Project Document Cover Sheet

Project Information			
Project Acronym	E.W.E		
Project Title	e-Portfolios for work-based environments		
Start Date	01/11/08	**End Date**	31/07/09
Lead Institution	Loughborough College		
Project Director	Clare Holden		
Project Manager & contact details	Peter Dickson Peter.Dickson@loucoll.ac.uk		
Partner Institutions	Luminar Leisure		
Project Web URL	www.loucoll.ac.uk/ewe		
Programme Name (and number)	Cross-Institutional Use of e-Learning to Support Lifelong Learners (phase 2)		
Programme Manager	David Kernohan		

Document Name			
Document Title	Final Report		
Reporting Period			
Author(s) & project role	Peter Dickson, Project Manager Samuel Persse, Developer John Mendes, Developer		
Date	25/07/09	**Filename**	EWE Final Report
URL			
Access	☐ Project and JISC internal	☐ General dissemination	

Document History		
Version	**Date**	**Comments**
1.0	25/07/09	
1.1	06/08/09	Amendments made based upon feedback from Programme Manager

E.W.E Project Final Report

E-Portfolios for Work-based Environments

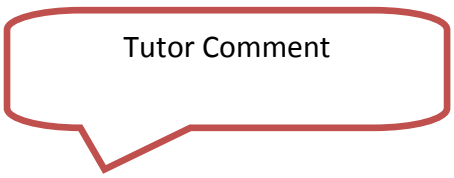
Funding under the e-Learning Capital programme

Authors:
Peter Dickson
Samuel Persse
John Mendes

Loughborough College

July 2009

Table of Contents



Acknowledgements

Funding under the JISC e-Learning Capital programme

The project team would like to thank all the partners and those external to the project who have contributed through their advice and support.

Contacts	Institutions
Bernadette Ude	Luminar Leisure
Rachel Hawkins	The Open University
Thanh Le	The Open University
Ben Williams	JISC RSC East Midlands
Deirdre Bethune and Clem Herman	JISC funded eReturn Project
Simon Grant	JISC CETIS
Paula Taylor/Gordon Jones	Consultants for JISC
Kirstie Coolin	Nottingham University

Executive Summary

The EWE project set out to enhance the experience of our work based learners by giving them an e-portfolio solution

The specific objectives were to create a product that would:

- *Allow learners to be able to track their own progress and set targets including assignment work*
- *Enable learners to manage their calendar for appointments and deadlines*
- *Join on-line discussions via the message board*
- *Reflect, review and evaluate self progress and achievement via PDP and CPD*
- *Have the ability to take the e-portfolio onwards to use as a showcase when moving on in their career*

Once the project was under way some more detailed aims were added to reflect what should be included in the e-portfolio, these were based upon feedback we received from learners of what they thought they would want from the system.

- *Development of links with Web 2.0 multimedia sites such as Flickr and YouTube.*
- *Look at the personalisation of My Stuff in terms of its display and layout.*
- *Investigate and address accessibility issues*
- *Add the ability to use the e-portfolio system without having access to the internet or college server*
- *Work to ensure that the data can be transferred to other systems.*

The methodology involved a series of steps.

Engage with partners
Methodology: Face to face meetings
Establishing close links to the partners to ensure we secured their initial co-operation and support.

Investigation of current situation
Methodology: Interviews and digital consultation with stakeholders

Trial of existing e-Portfolio systems
Methodology: Installation and trailing of available e-portfolio systems
To give a better understanding of what potential e-portfolio systems have and what features are of interest to our target market.

Collaboration with developers of other systems
Methodology: series of face to face meetings followed on by e-mail collaboration

Development Cycle
The development process followed an action research approach using a kind of evolutionary prototyping where we would continually seek evaluation of the system and its development from its end users.

What went well

Drawing upon existing open source development of e-portfolio gave us the potential to explore avenues that would not have been possible had we started from scratch. In this we benefitted from collaboration with other developers whose enthusiasm for their own development and willingness to share their experiences meant we had a solid basis from which to start.

Learner feedback throughout the project was really valuable, and we managed to keep a close relationship with our beta testers which enabled us to create a finished product more suited to their needs.

One of the issues identified from our user testing was the ability to work on the system in a location where there was no internet access. This is a major issue for work-based learners, and was a real stumbling block in getting the e-portfolio embedded in this sector. Fortunately we were able to develop a feature that allowed learners to work from a USB memory stick and then synchronise with their e-portfolio.

Feedback from learners improved throughout the project and although weren't able to include wide-scale testing in the project we are confident that we now have a product that we can make use of and feedback to the original developers and wider community.

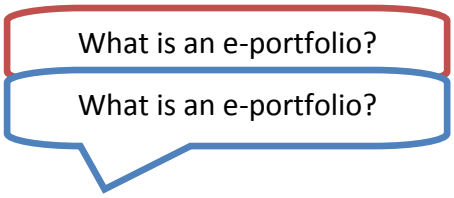
What didn't work well

We anticipated saving time by working on recreated open source code, but this didn't prove to be the case. Most open source software doesn't have comprehensive documentation and the time taken to understand how the code was written and adapting future developments to fit with the original very quickly offsets a large portion of the possible time saved.

We identified a speed issue with the system which we tried to work around, but after we had made amends we were still getting feedback from our learners saying that the speed was prohibitive. At this point we switched from MyStuff over to Mahara which solved the speed issue but meant that our development plan was pushed back approximately 6 months. Even though we were able to transfer a large portion of our development to date across to the new system, the loss of time and goodwill (from users who had been part of the MyStuff beta) was painful.

Due to the project timing we were trying to implement the e-portfolio into learner cohorts mid way through an academic year. This would create problems with any IT system but an e-portfolio in particular requires a cultural shift in how learners approach their studies and we found it hard to bring learners on board as they haven't had the e-portfolio embedded at the start of their studies.

One of the envisaged benefits of using the e-portfolio was to aid reflective practice. As we were focusing on providing them with the tools to do this, we didn't allow fully appreciate the need to provide training to help them gain the complementary skills required to use the tools we had given them.



Background

Loughborough College is a college of Further Education in Leicestershire, England, established in 1909. The College has 17 subject areas, split between academic and vocational, and full and part-time courses. It also has a significant amount of work-based learners spread across the different curriculum areas, many of whom are studying HE courses to Degree Level. The college using Microsoft and active directories with LDAP (Lightweight Directory Access Protocol) used for the purposes of authentication.

The project aimed to build on work previously carried out by the College on systems such as e-Progress files, MOODLE and electronic management systems for work-based learners.

It aimed to develop an e-portfolio predominately for its work-based learners taking forward the work previously carried out by staff at the Open University, Massey University, Auckland University of Technology, The Open Polytechnic of New Zealand and Victoria University of Wellington.

The focus was on an e-portfolio system which could be developed using open source software that would connect with the college Moodle VLE system and integrate with other tools that we knew the learners were using. The development was centred on needs identified through staff/learner discussion and focus groups, it involved the addition of multimedia, increased personalisation, improved tagging, data transfer options and the possibility of an offline editor.

The Learners that the project brief initially targeted were work-based on distance learning programmes studying level 4 Foundation Degrees in Sport, Leisure, Engineering and Leadership and Management, and they were geographically dispersed. The project explored ways to support non-traditional learners in the workplace through the use of e-portfolios which were designed to allow a blend of formal and informal learning styles.

How are we supposed to do this as well as everything else?
J.W. (WBL Student)

Aims and Objectives

The aims and objectives agreed at the start of the project were as follows:

Aims

Transform the existing portal used by work-based learners and use an e-portfolio system as a keystone to their interaction with the college and their employer and each other.

Enhance the work previously carried out by the Open University on a MOODLE based e-portfolio system.

Trial this system with several groups of work-based learners to establish its potential benefits.

Apart from a minor amend to the software used, Mahara rather than MyStuff the aims remained the same throughout the lifecycle of the project and will continue to be a focus for any further development.

Objectives

The objective of the project is to create a product that will:

Allow learners to track their own progress and set targets including assignment work - in use in the Luminar administration online environment, but this requires further work to develop in Moodle for the e-portfolio model.

Although the initial focus was on working with learnerslearner studying on a specific suite of qualifications (learners on foundation degrees who were employees of Luminar Leisure) the intended user group was widened out fairly early in the development process to ensure that it reached more areas where the tools offered by an e-portfolio would benefit the learners experience.

Enable learners to manage their calendars for appointments and deadlines – already available in the college Moodle environment and to book onto course events such as seminars and training days – in use in the Luminar administration online environment – but requires further work to develop using Moodle for the e-portfolio model.

Feedback gathered from learners showed that they preferred to use existing systems within their own current working environment to achieve this objective.

Join on line discussions via the message board

Reflect, review and evaluate self progress and achievement via PDP and CPD - in use in the College e-progress file for full time learners, but needs further development to work in Moodle for the e-portfolio.

These proved to be low hanging fruit and both were achieved fairly early on in the project.

The ability to take the e-portfolio onwards to use as a showcase when moving on in their career

The ability for learners to have access to the information they have entered into the system beyond their use of the system or attendance at a particular institution, is a key one in making the e-portfolio of real benefit to its users. Feedback from the focus groups also brought in another factor that related to this in terms of being able to access the data when not directly connected to the Mahara system. It was identified that, for a portion of work-based learners, the system would be inaccessible due to limits on or complete unavailability of Internet access at their work-place. Taking this into account the objective was amended to help overcome this obstacle.

Development of Links with Web 2.0 multimedia sites such as Flickr and YouTube.

These were successfully completed, thus allowing the e-portfolio to dynamically link with these services to avoid duplication of information. This included links to the specified services (Flickr (online photo and image repository) and YouTube) but also to Picasa (an online site for the organisation and editing of digital images) which was raised in the learner interviews as one they wanted including in the service.

Continue the development of tags as a mechanism to aid navigation.

Although this was something that was initially raised as being useful it was found during testing that tagging was regarded as "extra work" and most learners tended to not bother tagging items they had put in to their e-portfolio system. Based on that feedback it was decided not to develop further the existing tagging mechanism but to concentrate time and resources on other features.

