

Name of institution/organisation:	Newcastle University
Project partners (if applicable):	Newcastle University, School of Medical Sciences Education Development
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Length of Project:	6 Months
Project Start & End Dates:	February-July 2010
Total Funding Requested from JISC:	£5,000
Outline Project Description	
<p>This project will develop a rich web services API to allow other systems to communicate with the ePet system using the LEAP2a standard. Initially this work will be applied in the JISC funded Dynamic Learning Maps project which is using ePet to store reflections, files and other portfolio-related information so that learners will not have to duplicate their portfolio records in multiple systems.</p> <p>The project will provide documentation to allow other systems to effectively communicate with ePet. The work will be applicable to other ePortfolio systems which will be able to use the documentation to implement an API with the same functionality, in order to move towards a standard API for moving eportfolio data between systems in an asynchronous way.</p>	
Tick this box to indicate that this proposal has been approved by an appropriate member of the institution/organisation	
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Towards a LEAP2A API

Abstract

This project will develop a rich web services API to allow other systems to communicate with the ePet system using the LEAP2a standard. Initially this work will be applied in the JISC funded Dynamic Learning Maps¹ project which is using ePet to store reflections, files and other portfolio-related information so that learners will not have to duplicate their portfolio records in multiple systems.

The project will provide documentation to allow other systems to effectively communicate with ePet. The work will be applicable to other ePortfolio systems which will be able to use the documentation to implement an API with the same functionality, in order to move towards a standard API for moving eportfolio data between systems in an asynchronous way.

Background

During 2007-2008, Newcastle University were partners in the PIOP project² and played a leading role in developing the LEAP2a specification. Our involvement in PIOP was as an extension of the EPICS-2³ regional ePortfolio project, and built on extensive experience in ePortfolio interoperability (JISC funded ePET⁴ and EPICS⁵ projects).

As a further extension to EPICS-2, Newcastle University was awarded a PIOP2 project In October 2008⁶. This resulted in import and export facilities being added to the version of ePet that is freely available to download for UK HE and FE institutions from eportfolios.ac.uk/download.

In March 2009, Newcastle began work on the JISC-funded Dynamic Learning Maps project, which aims to provide a navigable personal learning map. One of the key elements to this map is linking personal learning records with the existing ePet ePortfolio, which we will achieve using a LEAP2a-based web service. This project will extend the work from Dynamic Learning Maps to open the Web Services API to other systems and to provide clear documentation to allow other developers to adopt a similar method for asynchronous ePortfolio data transfer between systems.

Proposed Work

The ePortfolio team at Newcastle University are committed to the LEAP2a specification, having being involved in its inception during the first PIOP project. We have already provided exports and a version of our import tool is available to anyone via eportfolios.ac.uk.

¹ <http://learning-maps.ncl.ac.uk>

² http://wiki.cetis.ac.uk/Portfolio_interoperability_prototyping

³ <http://www.epics.ac.uk>

⁴ <http://www.eportfolios.ac.uk/ePET?pid=32>

⁵ <http://www.epics.ac.uk/EPICS?pid=168>

⁶ http://wiki.cetis.ac.uk/Portfolio_interoperability_projects

However, our focus on what is meant by “portfolio interoperability” has moved on somewhat from the simple notion of exporting XML data from one system and importing it into another.

One of the key requirements of our Dynamic Learning Maps project is the ability to asynchronously transfer ePortfolio information between a learner’s ePortfolio and their Learning Map, and it is this interoperability that we are proposing to extend through this PIOP Project. Our initial work around this area has been based on LEAP2a, but with focus specifically on the ePet data structures. This project will enhance this work to the benefit of the whole ePortfolio community by making the web service fully compliant with the LEAP2a specification, while providing guidance to other systems that wish to implement a similar method of accessing ePortfolio data.

A web services API will be produced as a middleware between the ePortfolio and other systems (both internal to Newcastle and external), that will allow records marked up as simple LEAP2a documents to move between these systems. This API will use simple HTTP standards to ensure that data can be moved as easily as possible between very different systems built using very different platforms. The API will be enhanced by an authentication layer to ensure that only trusted users and systems can make these connections.

A web service is likely to be a more widely used element to the portfolio than the standard import and export, as it will be used on a daily basis and not just when a learner changes their academic institution. During informal discussions with other ePortfolio providers it has been noted that the use of web services to transfer ePortfolio records is potentially a more workable long-term strategy than simply providing learners with a link to upload an XML or Zip file.

