

Project Acronym: JOSEPH  
Version: 1.0  
Contact: Sandra Winfield  
Date: June 2009



## **JISC Final Report**

# **JOSEPH**

## **Joining up Organisations to Support new Engineering Pathways into Higher Education**

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June 2009

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## Acknowledgements

This project was funded by JISC under the e-Learning Capital Programme Cross-institutional Use of e-Learning to support Lifelong Learners (Phase 1) strand

### Project Partners

Connexions Nottingham  
Castle College Nottingham  
Top Valley School and Engineering College Nottingham  
LEAP-AHEAD Lifelong Learning Network

The project would also like to thank the following for their support and assistance:

Phil Harley, 14-19 Consultant  
Djanogly Academy Nottingham  
Kimberley School Nottinghamshire  
Student ambassadors at the University of Nottingham  
Ian Lindsay, HE Academy Engineering Subject Centre, University of Loughborough  
Paul Turnbull, SEMTA  
Terri Kinnison, Becta  
Lynn Thomas, Nottingham City Council

We would also like to thank Clive Church of Edexcel for his work as External Evaluator for the project and acknowledge the support and encouragement of staff at JISC, in particular Sarah Davies, Lisa Gray, Paul Bailey and David Kernohan.

## Executive Summary

### Strategic context and scope

The need to enhance Information, Advice and Guidance (IAG) in the UK schools sector is seen as increasingly important, by Government and by HE. This has been highlighted by the reforms of 14-19 education and the new requirements generated by the development of the Diploma qualifications, designed to be delivered by a partnership of organisations and which necessitate learners undertaking education in more than one location, with associated issues around tracking and communication.

The growing programme of vocational education for the UK's young people means that pressure on existing IAG staff is increasing at a level that can only be met by making improved use of electronic resources. Young people need advice at an earlier age to help them make appropriate decisions on a growing choice of pathways through education. JOSEPH addressed this need by focusing practically and strategically on IAG processes for learners on pathways in Engineering, especially those opting for the new Diploma in Engineering courses.

### JOSEPH's major achievements

- JOSEPH exemplified the importance of building and sustaining mutually beneficial partnerships. It demonstrated the value of a mature core partnership with the flexibility to add new partners to meet the needs of a project.
- The project developed a pioneering tool to support the career development and hence help realise the potential of young people.
- It delivered a workable and practical model which can be used flexibly, both as standalone and capable of interoperating with an ePortfolio
- The JOSEPH tool acted as a hub for a series of identified and tested web services required by IAG processes
- JOSEPH started out as a project to support learners into engineering in higher education, but developed to become a model which could support the whole range of vocational qualifications and pathways, not just at 14-19.
- We demonstrated that IAG processes proved to be generic in terms of type and age of learner
- By providing the IAG tool with a content management system we have given it the capability to support customisation and flexibility
- A set of scenarios show how JOSEPH could be used at a variety of transition points as the IAG processes are similar
- JOSEPH has become an integral and sustained part of the core work of Connexions Nottinghamshire
- We showed that an institution-free ePortfolio was viable and popular with learners, advisers and institutions.

### Major outputs and further achievements

We showed successfully how ePortfolios can interoperate with a variety of on-line resources and on-line and/or face-to-face advice services provided by IAG organisations (primarily Connexions, but also FE/HE/workplace mentors). We identified a set of generic core processes for decision-making and preparation for transition, identifying the key resources to support those processes.

Web services work for the project to include data from regional 14-19 prospectuses meant that we encompassed use of XCRI work to link successfully to the local 14-19 online prospectus: work used to

develop this feed has now been taken further as the result of the XCRI project taking standardised course information feeds from a number of local prospectuses into a single reference point (the AimHigher Progression Pathways site). We have thus been able to demonstrate integration of this information into a wider IAG framework, showing the added value this can offer prospectus data.

### **Issues identified**

The novelty of the Diploma qualification, while an initial brake on project progress, proved to be an advantage as it encouraged us to work with a wider range of pathways and qualifications, and to explore generic IAG processes and the support these would need.

### **Continuation – next steps**

Connexions Nottinghamshire are planning further work to explore demonstration and practical adaptation of the tool to other lines of learning.

