consider the role of eportfolio blogs in constructive alignment (Biggs 2003) with learning objectives and feedback. It will also invite the forum to a discussion on strengths and weaknesses of eportfolio blogging as an assessment task as well as suggestions for future developments and improvements.
Eportfolio for Program assessment is not only a powerful tool for Program evaluation and external accreditation but also a useful reflective process for Program improvement. A case study from the Postgraduate medical sonography Programs, University of South Australia

Nayana Anupam Parange
University of South Australia, Australia

Introduction:
This paper discusses the motivation, purpose, logistics, challenges, successes and barriers with eportfolio as a reporting tool for external accreditation as well as a reflective process to support ongoing improvement of the program to achieve intended learning outcomes and competencies achieved by sonographers graduating from the University of South Australia.

Context:
University of South Australia offers three Postgraduate Sonography Programs which were recently up for external reaccreditation in 2014.

In Australia, sonography is competency based, and sonography education is mainly undertaken at a postgraduate level. All programs have to be formally accredited by the Australian Sonographer Accreditation Registry (ASAR). ASAR Board is the only body in Australia with the authority to accredit all ultrasound Programs offered by various providers, and establishes criteria against which all courses are accredited and regularly reaccredited.

Course Providers have to refer to the accreditation framework which establishes the policies, processes and standards within which courses are granted accreditation for a specified time, having met transparent and defined requirements. This framework is available from the ASAR website (www.asar.com.au) and includes the eight Standards for Accreditation of Sonography Courses (SASC) which include Governance, Course Goals and Outcomes, Course Content, Resources and Staffing, Teaching and Learning, Assessment, Research and Scholarship and Evaluation and Review. For accreditation, the SASC has to be used in conjunction with the ASAR Course Application pack (CAAP) as well as the Competency Standards for the entry level sonographer defined by Australian Sonographer Association (ASA).

This involves a lot of paperwork to provide evidence that the Programs are delivered to the highest academic standard and professional quality for the students to graduate with key competencies outlined by ASAR.

How was it addressed:
An examination of the three documents outlined above, showed that a depth and breadth of evidence was required to authenticate achievement of standards expected. To showcase and display accomplishments in a variety of formats such as videos, pictures, slideshows, charts, reports in a variety of formats such as excel spreadsheets and pdf formats, an eportfolio format using the Mahara platform was chosen to collect, organise and display the evidence. Mahara is the current eportfolio tool used by University of South Australia.

In preparation for accreditation, a self-assessment was initially conducted and Program meetings were planned to consider the following:

- What data do we need to collect and report?
- What data is missing?
- What artifacts do we need to collect to generate the assessment data needed?
What reports do we need in relation to student data, faculty data and clinical supervisor data?

How can we develop a digital story to demonstrate an integration of all courses across the Program?

What deadlines must we have for collection of artifacts in order to achieve timely submission?

Several meetings were scheduled to reevaluate progress. A range of digital artifacts were collected by the team, using from ‘best practice examples’ across the Program. Measures were taken to address the gaps identified. A visually compelling eportfolio with evidence was generated and presented for accreditation.

Conclusion:

External accreditation is a rigorous task and our experience suggests that despite some challenges, which will be discussed in the presentation, eportfolio is a robust tool for extensible authentication. Through the process of evidence-based thinking and using the framework of eportfolios, we were able to showcase a richness and depth of evidence which could not have been showcased by standard methods of reporting.

This process of accreditation using an eportfolio encouraged a shared responsibility within the team to set goals and evaluate progress, ensuring timely submission of documentation in a format easy to read, as well as producing authentic evidence of achievements of key standards. This led to a favourable and positive feedback from the ASAR accreditation panel with a successful reaccreditation for next 5 years.

In addition to its role in showcasing evidence, our accreditation eportfolio also prompted an in-depth review of current practice in the eight standards specified, and identified aspects of the Program which could be improved to enhance the learning experience. This was a driver for change leading to many brainstorming sessions, enthusing the academics within the Program to contribute to Program innovations and Course redesign for increased student engagement as well as more robust assessments. Our accreditation eportfolio has now become a living, flexible document and a reference resource for the academics within the Program as well as a reference point for future annual reports which have to be submitted as a mandatory requirement for reaccreditation.