The utilisation of LEAP2a as the mechanism to transfer this information will mean that the finished API could potentially be used by other ePortfolio systems either by using our specification or even using our API tool. Our work will be fully documented to ensure that other systems can implement it in the same way, or can adapt their system to use our API as middleware between other systems and theirs.

Outcomes and Benefits

An API based on the LEAP2a standard to allow ePet users to add records to their ePortfolio from within other systems and to retrieve records that are associated with the appropriate area of the external system. This API will initially be used within the Dynamic Learning Maps tool, but will be generic to ensure that other systems, including systems external to Newcastle University will be able to easily connect learners to their ePortfolios.

The API will use LEAP2a as the mechanism to transfer ePortfolio records. This will ensure that the API can be easily integrated into other ePortfolio systems. The generic nature of this API will mean that the finally produced tool could be used to connect other (non-ePet) portfolio systems with other systems.

An appropriate authentication method will be included in the API to ensure that records are only retrieved/added by the person who should be able to access them. This will need to use a recognised standard to ensure that other systems can easily connect to the API without having to use non-standard libraries.

Documentation will be provided to enable other systems to communicate with ePet using the API. This will include details of the functions used, URLs and parameters required. This documentation will also include detail of the process we went through to produce the API and the challenges we faced. This will help guide other systems that wish to develop a similar API.

We will continue to actively contribute to the LEAP2a mailing list. Any findings that we feel are of particular use to other implementers of the standard will be added to the CETIS LEAP2a wiki pages, and ongoing ePet specific information will be included on the project website.

System and users

The ePet ePortfolio system has approximately 25,000 users, mainly in the United Kingdom, plus use in the US where it is embedded in 'eDoctoring' systems. In Newcastle it is used by several undergraduate degree programmes, including Medicine, Dentistry, Bioscience, Speech Therapy, Education, Business Studies and Combined Studies, and is also available to all postgraduate research students (over 10,000 active users and currently a University funded initiative to extend access to remaining undergraduates and taught postgraduates) . Outside of Newcastle, the portfolio is also used in several other Higher Education Institutes, including St Georges University of London, Kingston University London, Barts and The London School of Medicine and Dentistry, and St Andrews University.

The tool being developed through the Dynamic Learning Maps Project will be piloted from Semester 2, 2010 with students in Medicine, Psychology and Speech Therapy.

Staffing

Paul Horner (Project Manager/Lead Developer) is an Internet Developer within the School of Medical Sciences Education Development. He played a leading role delivering the technical outcomes of the EPICS and EPICS-2 projects. He has experience of developing and supporting ePortfolios for numerous partners, and has contributed and demonstrated at International conferences around emerging interoperability standards. He was one of the key partners in developing the LEAP2a standard through the PIOP Project, and was also the lead developer and Project Manager of Newcastle's PIOP2 Project. He is the senior project officer on the Dynamic Learning Maps Project.

Simon Cotterill has played a leading role in over 20 ePortfolio-related projects, including project management of JISC/HEFCE funded initiatives (see www.eportfolios.ac.uk). He is project manager of the Dynamic Learning Maps Project.

David Teasdale will provide additional support. He is an experienced Internet Developer at Newcastle University. He has worked across a number of ePortfolio projects.

John Peterson will also provide additional support. He is an experienced Internet Developer at Newcastle University and is a Project Officer for Dynamic Learning Maps.

Risks

As this project is looking at producing a web services API, rather than a traditional upload/download tool, it may not be possible to meet each of the timescales noted in

Appendix A of the invitation to tender. This is a minor risk because our work in the previous PIOP projects means that much of this information is already available.

The project will not produce a single export file containing the ePortfolio, but will instead produce smaller, context-specific records based on the criteria provided in the web services request, which may not be particularly useful to other projects. The import scripts will also be based on a web services call, and as other projects will not be in a position to support this, this project will not provide a traditional import script. This is a minor risk as existing import and exports are available following our previous PIOP projects.

Changes to the LEAP2a specification could have knock-on effects to the usability of the API. The API will be developed based on one version of the LEAP2a specification, and when future versions are available a decision will be made whether to update this to the latest version. If newer versions are supported, it will be possible to send the version as a parameter, so that the ePortfolio system can make sure that it can import the record.

The use of an API as middleware may not be feasible with the current specification. If this is the case, we will provide a full and frank report stating our reasons for this conclusion, highlighting the barriers and discussing options for the future.

Budget

Funding requested £5,000 (based on 10 developer days). Full economic costs have been included within this budget.