Look at the personalisation of My Stuff in terms of its display and layout.

The time delay issue within My Stuff raised the profile of the interface and layout of the system. The focus moved away from one of style towards reducing the number of navigation pages a user has to go through thus hopefully mitigating this problem.

Investigate accessibility issues

A section of our testers were pulled from groups who were able to identify accessibility issues within the system. Following on from the feedback we looked to make several changes to the system to:

- Ensure that the e-portfolio worked well with the main screen readers.
- Allow the option to customise the colour / size of text and backgrounds to aid learners with visual impairments or dyslexia.

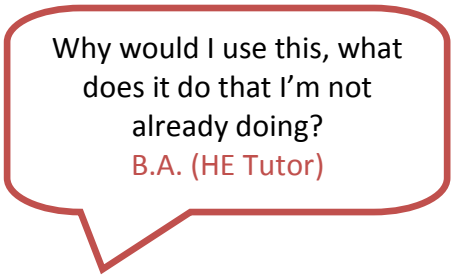
The ability to use the e-portfolio system without having access to the internet or college server

As we progressed with the project it became more and more apparent that there was going to be a section of our learners who would be unable to gain sufficient access to a completely online system for it to be a viable option. With this identified we then looked at how to develop the system to overcome this barrier and our current work to develop an offline version is our answer to that.

Work to ensure that the data can be transferred to other systems.

This was superseded by the work carried out on the LEAP2A mini project which brought the system in line with that standard; see the project wiki for more info.

http://wiki.mahara.org/Developer_Area/Import//Export/LEAP_Import



Methodology

Engage with partners
Methodology: Face to face meetings
It was key for us to establish close links to the partners to ensure we secured their initial co-operation and support. Face to face meetings was the most effective way of taking this forward.

Investigation of current situation
Methodology: Interviews and digital consultation with stakeholders
This had been partially established both prior to and during the bidding process but several questions required further clarification as they were key to the projects development: what technologies are currently being used by the intended audience? What does it currently do for them and what additional needs are there that are not being met that we would seek to achieve through the development of an e-portfolio system

Trial of existing e-Portfolio systems
Methodology: Installation and trialing of available e-portfolio systems
To give a better understanding of what potential e-portfolio systems have and what features are of interest to our target market, we carried out a series of trials on currently available e-portfolio systems both commercial and open source. This allowed us to identify features and possible avenues of development to bring into our discussions with our stakeholders.

Collaboration with developers of other systems
Methodology: series of face to face meetings followed on by e-mail collaboration
Following on from the trial of the existing systems, two were identified that shared similarities with envisaged goals for the development of the e-portfolio system. This process was aided by the fact that the systems identified were both open source and had been developed using the same coding language.

Development Cycle
Methodology: Action research.
The development process followed an action research approach using a kind of evolutionary prototyping where we would continually seek evaluation of the system and its development from its end users. This allowed us to make minor (or sometimes major) changes to the direction the project was taking with a minimum amount of disruption to its development. It was key that this evaluation explored both the technological and pedagogical aspects of the initiative, and the view of the testers/evaluations represented as best as possible the range of people who would be using the system once it was in place.

Does this form part of my assessed work?
S.T. (WBL Student)

Implementation

Stage 1

Research
There were two strands to our initial research the first more important was focused around the needs of the learned and how they would use an e-portfolio to benefit their learning experience. The research leans more toward qualitative rather than quantitative data as we found that the ability to discuss and reach more detailed understanding of what the learners/tutors needed was more effective.

The second strand was to research what work had already been carried out in this field. We were looking for open source development that had already taken place that we could amend or adapt to our requirements and hopefully improve any existing e-portfolio. We also investigated some of the commercial provisions to see what features they had incorporated into their e-portfolios. This also gave us material to take back to our user group as prompts "would you use ……." as they didn't always have knowledge of the capacity of what was possible within an e-portfolio.

Stage 2

Communication with existing developers
A wide range of projects had already taken place in researching and developing e-portfolios, and we were aware of the need to ensure that we were not going over old ground, both in a developmental and pedagogical sense. Where possible we tried to meet with people who had been involved in previous projects to discuss their experiences and to see where their development had led them. There was some discussion as to whether this was a worthwhile use of time and should we just read the reports and communicate via email but our experience showed that the quality of interaction and knowledge gained was well worth making the extra effort to meet with people face to face.

Stage 3

Development
Once we had a plan of what our users wanted and knowledge of what content was already developed we then moved into development. We broke the development down into pieces and delivered it in short iterations of 2-4 weeks in length. Once we got feedback on the development we folded it into the next iteration and incrementally built upon the results of the previous iteration, refactoring as needed to keep the design clean.

Stage 4

Testing
Putting this down as a separate stage is deceptive, we tried to include testing as a part of the development process with users playing with the system as it was being created. Obviously there were limitations on this and we didn't always have access to suitable testers but we worked to bring in as much testing as possible throughout the development process.

Stage 5

Roll-out and evaluation
When we had a product which was stable we rolled it out to a group of learners to use in anger. This gave us a better idea of what would happen outside the controlled area of the development base. Feedback from this was gathered in a questionnaire and some one to one interviews where issues were raised in the questionnaire. We also drew upon evaluation data accumulated by the eReturn

project which used the same e-portfolio system. This gave us a much wider set of data to draw upon when evaluating the usefulness of the system.

Stage 6

The Switch
Based on the evaluation we were forced to rethink the basis of our development. Our initial plan had been to use the MyStuff system, however, feedback from our learners raised the issue that the loading time between pages was too long, taking 4-5 seconds before the system displayed the selected link. This didn't seem too long initially, but the system requires multiple clicks to complete certain tasks, meaning these small delays add up, and cause the user more and more frustration. We tried several ways to compensate for this. Doing things like altering the interface so we could minimize the amount of times a user had to move between pages. Eventually we were forced to face the fact that even with the amendments we have made the weaknesses in the system were too great for MyStuff to be a viable option for us to move forward with. At that point we were faced with three options:

1. Continue with our development and try to minimise the problem through use of fixes where possible.
2. Strip the code of MyStuff down to a basic start to try and remove the issue.
3. Switch to another e-portfolio system.

Option one - we had tried to a limited extent already and had managed some minor success in improving the system, however we did not anticipate being able to sufficiently overcome the issue to make this a long term option.

Option two - too much of a gamble, reverse engineering the e-portfolio down to a point where we could amend the code to that degree would take a significant period of time in proportion to the project timeline and there was no guarantee that we would remove the issue

Option three - became the favoured option as we could transfer a large portion of the code developed over to one of the other e-portfolio systems we had identified in stages one and two. Mahara an open source e-portfolio system developed in New Zealand was also based upon the same coding language (PHP).

After discussion with our Programme Manager it was agreed that we would take this step which although it meant we incurred a penalty in terms of development time, it did ensure that we would be able to produce an end product which would have greater value.

Stage 7

Back to development and testing
With the switch to the new base platform we then moved back through the development cycle.

Stage 8

Roll out with target group
Once we had a trial version we introduced another test group to use the system. There were difficulties in so far that we were now mid course for most learners and the introduction of an e-portfolio was not scheduled into their plan so this impacted on the numbers of learners we could involve.

Stage 9

Wider roll out
To supplement the number of work-based learners who were actively involved in our first roll out, and based on feedback and requests from other teams, we widened our user groups to mainstream full-time and part-time learners.

Sooo…. I can put whatever I want in it? Who can see what I put in there?
S.T. (WBL Student)

Outputs and Results

MyStuff Development

In an effort to overcome the identified issues with the MyStuff e-Portfolio, our developer tried to optimise the backend source code, removing certain features that we didn't require. Another improvement included the addition of drop-down menus to the main menu in the system header. **Figure 1** shows the new menu system in action. Giving the user these options directly from the menu cut down significantly the number of clicks needed to achieve different tasks.

Other additional menu items to speed up navigation included:

- A direct link to return back to the location in Moodle instance from where MyStuff was accessed.
- An extra link to enable the current user to logout of the system quickly.
- Display option links to enable user to alter background colour and text size, to aid visibility for users with disabilities/conditions such as visual impairment or dyslexia.

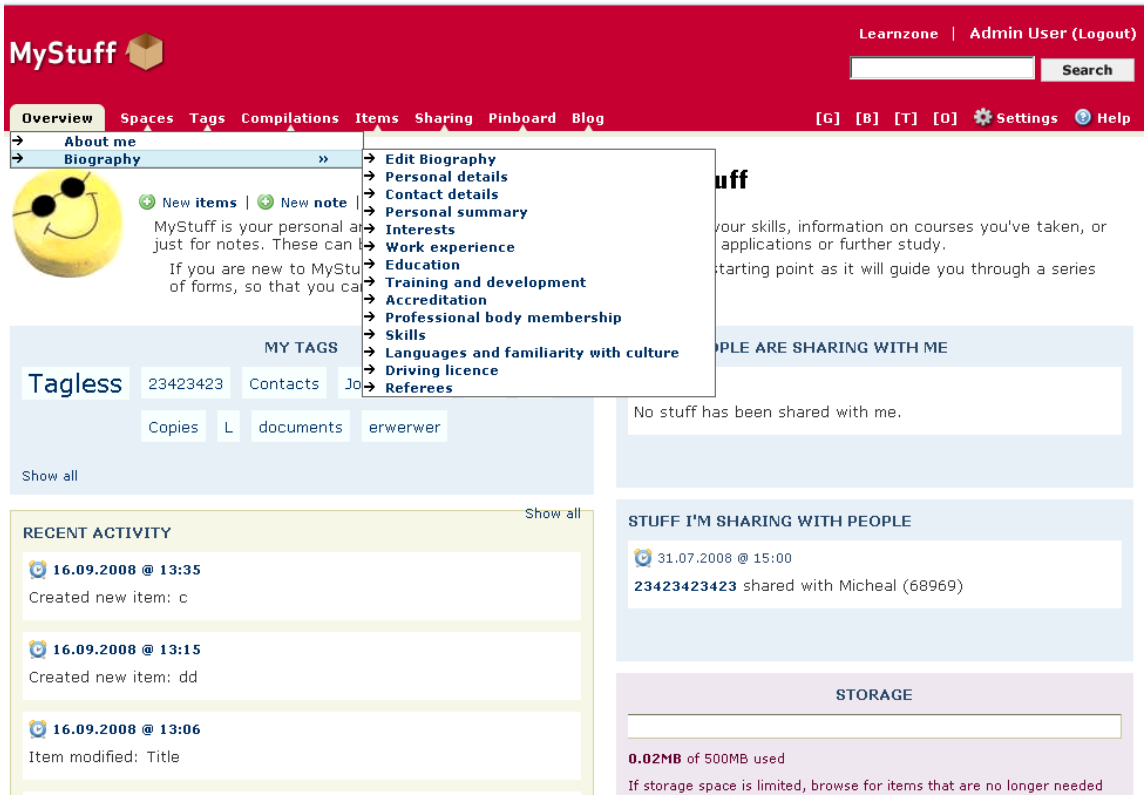


Figure 1 - Menus and submenus added to header menu.