We hope that our experience serves as a useful reference and will encourage other Program Directors to explore eportfolios as a powerful tool for external accreditation.

References:


Contacts:


ePortfolio for Students' Independent Learning (Master Program Course in Business English)

Olga Smolyaninova, Elena Nazarenko
Siberian Federal University, Russian Federation

The new federal educational standard of higher professional education specifies that the graduate should master professional life-learning skills by means of using original sources, including electronic resources in the foreign language, from different areas of general and professional knowledge. Modern society needs a university graduate ready to lifelong professional development. Not only it is extremely important for the university graduate to master a set of general and professional competencies but to be prepared to acquire new knowledge and adapt to the new changing labor conditions. That is why one of the main tasks of professional education is preparing a university graduate for a future independent work in a polycultural society.

Electronic portfolio within a course in Business English allows using the working hours effectively, both in-class working hours and especially hours dedicated to independent students’ work. The analysis of modern master degree programs shows that the total amount of students’ independent work has grown within the latest three years and is becoming more and more important in accordance with the new federal educational standards of the third generation. Within a course in Business English the students’ independent work has grown from 50% of the whole course workload to 70%.
A teacher of Business English faces the two important problems – improving students’ foreign language skills and developing students’ skills in independent work. We think that using modern information technologies, and in our case ePortfolio technology allow solving the both problems effectively within a course in Business English for master program students.

Information Technology in Education and Lifelong Learning Chair of Institute of Psychology, Education and Sociology, Siberian Federal University has extensive experience in using ePortfolio as a tool of electronic identification. The educational experiment on using ePortfolio in assessing the students’ educational achievements began at SibFU in 2008. In 2009 we carried out the experiment on introducing ePortfolio in the teacher assessment system at IEPS SibFU. In 2012 master program students of IEPS SibFU within a course in Business English worked with their Mahara ePortfolio accounts. The laboratory work included using Europass documents as the model. The experience accumulated in IEPS SibFU allows concluding that using ePortfolio helps in developing language competencies, promotes students’ skills in independent work and supports development of academic and professional mobility. Using ePortfolio stimulates motivation and responsibility in learning and makes the process of education visible to the student; helps to plan further education and makes the students’ achievements visible to the prospective employers, teachers, peers/co-students and introduces the student into the European context.

A large independent students’ workload is characteristic for master programs, including a course in Business English. Among the difficulties students and teachers face within the course are the following: 1) students do not know the course requirements; 2) students underestimate the role of independent work; 3) students do not have enough skills to study a foreign language independently using teacher’s support; 4) students are not accustomed to get teacher’s support otherwise than within a classroom face-to-face interaction. Very often students are undermotivated and do not believe it is possible for them to reach success in independent work. We think that students need pedagogical and methodological support for independent work within a master program course in Business English; ePortfolio may be the means to offer a student pedagogical and methodological support and the means of interaction between teacher and students, as well it may be used for peer-to-peer interaction.

P3: Plenary Session
Royal George Lecture - QA180
Beyond Assessment: Recognizing Achievement in a Networked World

Stephen Downes
National Research Council of Canada, Canada

If formal learning can be thought of as supporting the acquisition of a body of knowledge, informal learning can be characterized as supporting the completion of a task or objective. Formal learning may be seen as ‘just in case’ while informal learning can be seen as ‘just in time’. From the perspective of the learner, the success of informal learning can be seen as immediate and manifest: it supports the completion of the task or objective. But how can informal learning be seen as supporting the first objective: the achievement, over time, of mastery over a field or domain of knowledge. Traditional formal learning employs exams and assignments to test achievement, and often includes process-based metrics, such as attendance time, to ensure a relevant base of experience has been obtained. And contemporary recognition of informal learning employs similar means, deploying testing and interviews to provide what is called ‘prior learning assessment’. Today, though, alternative metrics are being deployed. ePortfolios and Open Badges are only the first wave in what will emerge as a wider network-based form of assessment that makes tests and reviews unnecessary. In this talk Stephen Downes will talk about work being done in network-based automated competency development and recognition, the challenges it presents to traditional institutions, and the opportunities created for genuinely autonomous open learning.