

INTEGRATED WEB BASED SUPPORT FOR THE LIFELONG LEARNER

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Abstract

This paper describes the progress made by the SHELL Project, a partnership between further (FE) and higher education (HE) institutions. The SHELL Project aims to support the lifelong learner - particularly HE learners in FE. Registration processes for these learners are traditionally slow, and SHELL is working to streamline and automate data transfer between FE and HE institutions. We intend that this rapid transfer will allow learners to access HE facilities such as library and electronic resources in a timely fashion. In some cases, this may even open up access that was previously not available. Furthermore, by sharing records of results between participating institutions, SHELL is aiming to gather together learner data in the form of a "learner record", to be accessible by students wherever they are in the world using a web based portal. This learner record portal will also be linked to facilities that support learner personal and professional development planning for the future- available to students long after they leave their place of study.

Keywords

Lifelong, Learning, SHELL Project, Learner Record

1. Introducing Susie - a lifelong learner

Susie is a lifelong learner who completed her school education and continued to study in a number of educational institutions. When registering at school, Susie's details were stored on the school record system and were also transferred to a learner database specifically designed to support her over a much longer period. As we shall see, the significance and value of this automated data transfer was to become much more apparent to Susie over the coming years.

After school, Susie decided to continue her education, and registered for a foundation degree at a further education college in a rural town. After registering on the course, she is pleased to discover that she now has immediate

access to a range of learning resources from the University linked to that college - all available online. The rapid access to a gateway of electronic library resources using only one password proves to be especially valuable. At the end of the course, she transfers to the University to read for a degree and avoids the registration queue - as all of her registration data is already on file.

During her studies, Susie occasionally checks her 'learner record', via the web portal originally developed by the SHELL Project to store records of achievement. Using the professional and personal development feature, Susie manually adds details of her work experience to her learner record, reflecting on the new skills and capabilities gained. She identifies and lists her future plans and goals, and over time, she revisits and redefines these aspirations in the years after graduation.

Time passes, and ten years after completing her degree, Susie decides to move to a different career, and in order to compile her application she returns to her learner record portal, which now lists all of her accrued qualifications and experience to date. Using the rich source of available data, she quickly compiles her curriculum vitae, and with fingers crossed, clicks 'send' to email the customised job application to the prospective employer.

By developing interoperable links between systems, the SHELL project aims to help make this possible. This short paper sets out the scope of this ambitious project, and discusses our experience gained so far.

2. The SHELL Project

The SHELL Project is one of two projects funded by the UK Joint Information Systems Committee (JISC) as part of the Managed Learning Environments for Lifelong Learning programme [1]. This programme has a longer term strategic aim of supporting the mobility of learners via integrated information systems that are able to provide a single portal allowing access to a range of resources. Launched in April 2002, the SHELL project [2] is led by the University of Plymouth, in partnership with four further education colleges in the South West of England.

The project arose out of an identified need to support students undertaking higher education (HE) courses delivered by further education (FE) colleges in partnership with the University. These students (of which there are about 4000) need to 'co-register' and this double registration currently takes weeks to complete. It was clear that our current administrative processes could be developed and improved. Furthermore, the region has small and dispersed centres of population, which means that specialist courses, library facilities and resources are not always available in the geographical areas served by partner colleges.

The project is currently developing a mechanism (using IMS interoperability specifications) for the automatic transfer of data between student records systems, managed learning environments, and personal development planning systems. In summary, the project aims to provide:

- Improved administration via a single registration for all partnership students, with rapid and efficient transfer of registration data between institutions.
- Improved frameworks for integrating the information systems between partnership colleges and the University. This could mean that a student studying a higher education course in a partnership college is (following registration) able to rapidly access the library and electronic resources held by the University.
- A permanent personal web portal for learners, who are able to access details of their results achieved in all of the institutions participating in the project. This portal will also support personal and professional development planning.

3. The Learner Record

In order to achieve these objectives, it was necessary to initially establish and agree what learner information was to be collated and shared. Drawing together different systems, across different education institutions (funded by different agencies with dissimilar data and reporting requirements) represented no small task!

Much of the early part of the project involved significant negotiation between partners to agree data transaction processes, such as the scope and range of data gathered, and business processes/timescales for data collection and transmission. Data protection and security of these records was (and remains) a prominent issue.

This list of shared information is termed the "Learner Record" – a multi-institutional dataset based on information contributed by all institutions in the partnership. It includes details of qualifications and modules from courses completed and those in progress.

3.1 Data Transaction

The developing technical infrastructure involves the learner record database, a portal for long term student and staff access to information, and the SHELL Hub - the message exchange centre within the partnership.