Connexions have expressed an interest in taking this work even further to look at how we might join the IAG, ePortfolio and XCRI work to support their desire for a standard Common Application Form and a linkage to the MIS systems of FE colleges. This is an exciting prospect and reflects the value and practicality of the JOSEPH work and would realise some of the early developments explored by the RIPPLL project. It will also facilitate cross-border access to data to increase choice for learners who currently only have access to information within regional boundaries.

### **JOSEPH's recommendations**

- Further work should be done on combining ePortfolio use with further web-based IAG services to enhance a learner's experience, especially where that experience is gained across a range of institutions/learning situations, including workplaces
- The full potential of aggregating the IAG tool, ePortfolios, 14-19 prospectuses, XCRI, Common Application Form and college MIS systems should be explored further in a variety of contexts and settings
- Further testing and implementations of the 'thin ePortfolio' model should be done in with real users and real systems in different practical situations
- Links should be made with LEAP 2A interoperability work which could connect the existing tool with other sets of services and ePortfolio systems
- Work should be carried out around the use of the Common Application Form and its integration into wider systems, especially IAG and induction, to provide a seamless experience for the learner
- MIAP services, including the ULN, should be factored into all of the above landscape.

## Background

The growing use of ePortfolios by learners in recent years has opened up a wealth of possibilities. The potential offered by a learner-owned resource within a holistic setting has been explored by a number of JISC-funded projects. Earlier project work led by the Centre for International ePortfolio Development at the University of Nottingham explored the support for learners in 14-19 pre-HE education, experimenting with interoperability to facilitate transitions. The 2005-6 RIPPLL project<sup>1</sup> explored an entire learner journey from 14-19 through HE undergraduate and postgraduate study to employment, and began work on use of ePortfolio to inform a common application process to FE. This work was done in partnership with the City of Nottingham Passportfolio service (originally the City of Nottingham Passport), which offered ePortfolio functionality to all learners in Nottingham schools.

The need to enhance Information, Advice and Guidance (IAG) in the UK schools sector is seen as increasingly important, by Government and by HE. In terms of online electronic resources for IAG, information websites (I) are widely available, but fewer resources have been developed for advice (A) and very little provision exists for guidance (G). The use of the web for A and G is contentious amongst IAG professionals, whose culture is strongly committed to face-to-face and impartial provision, and who argue that we should guard against any large-scale take up of electronic A and G resources provided commercially, since adequate personalisation would be very hard to achieve and impartiality in particular would be jeopardised. At the UCAS Annual Admissions Conference in April 2009 David Lammy, the Minister of State for Higher Education and Intellectual Property, highlighted the need for consistent, impartial careers education in schools<sup>2</sup>. The National Council for Educational Excellence Recommendations<sup>3</sup> published in October 2008 recognises the constraints arising from lack of capacity and inappropriate IAG, particularly for STEM subjects, and states that significant improvements are needed in IAG provision in schools in order to offer the fullest possible support to students about 14-19 curriculum choices. A number of UK projects have explored the input ePortfolios can have in career planning, including to support modules which can lead to gaining UCAS points for entry to university<sup>4</sup>. The use of ePortfolios to evidence skills and support Personal Development Planning is well established, and a number of ePortfolio initiatives have been led by Careers services<sup>5</sup>. However these have tended to produce single, static tools or websites that are designed to be generic, or to apply to a single subject area such as Medicine.

JOSEPH arose from several needs:

- The UK Government agenda at this time was placing an increased emphasis on skills development, and to encourage and increase participation in vocational HE courses (part of the agenda for setting up the LLN infrastructure in the UK and the development of the 14-19 Diploma qualifications). The Leitch report<sup>6</sup> recognised that the majority of the 2020 workforce was already in work, and set the agenda for raising skills achievement with older learners, adding weight to the existing Widening Participation and Lifelong Learning goals.
- The Centre's work with ePortfolios was showing the link with Information, Advice and Guidance services. This was highlighted by the eP4LL project<sup>7</sup> which showed how IAG and ePortfolio services might interact.
- The falling take-up of STEM subjects at HE undergraduate level, both nationally and locally.
- The reforms of 14-19 education in the UK and the new requirements generated by the development of the new Diplomas, designed to be delivered by a partnership of organisations (i.e. not just by one school) and which necessitated learners undertaking education in more than one location, with the associated issues around tracking and communication
- The importance of the Nottingham schools implementation (Passportfolio) as a national example (arousing interest from Becta); this project work offered an opportunity to work alongside the even more