It's too slow
General Feedback

It's too slow
General Feedback

One of our project objectives was to develop an e-portfolio system with the ability to link to external content from various sources such as YouTube (online Video), Flickr (online photo and image repository) etc.

The portfolio items form (to add new content to the e-portfolio) was extended to include an extra element to link in media. It was decided that this could be better achieved if we created an association to an external source rather than copy it, as at the time we were limited in terms of storage space. The user can access this content by searching each repository within the MyStuff environment, without the need to access the sites separately. Once they find an item, they can click the adjacent link to associate it with the current portfolio item. This link is stored in the MyStuff database as a new field.

This functionality was achieved using the Google API and Flickr API. Each API (Application Programming Interface) provides a freely available library of functions and protocols to allow the retrieval of information from the provider systems within your own application.

Initially we decided on YouTube and Flickr as the main two sources, but as Picasa (an online site for the organisation and editing of digital images) uses the same Google API as YouTube it was a quick additional source we could add without the need for a lot of extra development work. Figure 2 shows the “Media Linker” within the new item form.

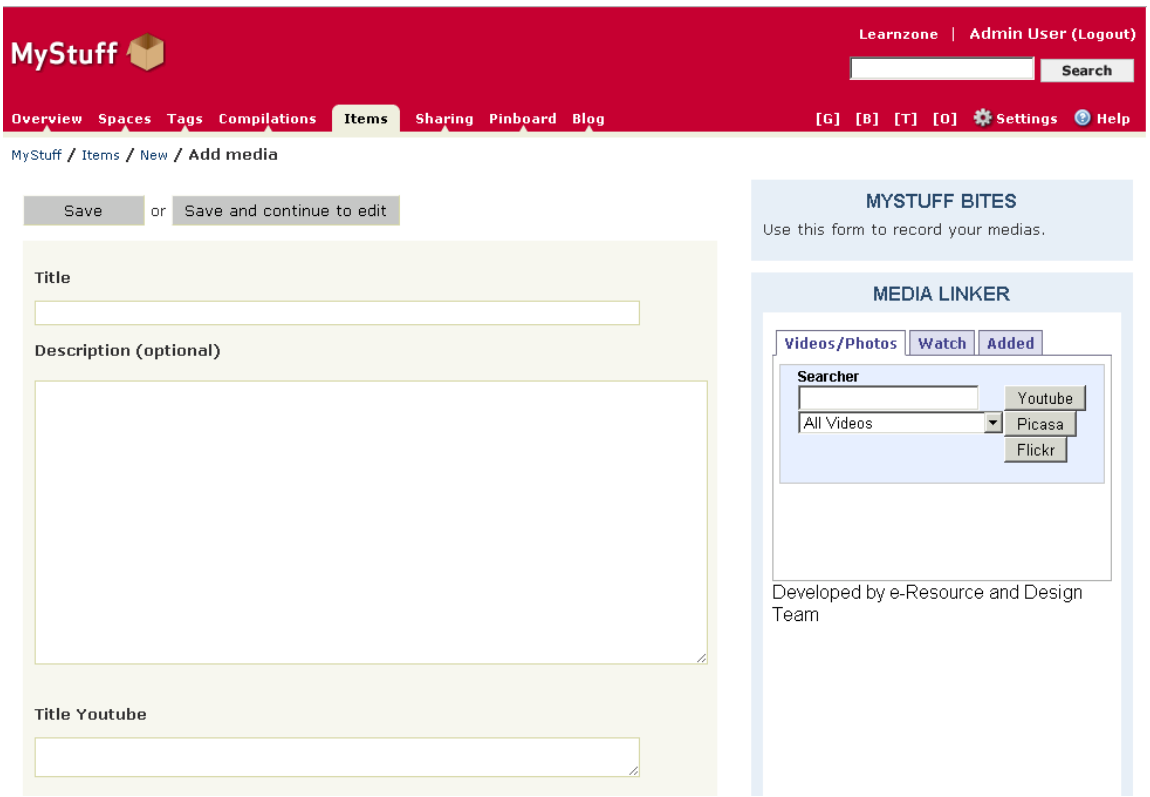


Figure 2 – Media Linker added to the portfolio item form.

Additional development of MyStuff included the ability for users to transfer content from the College Moodle VLE into the portfolio without copying and pasting or other time-consuming methods. We decided to concentrate on just three types of content to transfer from Moodle, namely **forum posts, blogs** and **assignment feedback/grades.** These we used because they were easily identifiable as "belonging" to an individual learner, and are contained in simple fields within the database that we could send across.

Our learners often use the social forums and blogs within Moodle for group discussion, and as part of their course assessment. It was suggested that these, along with assignment feedback/grades, would be good items of information that could be used as evidence of achievements and goals. **Figure 3** shows an example of the additional link we added to forum posts (only visible if logged on user created the post). When they clicked this link it posted the information over to a new MyStuff form (for example see **Figure 4**), with the title and body text auto-completed with the forum post content.

We decided on this method rather than directly inserting it into the MyStuff database to provide the user with the opportunity to add to the description to explain the context of the forum post, to link media content as evidence, or to tag the item within MyStuff. This method was used for transferring blog post and assignment feedback, as the content followed a similar format.

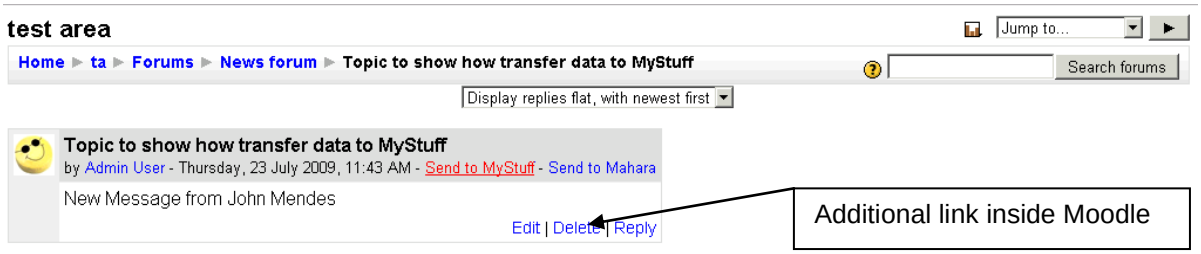


Figure 3 – Moodle link to send forum item to MyStuff.

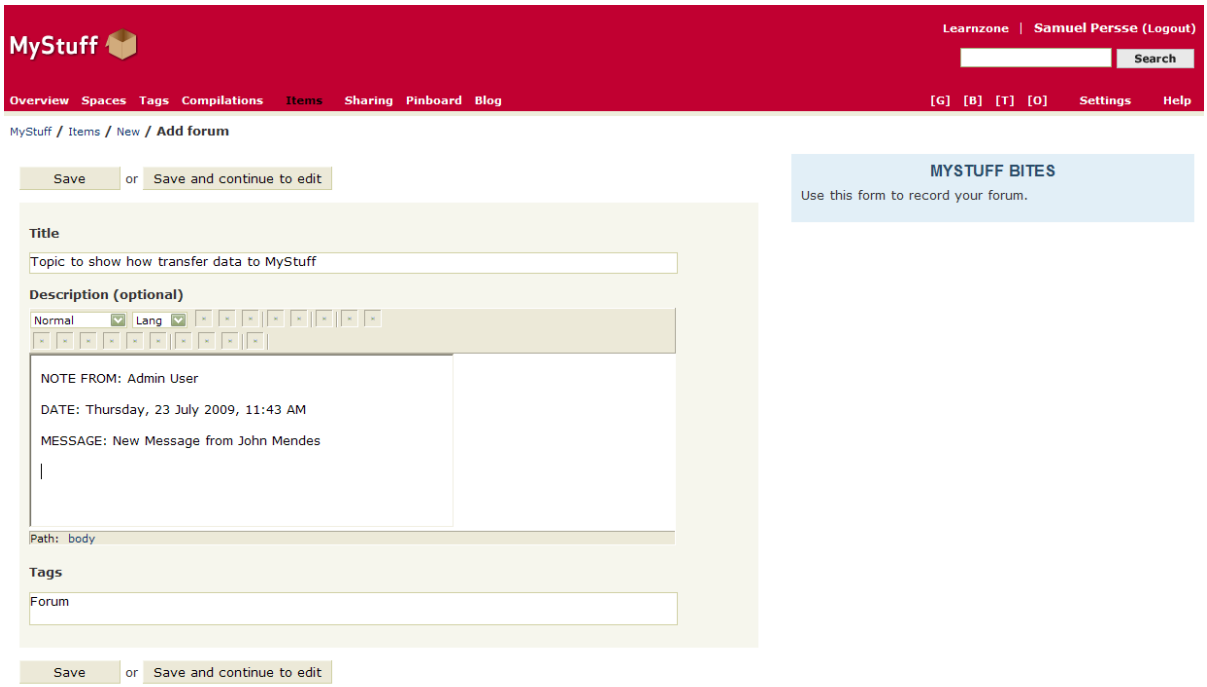


Figure 4 – Example of forum data transferred into new forum item in MyStuff.