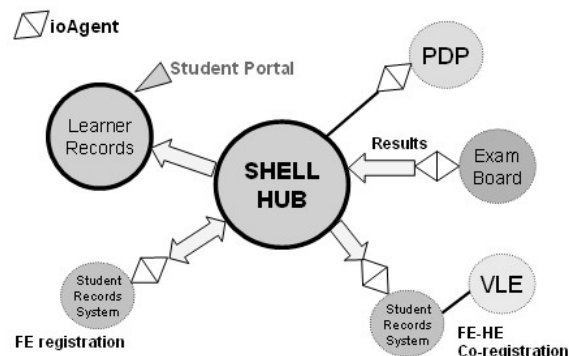


Figure 1: Data Transaction within the SHELL Partnership

Learner data is passed to organisations and systems via the SHELL Hub using a software device called an 'ioAgent' to provide connectivity [3]. The role of the ioAgent is to encode data in IMS form for transmission to the Hub.

The chosen data specification for the SHELL project is IMS LIP, which is soon to be defined in terms of a British Standard (BS 8788) [4]. IMS LIP (Learner Information Package) is an XML schema for representing student record data. The use of messaging services (such as ebXML Messaging Service 2.0 and SOAP 1.1) aim to provide robust delivery methods. Data transmission and integrity is important - XML data that fails validation (i.e. does not conform to the specification) will not be routed or further processed.

Each institution is developing a 'plug-in' to interface their particular record systems to the ioAgent (which forwards data in IMS format to the learner record database, accessible by the web based portal). We believe this approach to be sustainable and scaleable for future development, with the advantage that legacy systems are able to be included too.

3.2 The Learner Record Portal

Learner records are to be held in a single database linked to the student record systems within the partnership (as described in Figure 1), and these records will remain available even after a student has left the institution.

The learner record is initially designed to record achievements attained within the further and higher education partnership. The learner record portal is the web based 'front end' that allows authenticated user access to this data stored in the learner record database.

From early 2004, registered students will be able to access their learner record and will be able to request a copy to be emailed to a nominated email address. The portal will include a facility for students and staff to change passwords, including the essential advice on how to proceed in the event of a forgotten password!

Initially, the learner record portal will be deployed on a standalone web site with referring links also being placed on college and university websites. We propose to add links to other popular websites that aim to support the student experience, so as to help raise the prominence of the facilities available.

4. Issues raised and experiences to date

There have been a number of issues that have surfaced through the development of this project so far. National and international standards, protocols and terminology are rapidly evolving. This pace of change can create “innovation overload” which serves to reduce and undermine the level of acceptance at both the institutional and individual level. This issue is one that has affected all partners to a greater or lesser extent.

A further issue is that of perceived focus. The project acts as an interface between FE and HE systems. Certain areas of the institution (such as academic staff) may see this as a project which primarily benefits business processes, and lose sight of the ultimate beneficiaries- the learners. This issue is also true at the institutional level, where partners might question how they benefit in the short term. However such benefits can only become visibly apparent when there is sufficient ‘critical mass’, and institutions are able to receive data from other sources efficiently as well as move it forwards.

Early in the project it became apparent that student record systems did not always store details of the specific modules students were undertaking. Furthermore, student data is not always stored in similar formats. Even simple information (such as male/female) can be stored in many ways. Males might be represented on by M, or ‘0’ or ‘1’ or the word ‘male’. It has been an interesting experience to see the number of ways data is stored, and translation systems can be surprisingly difficult to implement.

A key issue relates to that of the unique identifier for students. This issue is high on the agenda for a number of agencies at this time [5],[6]. A variety of identifiers have been considered, but to date not one meets the necessary criteria to avoid duplication. In other countries, this issue has been addressed, if not entirely resolved [7].

5. Future directions

Ultimately, it is intended that this portal will enable any participant to access a record of their learning in the

widest sense, irrespective of the life choices and pathways taken. It will also allow them to have permanent internet based access to their transcripts of formally accredited marks and will facilitate the future storage of other records of achievement, such as personal development records and planning. Inevitably, records of short and/or informal courses will be more difficult to incorporate. However, if the learner record is to be complete, these other courses ought to be included too.

Negotiations are currently in progress with careers service providers and web site owners to embed and integrate the available data into other tools and resources available. Other functionality is being considered: future students may be able to build a Curriculum Vitae or Resume, by selecting appropriate areas of their learner record. Through such integrated links with other web sites, students could be able to send job application details by email directly from their web based portal.

Two further medium term developments appear to be natural extensions to the SHELL project. Vertical extension would include school and workplace data, and lateral extension would include other parts of the United Kingdom.

We believe that the technical architecture developed by this project will enable all manner of legacy systems to be fully integrated to the potential benefit of lifelong learners throughout the country.

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