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<sup>1</sup> <http://www.nottingham.ac.uk/eportfolio/rippll>

<sup>2</sup> [http://www.dius.gov.uk/news\\_and\\_speeches/speeches/david\\_lammy/ucas\\_conference\\_2009](http://www.dius.gov.uk/news_and_speeches/speeches/david_lammy/ucas_conference_2009)

<sup>3</sup> <http://publications.dcsf.gov.uk/eOrderingDownload/NCEE-Recommendations.pdf>

<sup>4</sup> See, for example, the ELP project led by the University of Bradford:  
<http://www.jisc.ac.uk/whatwedo/programmes/edistributed/bradfordelp.aspx>

<sup>5</sup> Such as the Careers Wales Online system <https://www.careerswales.com/home.asp?language=English>

<sup>6</sup> [http://www.hm-treasury.gov.uk/d/leitch\\_finalreport051206.pdf](http://www.hm-treasury.gov.uk/d/leitch_finalreport051206.pdf)

<sup>7</sup> <http://www.nottingham.ac.uk/eportfolio/ep4ll>

significant scaling-up of the implementation to make a strategic study of the use of ePortfolios in relation to innovative IAG for Diplomas, thus providing a test bed for what was emerging as a national priority.

- The project coincided with the formation of the Derbyshire/Nottinghamshire Lifelong Learning Network (LLN), LEAP-AHEAD<sup>8</sup>, for which the Centre was leading the eSystems work. IAG services for adult learners formed an important part of this work, and this project was designed from the outset to be rolled out to the LLN.

## Aims and Objectives

The original aims as stated in the project plan were:

### Aims

To identify and scope existing IAG processes for learners and advisers on vocational, multi-institutional pathways in 14-19 education, and to specify the priority web services needed to enhance the integration of eportfolios and IAG for the benefit of both students and support staff.

To scope, specify, build and pilot an SOA solution (instantiation of the eportfolio 'engine' proposed by the eportfolio Reference Model project) to co-ordinate the use of Nottingham Passportfolio with IAG processes and resources, in the context of the new Specialised Diploma in Engineering. This would include links to the new 14-19 online prospectus and UCAS course entry information and will be purposed to transfer to the Derbyshire-Nottinghamshire LLN for roll-out across the sub-region.

To test the viability and usefulness of an institution-free eportfolio for this category of learner by seeking answers to key questions, such as:

- What is involved in personalising a generic, institution-free eportfolio system to support learner progression on a specialised diploma route in a specific occupational sector (Engineering), accommodating several learning providers at the same time?
- How will eportfolios interoperate with the variety of on-line resources and on-line and/or face-to-face advice services provided by IAG organisations (primarily Connexions, but also FE/HE/workplace mentors) in a specialised diploma learner's preparation for application to FE or HE?
- How widely transferable is the technology required for eportfolio-based progression to FE/HE on this route, in a vocational specialism governed by sector bodies, including transitions not just between educational institutions, but also including training and employment?

### Specific objectives

(a) to work with the 14-19 Nottingham partnership (Connexions, AimHigher, Children's Services in the City and County) to identify eportfolio-enabled web services to enhance access to IAG for students in local schools/colleges, including linking to the regional on-line 14-19 prospectus to be introduced by August 2007

(b) to focus this practically and strategically upon IAG processes for learners on pathways in Engineering, especially those piloting the new specialised diploma in Engineering, one of the first to come on stream in 2008

(c) to identify the kinds of personalised, cross-institutional programmes which will be characteristic of the new diplomas, and to provide an instantiation of the eportfolio 'engine', as proposed by the eportfolio

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<sup>8</sup> <http://www.leapahead.ac.uk/>