An extra Blog was added to MyStuff. Due the requirement of having the blog as public content (so people outside the organisation could view) it was decided to use the Blog API from Google, although this did require the user to have a Google account if they wanted to make a public blog. **Figure 5** shows this system embedded our MyStuff interface.

Figure 3 – Google Blog system added to MyStuff interface

The last development we made to MyStuff was an additional option for exporting portfolio content. One of the limitations we found was that there was no direct way of sharing the content with an external person apart from downloading the available options and sending them the content manually. A “Send by Email” option was added to the compilation export functions. This allowed the user to compose a compilation in the available types then send a link to this content as a shared link to a chosen person. An example of the email sent can be seen in **Figure 6**.

.

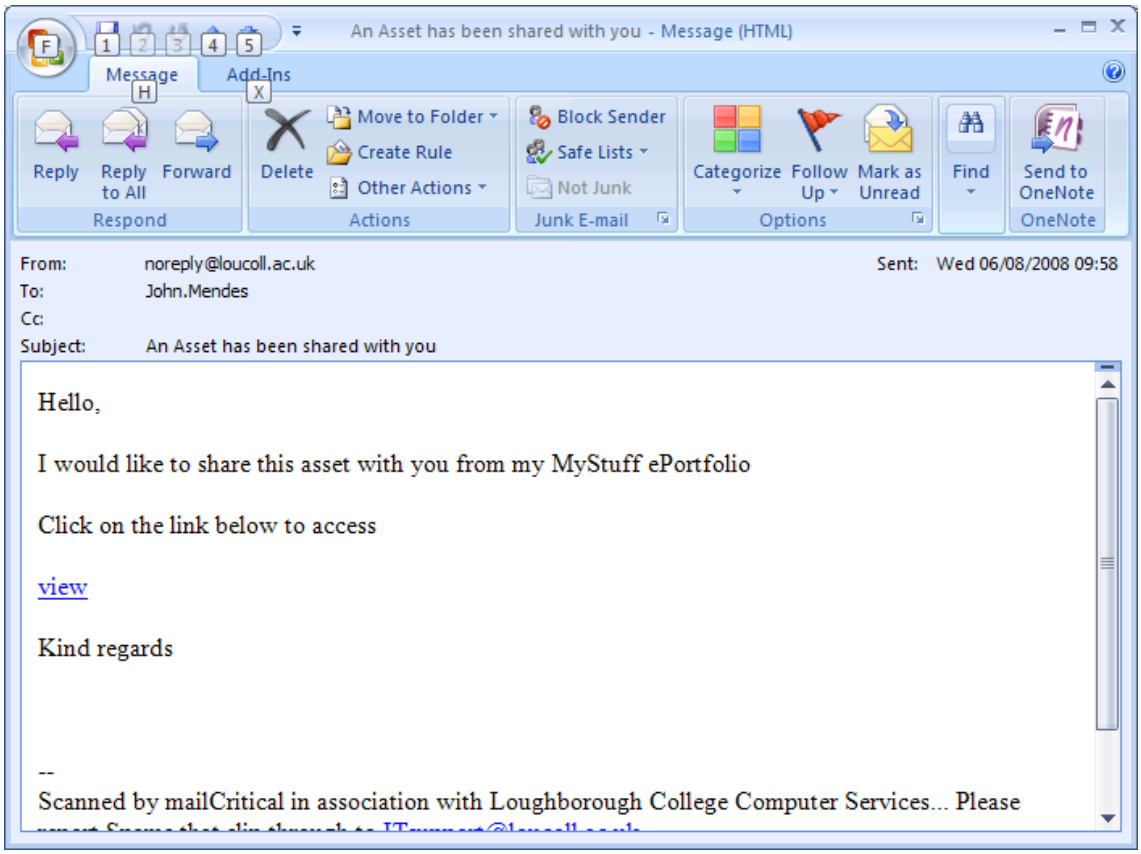


Figure 6 - Email with link to shared content

I don't have internet access at work, so this isn't going to work is it.
S.T. (WBL Student)

Mahara Development

When we moved our focus onto the Mahara system we found that because both systems were built on a similar platform we could easily port the additional functions (if needed) across.

Some of the developments made to MyStuff weren't required for Mahara as it contained this functionality natively. These included the ability to create public blogs and views of portfolio content for external users.

Before we ported functionality, we had to adapt the Mahara system to provide somewhere to put this content. To do this we decided to create different types of Blog entry (Mahara's equivalent to the MyStuff Basic Item) and then let the user choose what type of entry they would like (**Figure 7**), out of the following:

- **Media blog entry:** An entry that allowed the user to add Media to support or to provide evidence to text content.

  The Media Linker browser tool we developed was added to the Media blog type, providing the same access to YouTube, Picasa and Flickr content (**Figure 8**).

- **Professional Development Journal (PDJ) blog entry**: A specific type of entry to provide Teacher Training learners the ability to record their PDJ, an assessed diary which would then be submitted as part of their coursework (**Figure 9**).

  This blog type was just an adaptation of the regular blog, with additional fields added for the specific subject areas that the learners needed to cover for their PDJ, plus the Media Linker tool.

- **Regular blog entry:** The default type provided with Mahara system.

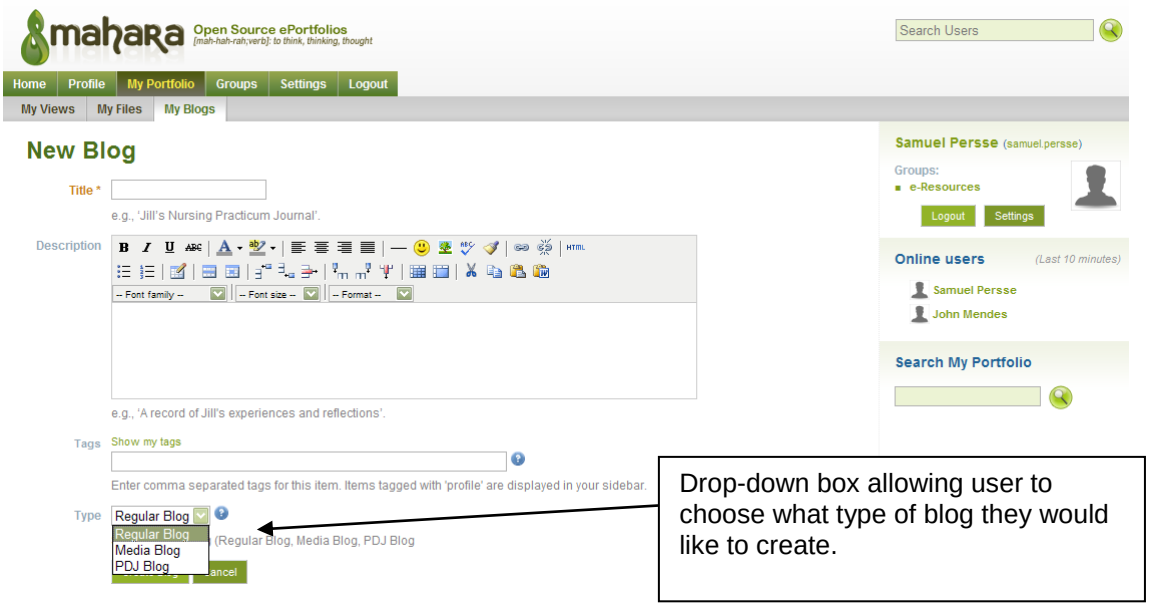


Figure 7 - Type option added when creating new blog.

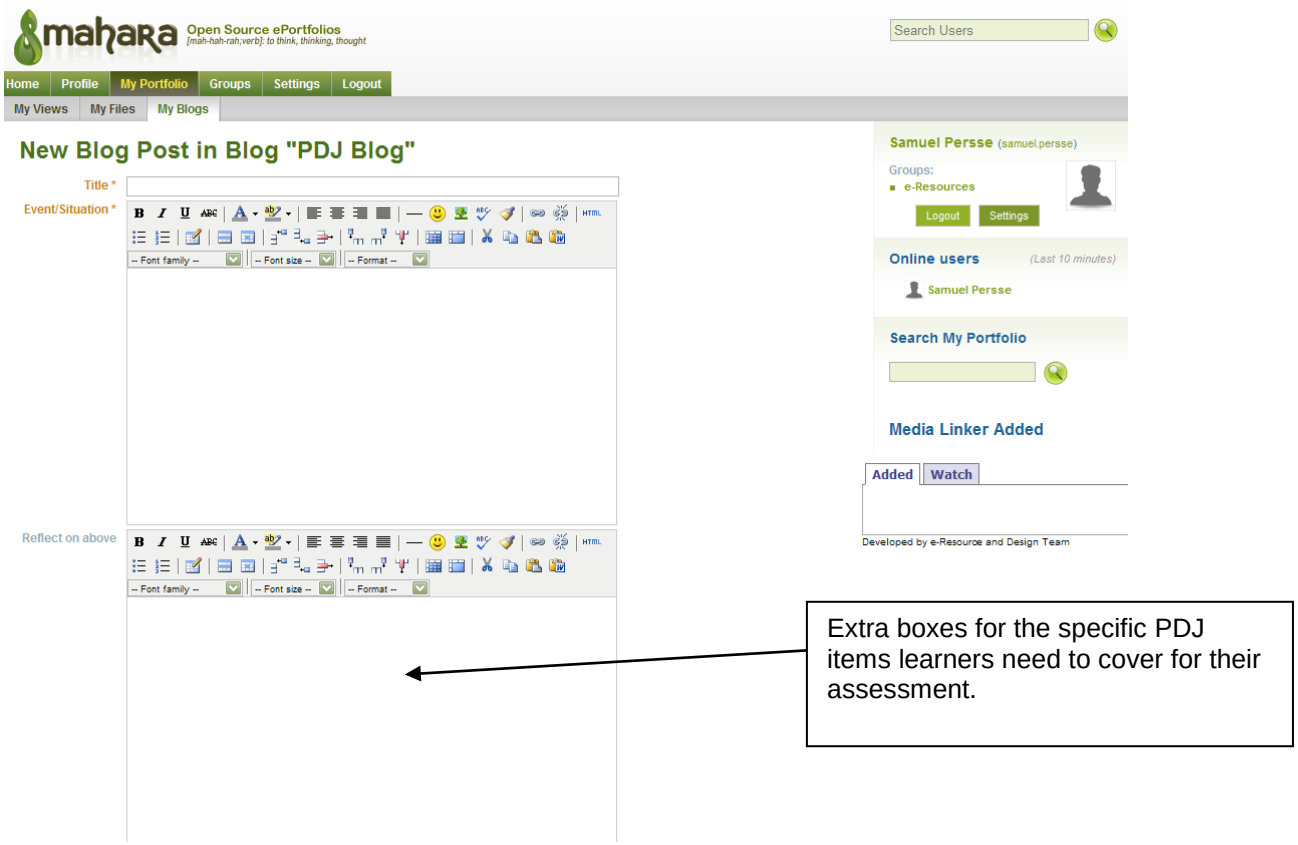


Figure 8 – PDJ Blog with extra text fields defined.