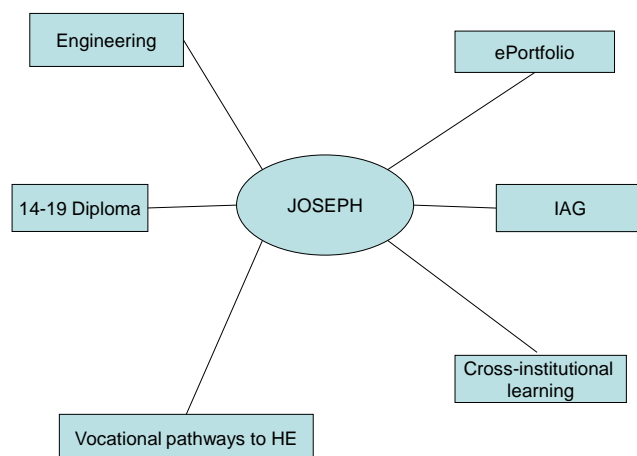
Reference Model project, in relation to IAG requirements to support learners operating across more than one institution/learning situation

- (d) to provide and evaluate year-long pilot implementations in 07-08 with specific groups of learners who will be using the new Passportfolio, involved in a pilot for the new Specialised Diploma in Engineering and considering applying for entry to FE and/or HE

*This objective as originally phrased depended on the implementation of the 14-19 Diploma, which began later than we had anticipated and involved relatively small numbers of students. Instead of conducting a single longitudinal pilot with a fixed set of students, we elected instead to carry out an iterative programme of piloting activity and evaluations involving some learners, but focusing primarily on an extensive range of IAG and teaching professionals.*

- (e) to produce a scalable solution and demonstrate its scalability by supporting the take-up of the outcomes of the project across the Nottinghamshire/Derbyshire Lifelong Learning Network 2007-2010.

*This was facilitated by the close involvement in JOSEPH of both LLN and IAG staff; collaboration with the LLN opened the project to a wider range of contacts, including those outside Nottinghamshire. Interest in the IAG tool developed has been particularly strong in Derby City Council, who are considering its potential use in schools and colleges.*



**Figure 1: Positioning JOSEPH**

## Methodology

We recognised that this was a potentially complex project, involving a wide and varied range of partners and stakeholders. We therefore chose to conduct the project over the full two years offered by the programme, concentrating on background and preparation work in the first year and implementation and evaluation in the second. We anticipated early on that the work would involve development of a tool or set of tools to articulate IAG and ePortfolio, but planned to explore and scope this more with stakeholders during the first year. We also anticipated that during this period the nature, distribution and delivery of the Diplomas would become clearer.

We chose to adopt the methodology which had been successful in previous projects: this involved initial research, followed by workshops with stakeholders to build scenarios which would then be refined iteratively before being released to the community. From these we expected to develop requirements analysis and software prototyping, using the ‘extreme programming’ approach advocated by Phosphorix in previous support work for JISC project.<sup>9</sup> Prototypes would be explored with stakeholders and their feedback used to refine them further. This presented

<sup>9</sup> <http://www.phosphorix.co.uk/phos-shed/>

more of a challenge for us as our previous development work had been proof of concept, whereas in this project we aimed to produce something of immediate practical benefit to real learners in real situations.

We initially planned to use the scenario-building materials developed by Peter Rees Jones for the MLEs for Lifelong Learning Programme, and which we had used in the *Specifying an e-Portfolio* and RIPPLL projects. However as our workshops progressed, we felt that a simpler approach would be more suitable for engaging the stakeholders we were working with, who were not necessarily so well versed in the finer points of ePortfolio development. The resulting set of scenarios therefore demonstrates use of more than one framework.

At every stage we valued the input of Clive Church, our External Evaluator/Critical Friend, who was able to keep us informed about changes in the national agenda and landscape.

## Implementation

The project began from an existing successful partnership with the team who originally developed Passportfolio, and with whom we had worked in a number of previous projects. However as the start of the JOSEPH work coincided with the transfer of responsibility for Passportfolio to Connexions Nottinghamshire (along with a key member of staff) we began the project by preparing a paper outlining the anticipated work in order to engage Connexions staff, the developers of Passportfolio and schools and colleges who might be involved. We were able to collaborate with a 14-19 consultant, Phil Harley, who had both a background in Widening Participation work and experience working with the local authority, where he had been responsible for the original development of Passportfolio. Initial approaches were followed by a series of meetings to develop new relationships, in particular with specific staff at schools and colleges planning to offer the Engineering Diploma. The Centre already had a link with the company which developed Passportfolio, although during the course of the project Connexions made the decision to rebuild the system with a different set of developers.