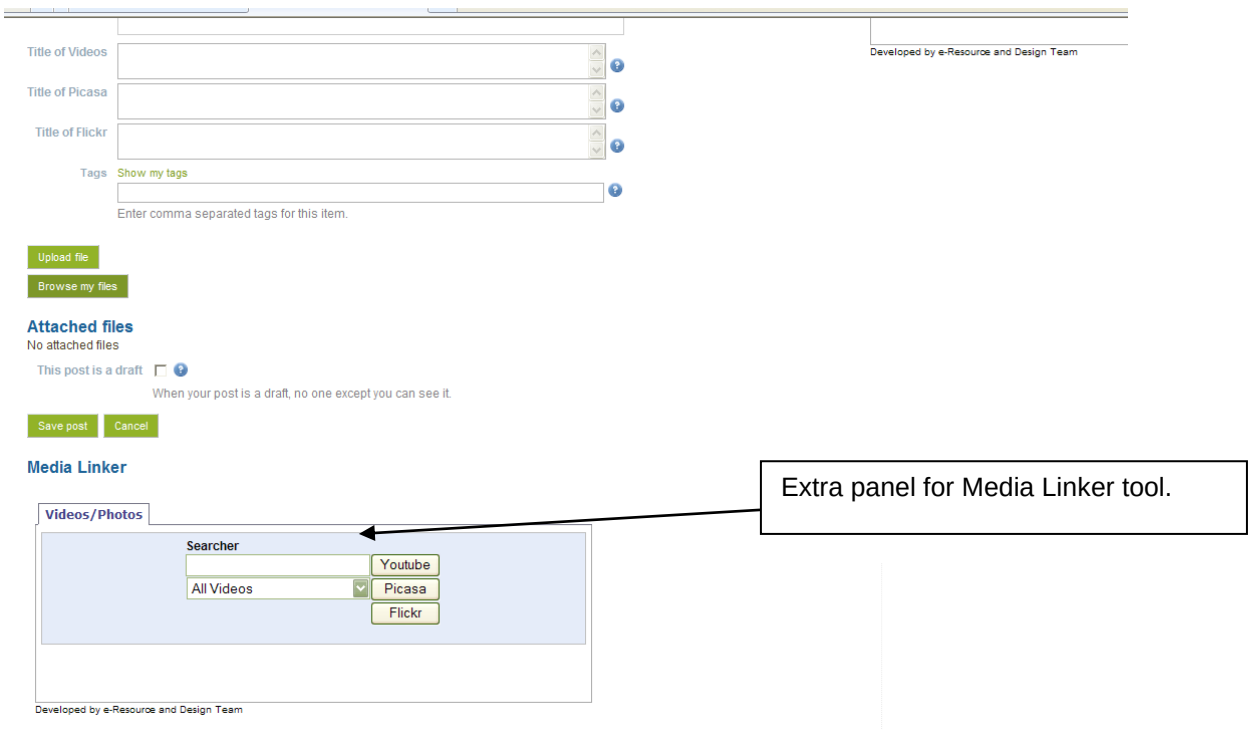


Figure 9 – Section of Media Blog form, with added Media Linker tool.

The My Blogs page that lists a summary of posts which now has a new feature panel displaying previews of the media contained/linked inside each post (**Figure 10**).

Figure 40 – Summary of linked content inside blog

As well as the Blogs page, this media content can also be viewed in a similar panel within the My Views page, so a user can see at a glance what Media they have linked within blog posts that appear within a particular view.

Mahara offline

As further development for the system, we discovered an application that allows users to read and modify certain content offline. This would be particularly useful where there is limited internet access.

The application has been built using Microsoft Visual Studio 2008 in c#. This allows us to use the authentication and other Microsoft coding libraries to build the application quickly and is compatible with our own internal systems.

The latest version our “Mahara Offline” is provided as an application on a memory stick. As a user inserts this into a PC the application automatically runs and prompts the user to login.

This login is achieved by checking the login information against our Microsoft Active Directory (AD) which contains all our user account details, the authentication is achieved using LDAP functions to communicate with AD.

This allows the user to access a version of the *My Blogs* and *My Files* section on Mahara live/online version. So, *My Views* and other information are not included in this version. **Figure 11** shows login box of the application.

To start with I didn't think it was going to be useful, but I'm starting to see how it can be of benefit

J.W. (HE Tutor).

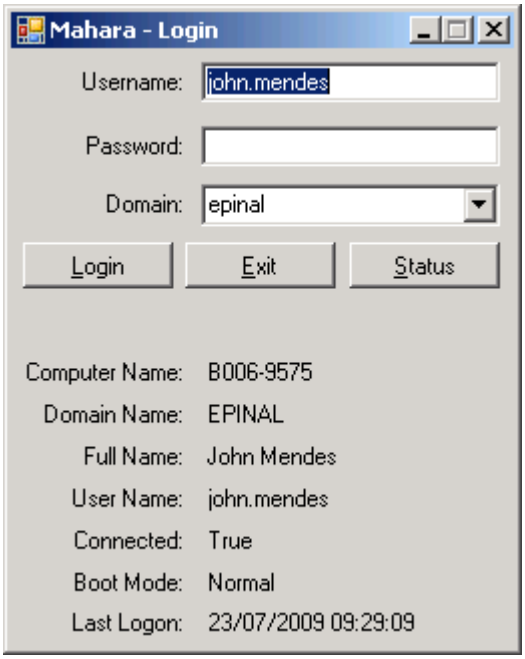


Figure 51 – Mahara Offline Login/Authentication box.

It's really handy to have all my info in one place, am I going to have this facility for my other courses?
S.B. (ITT Student)

Once logged in the application displays a main window containing a list of available content. Currently the application can only provide access to blog entries and uploaded files, but access to more content could be possible with more development time.

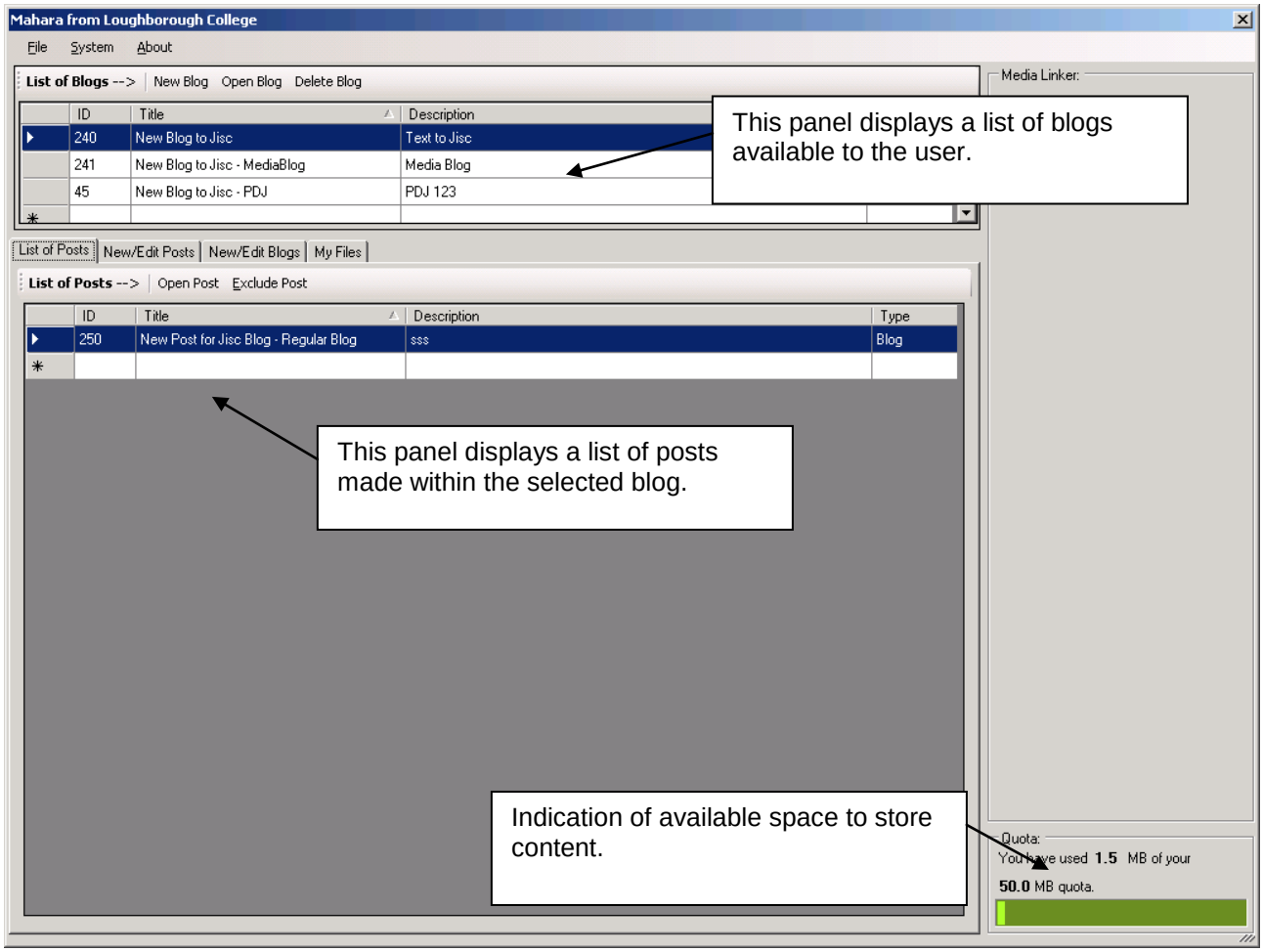


Figure 62 - Main window of Mahara Offline application.