We concentrated on building links and developing relationships before making any attempts at implementation. The process of identifying specific contacts was at times both time consuming and difficult but we felt strongly that establishing these links was essential to progress.

At the same time we worked on developing the team's awareness of developments in local and national initiatives which could have impact on the project and looking for synergies with other work in this area. The 14-19 Diploma, described by Jim Knight (Minister of State for Schools and Learners) as the largest educational reform being carried out anywhere in the world, was still in early stages of implementation. The Diploma is a qualification consisting of three main components, including 10 days of work-related learning, and designed to be delivered by a consortium, rather than a single school or college. As it would involve most learners studying for constituent qualifications in multiple centres, potentially with different awarding bodies, all of which would count towards a single Diploma qualification. As such, we felt that an ePortfolio would be the only practical means for learners to aggregate and communicate their learning.

Our initial main interest was in the Level 3 Engineering Diplomas which was to be released as one of the first five lines of learning; although the final syllabus for this was not published until later in the project, we were fortunate in being able to work with staff from Becta and to have input from Edexcel so that we were able to gain insights into the expected nature and shape of the course. Furthermore, members of the project team attended a number of national events to find out as much as possible about the new qualification. We also held meetings with admissions staff from the Faculty of Engineering at the University, to canvas their views on the Diploma and progression to HE.

However there were issues arising from working with such an embryonic new qualification and the resulting continually-changing landscape. The consortium of Nottingham schools and colleges which had applied for Gateway funding to pilot the first lines of learning did not find out until some months into the project that it had been successful in securing funding. First pilot teaching was agreed to start in September 2008, later than we had expected when designing the project (when we had understood there would be initial pilots from September 2007). However we received assurance from the City of Nottingham local authority that they were committed to supporting 14-19 vocational pathways as part of the Nottinghamshire Diploma; by the end of the first year of the

project we had begun to consider broadening the scope to encompass other pathways in Engineering, and to cover learners making choices at other decision points besides making a UCAS application, especially the decision to enrol on vocational courses at Year 9 and Year 11. This decision was validated by the national lack of confidence in the Diploma, reflected by the disappointingly low number of learners opting to study for the qualification in the first year. Many HEIs were hesitant to commit themselves to accepting the Diploma as an entry qualification, and until UCAS announced the points tariff for level 3 many schools and colleges were unsure of how to advise learners considering Diploma courses.

We were able to work in collaboration with the gmsa<sup>10</sup> and share their ambitious vision for a system of web services to draw together information from various sources to maximise its potential use to support lifelong learners in the region. Using this as a starting point, we developed a preliminary vision of a web-service enabled system including processes which interacted with the ePortfolio via an IAG module or service.