Students getting access to a computer is a real issue in work based learning
K.B. (HE Tutor)

Adjacent to the list of posts tab in the bottom panel, there are more options to add new posts to the selected blog. This form takes the same format as appears on the website version. This area is also used to edit posts and attach files or images (**Figure 13**).

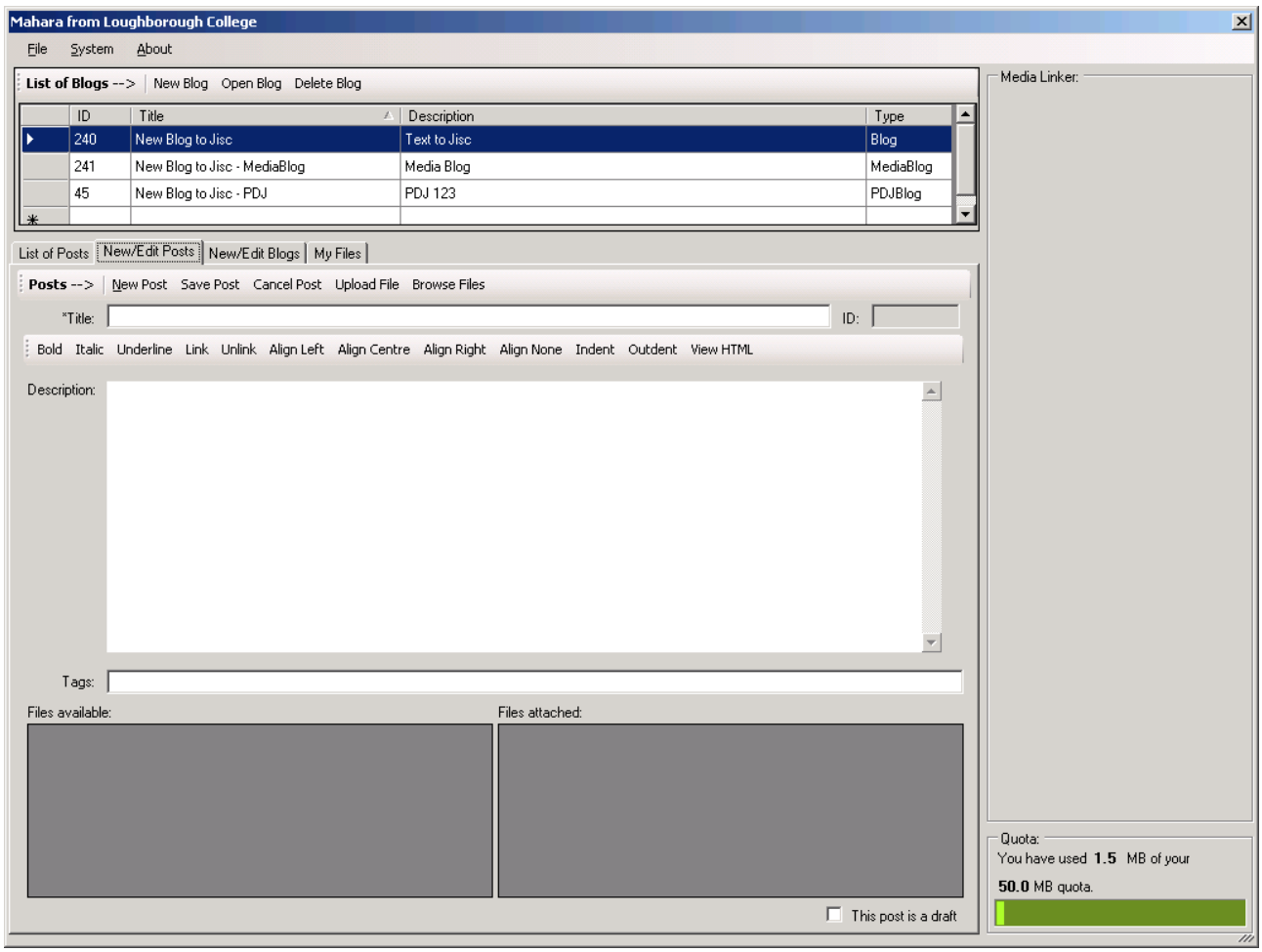


Figure 13 - New or Edit Post form

Once you get going with it, it's quite fun isn't it, I really enjoying being able to swop stuff with other people on the course.

S.T. (WBL Student)

Figure 14 shows the edit blog options available. This area is used to add or edit existing blogs, and also setting the blog type to Regular Blog, Media Blog or PDJ Blog.

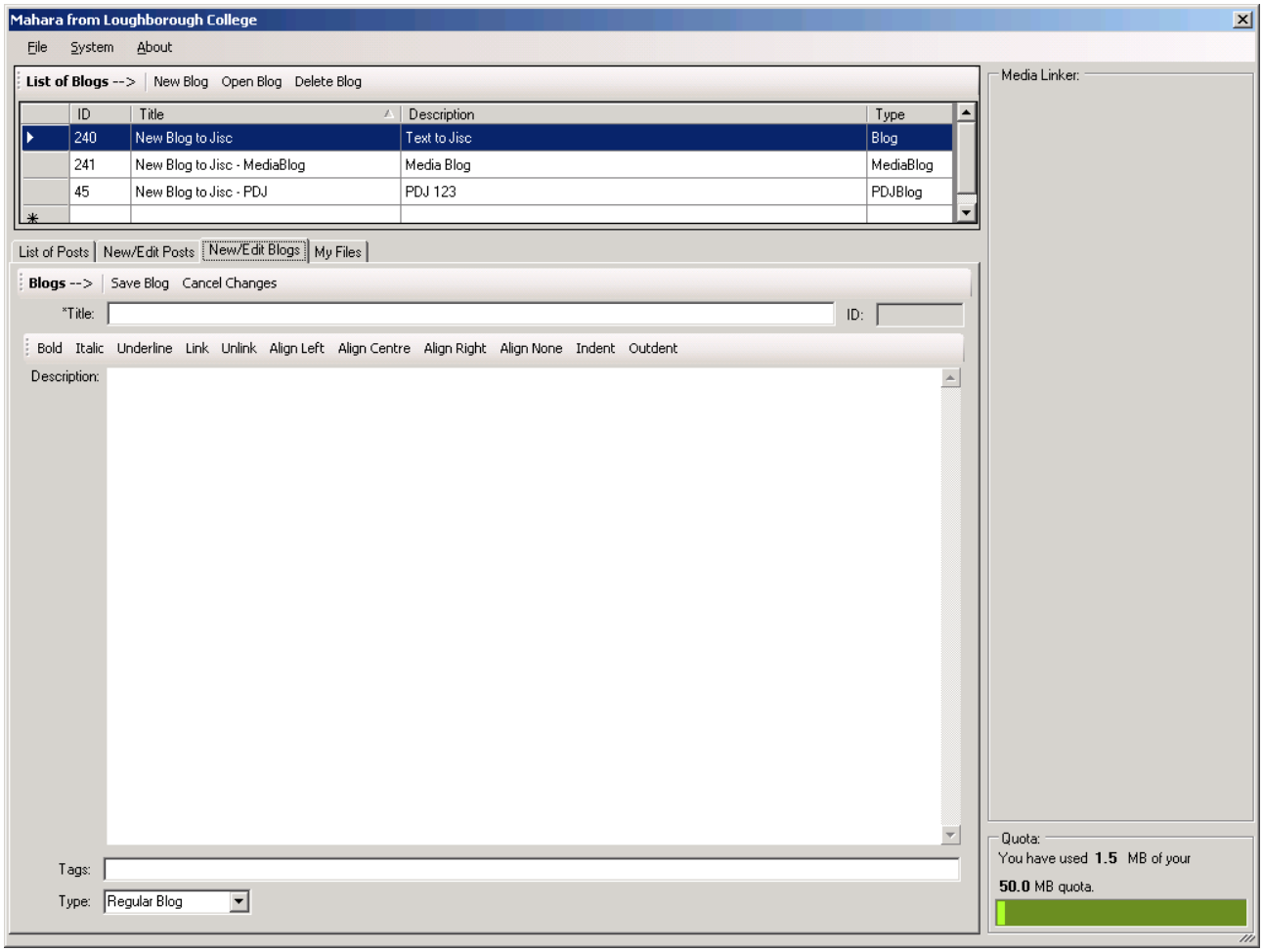


Figure 14 - New or Edit Blogs form

Figure 15 show the panel called My Files. This area is used to add, edit or delete individual files to be used in posts at a later date if necessary (these will go into the Mahara file repository).

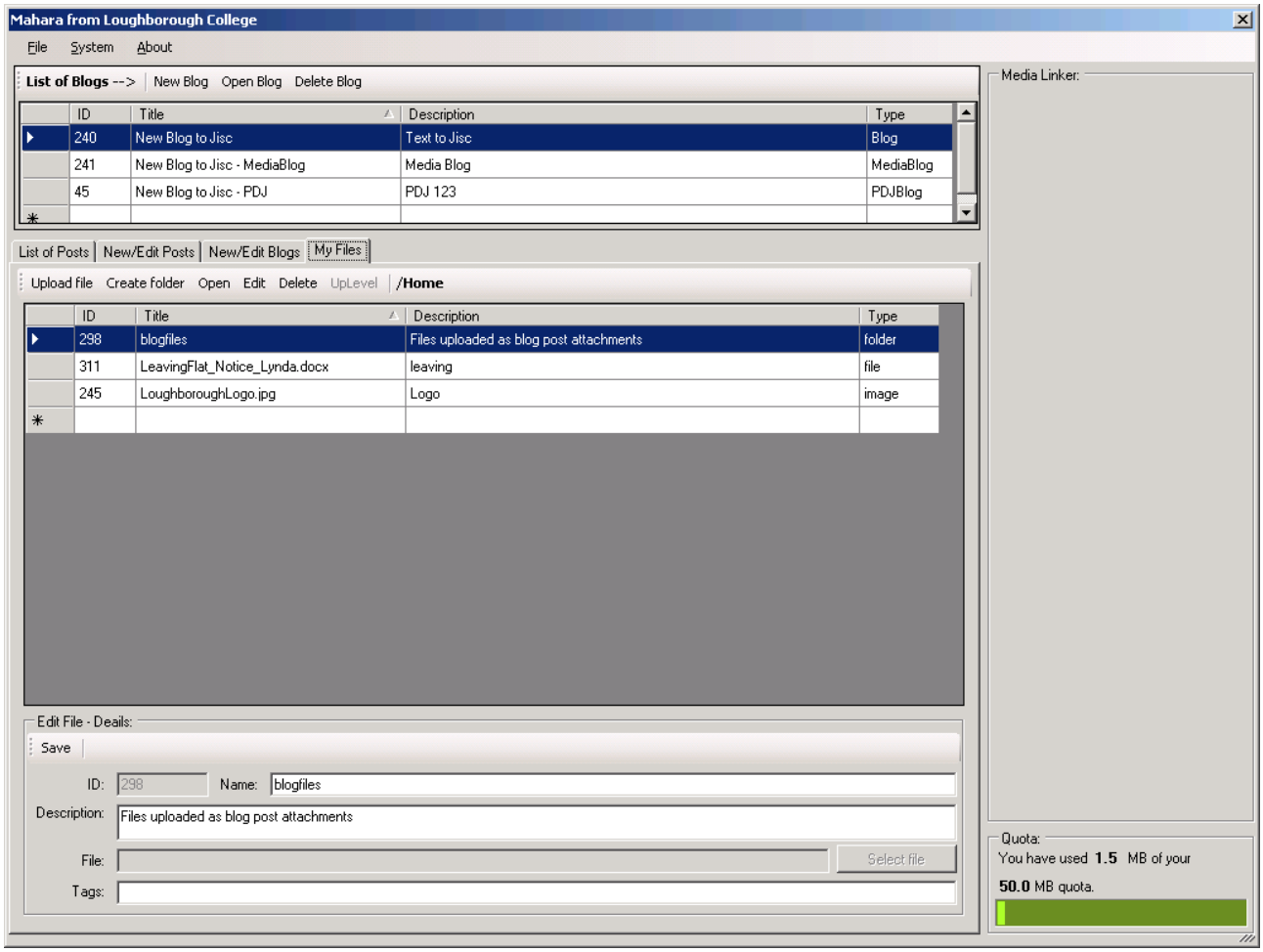


Figure 15 - My Files form

Any changes in the Mahara Offline application are actually made locally on the memory stick, so internet access is not required. To update the live version of the portfolio the user needs to "Synchronise" the content.

Figure 16 shows the Synchronise Panel. This panel is available when accessing the application inside the college network. From here the user can import all the live data onto the memory stick, this replaces all the content on the memory stick. The export function does the reverse and sends all the content on the memory stick to the live site, replacing any content on there. There are also two more options, one to synchronise both offline and live systems at the same time, and one to check the modified dates of the offline (local) and live (server) content. This was an important feature in case the user couldn't remember which area held the latest content.

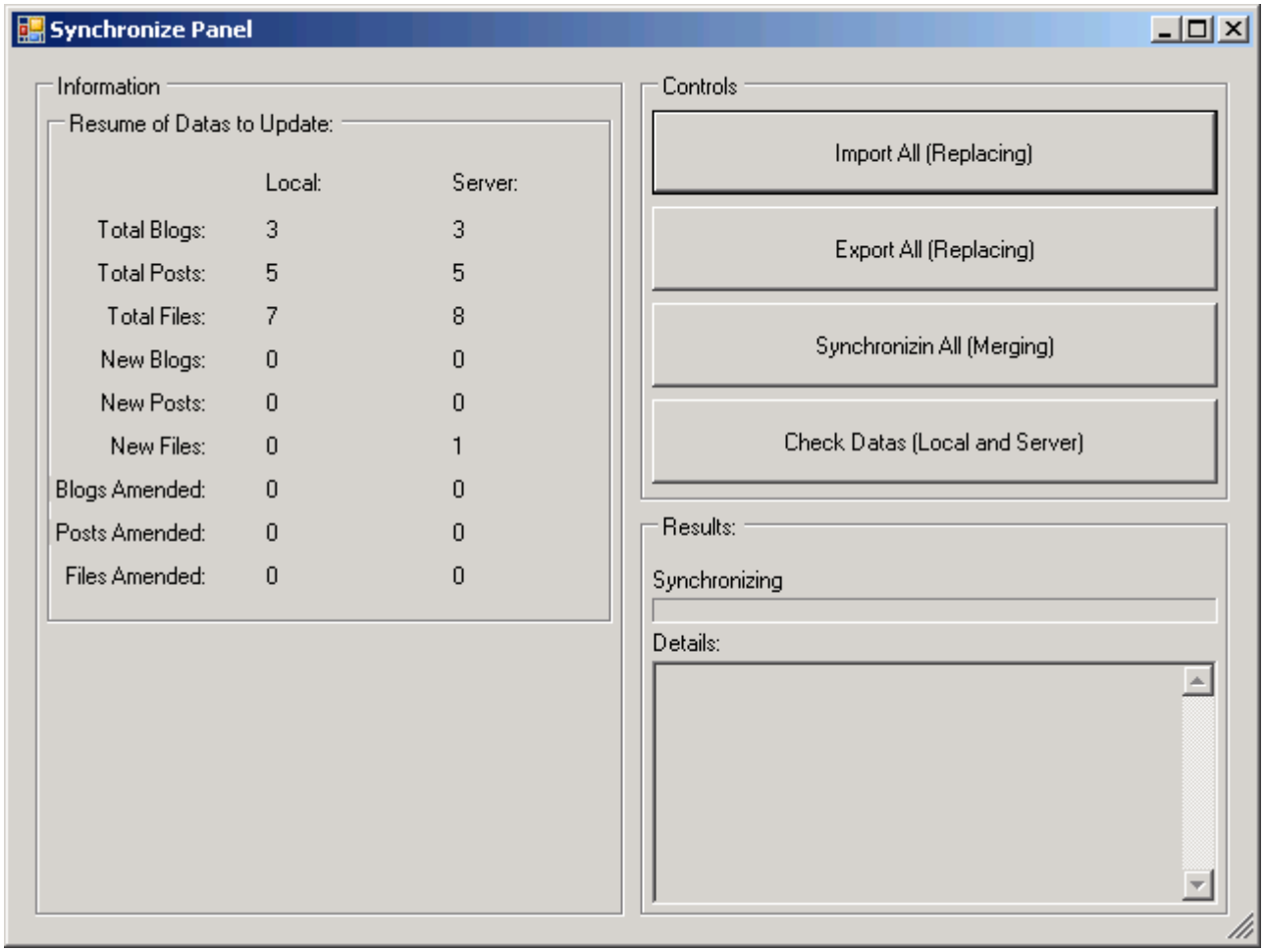


Figure 16 - Synchronise Panel

> Having the webcam made it really quick and easy to add content in and added a human face to some of my interaction with my students
>
> B.U. (WBL Tutor)

User Feedback

Reflections from testers and users throughout the development process has helped establish what they regard as key features in gaining benefit from an e-portfolio system. These have helped guide our development and also identified other areas within the institution where learners could benefit from the use of an e-portfolio.

Exemplar e-portfolios – Several of the portfolios created by initial users (initial teacher training learners) are being used as examples to share with new learners on that course. The learners were happy to share these, as long as they were shared with learners studying the same course as they could see the benefit of seeing how the system worked and, more importantly, give them a chance to see the reflections, experiences and thoughts of previous learners which would likely be similar to their own.

Dissemination

Events

JISC RSC e-Fair 12th June 2009

'E-portfolio piloteers ' 16th July 2009

Promotion of the project at further events is anticipated once the offline version is complete and its demonstration will be a key part of any further presentation.

Demonstrations

We have worked with staff from several local institutions who have shown an interest in e-portfolios and the EWE project to explain our journey and the lessons we have learnt, with the possibility of them making use of the e-portfolio with their learners.

- South Staffordshire College
  2nd June 2009
- Leicester College
  4th June 2009
- New College Nottingham
  2nd September 2009 (planned)

I like the fact that I was able to do it at home whilst watching TV with my laptop balanced on my knees
C.P. (HE Student)

Outcomes

Organisational Outcomes

For Loughborough College, the organisation outcomes such as the development of an e-portfolio system that will meet the needs of our work-based learners is still incomplete. Granted the aim specified at the start of the project was to "promote and trial the use of e-portfolios with new learners in the work-place" which we have definitelymet, however, there was an underlying expectation that the project would result in a completely-formed solution to meet the needs of all our work-based learners. As we progressed we began to understand the unrealistic nature of that aim as the needs of our work-based learners were varied and did not always meet what an e-portfolio system had to offer. In no way does this mean that the experience was negative or non beneficial but simply that our initial expectation of how an e-portfolio would fit into our delivery of work-based learning was unrealistic. We have concluded the project with a much better understanding of both e-portfolios and how they might fit into our work-based learning provision, and the alterations we have made to Mahara meant we had an e-portfolio that worked for the majority of our identified learners. We also had a plan to roll out the use of e-portfolios beyond the scope of our initial target group into our mainstream FE/HE provision. This has been backed up by learner feedback and an example e-portfolio which will help us work with staff learners in the new academic year.