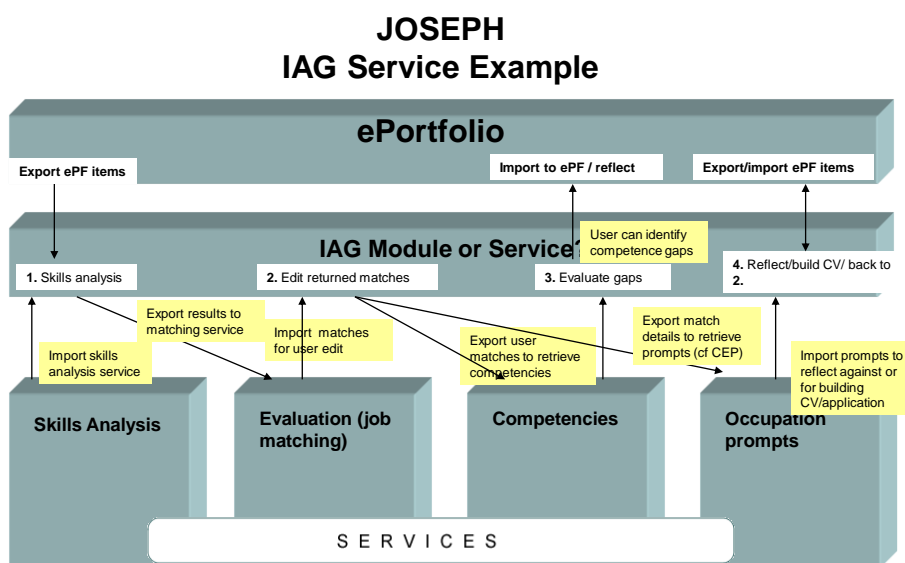
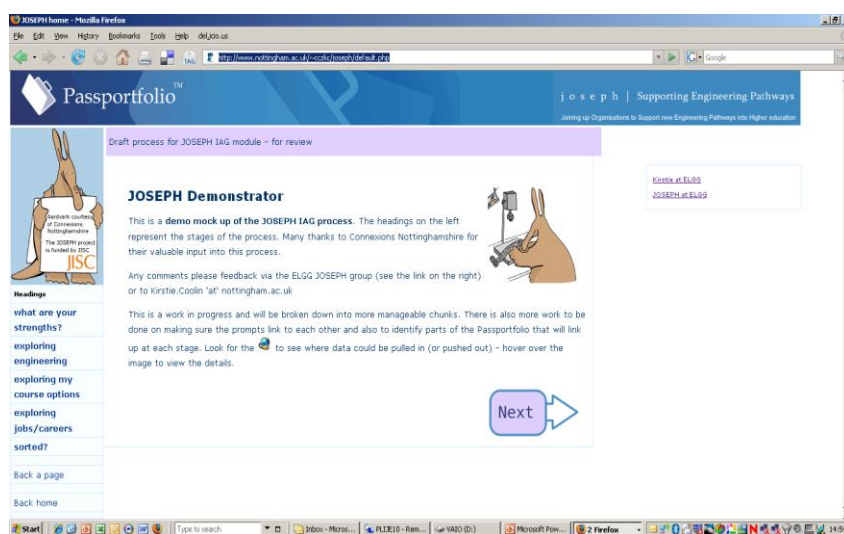


Figure 2: JOSEPH services

At the same time we held initial discussions to scope the domain with a variety of stakeholders to identify and explore a series of IAG scenarios for vocational learners at various stages on the pathway progressing to HE, during the course of which we established an understanding of their ideas about how a web service could support the real needs of students. The resulting five scenarios involving different learners in different situations are available via the project website and are given in Appendix 3.

During the course of these discussions we began to develop an initial prototype module tool which would use web services to take live feeds from a variety of sources, linked to the learner's ePortfolio but also able to be used as a stand-alone unit.

<sup>10</sup> Greater Manchester Strategic Alliance <http://www.gmsa.ac.uk>



**Figure 3: Early JOSEPH interface**

We used this effectively during further consultation with partners, to act as a ‘straw man’ to promote discussion and further exchange of ideas. An important outcome, supported by the findings of other JISC projects including eAPEL, was the understanding that ideally we should seek to use electronic processes to supplement and enrich, rather than replace, face-to-face IAG. We therefore aimed to develop something that would guide the learner towards an IAG quality-assured set of resources, which would further their progress more effectively than the results they could achieve alone by, for example, conducting a Google search on ‘Engineering’, which we were aware some young people were doing.

The key to the tool was the identification of a standardised agreed decision-making process, involving distinct stages to guide the learner towards making an informed decision about careers and courses. An important development for our own understanding was that an informed decision NOT to pursue an Engineering pathway would also be a valuable outcome. The tool is described further in the Outputs section below.

The next stage was therefore to liaise with a range of IAG professionals to identify suitable web-based resources to support each stage of the process. A number of sites and services were evaluated and representatives contacted to discuss the possibilities of using a web service to extract current and accurate data from their systems. Examples of these sites can be seen at <http://joseph.passportfolio.com/>.

Following discussions with the IoNW2 project, we investigated the possibility of using the National Occupational Standards (NOS) published by SEMTA<sup>11</sup> for assessing, matching to and recording an individual’s competencies for Engineering. However closer investigation of the standards as they were at that point led us to conclude that they were too numerous and too granular to be of immediate use to support IAG at this level.