Development Outcomes

- Development of Links with Web 2.0 multimedia sites such as Flickr and YouTube.
- Continue the development of tags as a mechanism to aid navigation.
- Look at the personalisation of Mahara / My Stuff in terms of its display and layout.
- Work on ways to enable data migration to and from other systems.
- Investigate accessibility issues.

The development objectives were met, in fact they were almost met twice ie in the original system MyStuff and again when changed across to Mahara as our basis for development.

Working with Open Source

There are several clear advantages to working with some recreated code rather than starting from scratch, they're of course potential problems that come along with those benefits. We gained a lot from working with the Open University on their MyStuff e-portfolio.

One example of their cooperation was with their main system developer Thanh Lee. He gladly invited us down to the OU campus at Milton Keynes and spent a whole day showing us the system in action, workshops on how the back end worked and helpful discussion about the possible developments of the project.

In particular this visit gave us a good grounding of what is required from an institutional e-portfolio, including lots advice on how they rolled the system out to curriculum staff and learners, the possible developments they would like to pursue and great information on the technical infrastructure they used and would recommend for a similar system, even though our needs in terms of network traffic and user numbers is far less.

Communication and co-operation with the original developers is essential in gaining the full benefit from using pre-created open source material. Having to reverse engineer a product because of a lack of understanding on how it was constructed negates most of the time benefit that may be gained from using pre-created code. Be aware, however, that amendments created on a particular version of a piece of software may not automatically roll forward if the main system is updated to a new version.

It (Mahara) gave me a much more accurate picture of my student's progress both in terms of what they had done but also when they had done it

J.W. (HE Tutor)

Stay in contact with the community as it is possible that the project under development may overlap or complements developments taking place at other institutions. We were able to benefit from other work that was taking place and ensure we weren't creating redundant features.

I would be happy to try this again with a larger group of students as I can see it has potential.

B.U. (WBL Tutor)

Conclusions

The project has reached a number of conclusions and for the sake of clarity we have divided them into categories

1. e-Portfolio's and their implementation.
2. Development experience.
3. Work-based learners / e-portfolios.

e-Portfolio's and their implementation

There are a lot of publications available on e-portfolios, including the excellent JISC InfoNet publication (http://www.jiscinfonet.ac.uk/e-portfolios) and a lot of the conclusions that we have drawn from our project reflect what is written in this document. Where possible we have avoided duplication of some of the generic lessons learnt and focussed on area which are more directly related to this project.

Implementation of any new learner IT system needs significant training and support to ensure its success, and this is particularly true of e-portfolio systems.

To gain maximum buy-in to the Introduction of e-portfolio, as with most new technologies, it needs to be introduced at the start of a course / academic year.

It is important to embed the use of the e-portfolio as much as possible within distinct parts of the course.

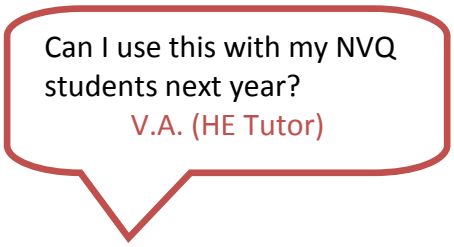
It is not immediately apparent to practitioners how they can use an e-portfolio and what benefits it has to offer, these can be discussed but often it is not until they have used in anger that they discover the potential it offers.

Getting them to use an e-portfolio "in anger" is not always an easy process.

The e-portfolio should link as closely as possible to an existing VLE.

Learners who gained the most from the use of an e-portfolio were distance learners as it offered some of the social and communication tools that they missed out on by the nature of their study

Rules and expectations of learner and staff behaviour (content covered, response times) helped smooth over potential issues.



Development experience

Split development into vertical slices.
It is important to break functionality into chunks. One method of chunking, assuming a typical architecture of data, logic and presentation layers, is to deliver the lowest level (data) followed by the middle layer (logic) followed by the user interface (presentation). The user does not care about the data layer and you miss the chance to gain valuable feedback if you deliver in this first. Instead, break things up vertically - deliver an end-to-end scenario with just enough data, logic and user interface to support the scenario.

Don't take the phone off the hook
Keep in contact with the development community to avoid duplication or conflict with other work being carried out. This doesn't mean that you should let the work of others define your direction as your approach to the same problem will undoubtedly result in a different set of conclusions; however, the easiest way to learn is from the experience of others. Obtaining frank and honest feedback is obviously key to working with other organisations and face-to-face contact is an important part in creating a relationship of trust (where possible, JISC funding didn't stretch to us visiting the Mahara developers in New Zealand!).

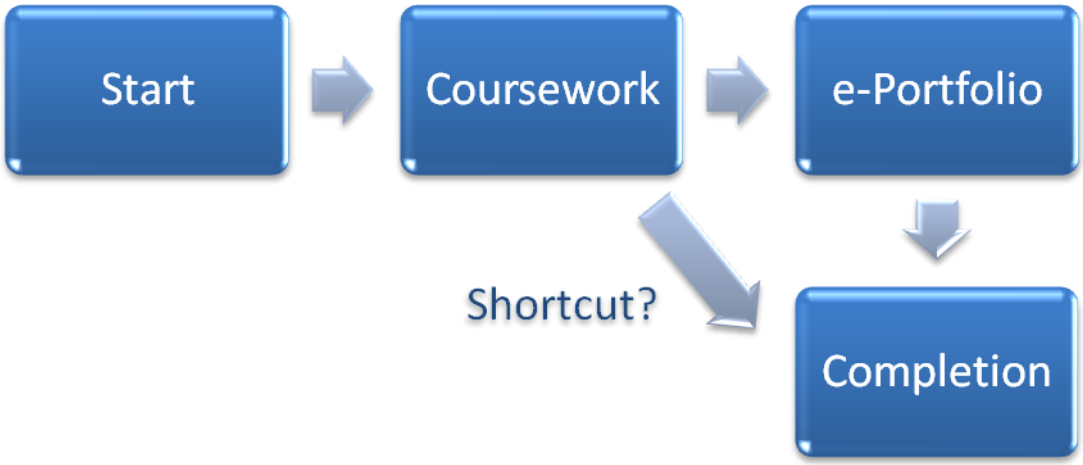
Keep your coders close but your users closer
We all recognise the importance of monitoring what is being developed and holding regular meetings to track progress, however, it is at least as important, if not more so, to have regular meetings with your users. Limiting yourself to feedback at specified points in the project limits its usefulness, and the learning process.

Don't be afraid to change horse mid race
Sometimes you may have no alternative but to make a significant change to the direction of the project and take the hit on the development time you have invested in that direction. It is very easy to ignore the end of the blind alley you are heading down if things are working well at that point in time. Be prepared to backtrack or switch almost anything within your project based upon user feedback. Pushing forward with even a small identified flaw may result in that flaw amplified thus reducing the value of the project as a whole.

Define Done.
In development it seems that the last 20% seems to take at least half the project time as changes are reviewed and additional features and amendments are made. It is important to have a clear, agreed-upon definition of 'done' at many different levels, including individual check-ins, component development, feature development, short iterations, milestones, and finally, release.

Work-based learners / e-portfolios

Work-based learners tend to be result-focussed with little time for something that is not graded, or a key part of getting to the end result of having a qualification that will either satisfy an organisation need or enable them to make career development. The concept and benefits of reflective practice is one they are reluctant to embrace. Following on from that, the question must be asked, “does an e-portfolio actually offer benefits to work-based learners that equate to the time and effort they have to invest in using it?”. Certainly the feedback we received from learners who engaged with the e-portfolio felt that it had been of significant benefit but there were still a number of learners who opted out of the process and it would be dangerous to make the assumption that they have benefitted from the e-portfolio if they had more fully participated. What is evident is the need to bring learners and particularly work-based learners on-board when implementing an e-portfolio as it is not something that the majority of learners will naturally embrace.



There is an initial investment in learning how the system works but it pays off in the end

S.B. (ITT Student)

Implication/Recommendations

The future implications for Loughborough College:

- Wider range of assessment techniques available to curriculum staff.
- More ways to communicate between tutors and learners or tutors and tutors.
- Further opportunity for the e-Resources and Design team to develop in terms of experience of new techniques and technology.

For the community

We have made several modifications for our development Mahara which, with a little more development could then be made available to the open source community.

These include:

- Ability to link external multimedia content from third party sources
  - Video
  - Animation
  - Photographs
- Offline Mahara application developed to allow users to download portfolio content to take away with them, work-upon and synchronise with live site.

Moving forward with this there is a need to customise Mahara further to maximum its potential for use with work based learners. There has been work already carried out by University of London Computer Centre (ULCC) which brings a more structured approach to using the eportfolio to record evidence and it would be useful to combine this with the development made within this project.

Through the project it has also been identified that there is a need to educate about what an eportfolio is and what potential it has both in a work based and mainstream learning environment. To continue the development of the use of e-portfolios on a national level a key step meet this need.

I found it motivated me to see what other people were doing
C.P. (HE Student)

Appendix

Glossary of acronyms

CETIS	Centre for Education Technology Interoperability Standards
DeL	Distributed eLearning Programme (JISC)
eReturn	A JISC funded project to develop a pilot demonstrating the use of e-portfolios to support cross-institutional delivery of lifelong learning.
FE	Further Education
Flickr	Media sharing website
HE	Higher Education
ILP	Individual Learning Plan
ITT	Initial Teacher Training
JISC	Joint Information Systems Committee http://jisc.ac.uk/
JISC RSC	Regional Support Centre (JISC)
LDAP	An application protocol for querying and modifying directory services
LEAP2a	Specification for lifelong learning records http://wiki.cetis.ac.uk/LEAP2A_specification
MIS	Management Information System
Mahara	An open source e-Portfolio developed by a collaboration of New Zealand's higher education organisations
MyStuff	An open source e-Portfolio developed by the Open University
OU	The Open University
Picassa	Media sharing website
VLE	Virtual Learning Environment
WBL	Work-based Learning. This generally refers to employees learning in the workplace (includes growing emphasis on short training courses and interaction with multiple training providers).
YouTube	Video sharing website