Project staff made site visits to LearnDirect and other providers to discuss how their resources could feed into the tool. However we found that many services either could not or were unwilling to allow a web service to extract their data, and preferred us to link out to their sites instead. The main reason given for this was lack of trust: organisations felt that it was important to ensure data integrity and to keep the data within context. A significant concern regarding enabling access to e.g. job profiles, labour market information and so on, via a web service, was that the data would not be updated regularly enough, and would not necessarily be presented in the appropriate context. However we were able to demonstrate use of web services to import data from the learner’s Passportfolio account, and to link to the Nottingham 14-19 Area Prospectus data to import data on courses using a straightforward search facility, so that learners can investigate available courses in the area to support the pathway

<sup>11</sup> [http://www.semta.org.uk/training\\_providers\\_awarding/national\\_occupational\\_standard.aspx](http://www.semta.org.uk/training_providers_awarding/national_occupational_standard.aspx)

they have explored using the tool. Project work led by the Centre on a JISC 14-19 XCRI project piloting an XCRI course data web service export from all East Midlands Area Prospectuses provided an opportunity to pilot aggregation of these services into JOSEPH to present all Area Prospectus data available in the region. This process also highlighted issues arising from course presentations which cross regional boundaries.

We were able to access the Connexions server for development of the module, which made the development process of linking it to a learner's Passportfolio account straightforward and allowed us to make available a single sign on for learners with a Passportfolio account. We were also able to offer support and technical advice to Passportfolio staff as they considered the next stages for their own system. We considered different ways of managing the login process, either as a single sign on through Passportfolio itself or as part of a wider Sharepoint environment, which was being proposed for the Nottingham Learning Gateway which was intended to support Diploma learners. We also held discussions with Loughborough College about incorporating the tool into their own learning platform. While we were not able to realise this integration during the course of the project, we made sure that the final version of the module was accessible as a standalone unit, which could be further developed and used as part of a suite of tools and accessed from other systems using a portal approach.

Half-way into the project it became clear that our original intention to involve learner cohorts at each of the three levels of Diploma provision would not be practical, owing largely to the lower than expected number of learners opting for the Diploma both nationally and locally, and the even smaller subset of these opting for Engineering. While we found that university admissions tutors suggested that they would value the new types of learner that the Diploma promised to deliver, there was still tension between this and the confidence in established traditional qualifications, especially in the area of maths for engineers.

A further issue for the project's progress was the decision by Connexions to rebuild Passportfolio with a new set of developers as the earlier system was felt to be unable to deal with some of the more complex requirements which were emerging. As much of our initial piloting planning was tied to the idea of the tool being tested in schools in tandem with Passportfolio, we were unable to engage schools directly on the scale we had originally planned.

We therefore focused our attention on learners considering Engineering pathways at 14-19, taking decisions in Year 9 and Year 11. We were advised by Engineering admissions tutors that they felt learners should be encouraged to consider Engineering pathways from an early stage and that they were considering outreach activities in schools. We also knew that schools offering the Diploma qualification had adopted the policy of interviewing potential students to improve retention and to avoid students opting for the course because of its novelty value. We felt that the JOSEPH IAG tool could be of particular use to schools to support this, and supported Connexions in their development of a model for recruiting students to the Diplomas, which gives schools advice on a 'funnel' model of progressive selection, starting with the options evening information offered to learners and parents, with the intention of resulting in well informed and motivated students being identified for the programme.

To test our assumptions with learners who were either thinking about following an engineering pathway or already on an engineering course, we held an Engineering Day at the University of Nottingham at the end of 2008. We collaborated closely with the University's Engineering and Widening Participation Departments and also ensured the presence of current students from the university. Three local schools attended, representing a cross-section of institutions and including students who were thinking about engineering as a career, as well as those already studying the subject. To support their piloting activity with the tool, we developed a questionnaire which included a baselining pre-activity section that asked learners about their understanding of ePortfolios, social software, engineering and careers advice. A section using the Likert Scale determined their level of confidence in relation to engineering and action planning. This part of the questionnaire was then repeated after learners had completed an online activity using the tool, to determine how much progress had been made in their thinking. Final sections of the questionnaire asked learners about their views on the JOSEPH tool itself as well as the further services accessed through it. The complete data from this exercise is given in Appendix 5. The questionnaire provided some rich information about the tool itself as well as the changing level of understanding of learners through the course of the day, and we were able to feed back these results to the schools involved. We found that learners had only limited awareness of ePortfolios but had a wide use of mobile technology and social software, especially via mobile phones. They also had a generally negative view of careers advice; they found the idea of using a tool which allowed them to access careers advice at their own pace and with a degree of control appealing. Most learners had

an interest in a career in engineering; few had any experience of action planning, suggesting that scaffolding to help them realise their aspirations would be helpful both for the learners themselves and the IAG staff supporting them.

The main focus of our piloting activity was on informal continuous iterative testing and piloting with IAG professionals, who from the very beginning were quick to see the potential of the tool and happy to offer input and advice. As a result, by the end of the project we were able to offer a version which represented a significant development from the original prototype. Interest in the tool was such that we were asked to develop versions to support other lines of learning. Working in collaboration with IAG staff, we decided to redevelop the tool to include a CMS which would make it fully customisable by IAG professionals themselves, thereby improving its sustainability.

### **Partnership working**

The success of the project arose from our ability to engage with a number of partners, both new and existing. In order to engage schools and colleges the involvement of Connexions was vital. While we had some existing links with local authorities, internal reorganisation meant that these changed during the course of the project, although we were fortunate in being able to maintain dialogue with key staff at the City of Nottingham LA responsible for management of the Diploma programme. We also had significant input from a 14-19 Consultant who facilitated our making contact at a variety of levels. We worked with elearning specialists, the advisor responsible for Passportfolio, curriculum advisors, the Deputy Chief Executive and the technical team. In this way we were able to link across the organisation and seek help from the relevant person at each stage.

We made contact with several new sets of stakeholders with an interest in Diplomas, including the sector skills council SEMTA. In the first half of the project we also had significant input from staff at Becta, who worked with us to produce a scenario for a learner progressing to a Level 3 (now Advanced) Diploma. The Nottinghamshire Diploma Administrative Strategy Group expressed support for the prototype at an early stage and suggested incorporating it into pre-Diploma IAG across the county; we had similar expressions of support from staff at the QIA<sup>12</sup> and from staff from LLNs outside the region.

We renewed or created links with a number of regional and national organisations, taking the aims of our project in to a wider community outside the university and establishing many useful contacts: a full list is given in Appendix 6.

## **Outputs and Results**

JOSEPH as a tool: An IAG process framework with content divorced from process enabling the tool to be re-purposed for any sector or audience.

The JOSEPH tool evolved from the scenario building described above. We identified core processes and identified a decision-making framework to take a learner facing a decision about choice of pathway across the spectrum from 'clueless' to 'sorted'. The tool distils this further into a sequence of prompts for the user to follow as they might with a learning object.

While all other aspects of the JOSEPH tool are customisable, the following process form the core:

- Strengths
- Explore (subject area)
- Jobs and Careers
- Sorted?

Our original intention was to use web services to pull data into the interface from various agencies, and to demonstrate ePortfolio integration using Passportfolio. We were fortunate that Connexions were able to provide us direct access to the servers hosting the Passportfolio system as well as offering hosting for the JOSEPH tool. This

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<sup>12</sup> Quality Improvement Agency for Lifelong Learning <http://www.qia.org.uk/>

meant that we were able to extract data directly from Passportfolio using Server database queries (SQL) thus circumventing issues surrounding security and identity of transferring personal data via web services and ensure that work undertaken for JOSEPH could be easily integrated into the core Passportfolio system.

The transference of ePortfolio data works in two directions: provided the user has an account, the tool uses as a starting point the results of Passportfolio personal development activities, and identification of job areas that have been suggested by the process. The action plan resulting from working through the process can be exported to an ePortfolio.

JOSEPH includes links to many external sites and IAG services chosen for relevance to that particular part of the process, such as personality quizzes, sector-based information, labour market information, etc. This allows for inclusion of 'quality assured' resources controlled by IAG professionals. The service was developed in such a way that all content is held in a database, including links out, prompts, text and theme. All aspects of the tool are infinitely flexible with a user-friendly content management interface, and Connexions plan to develop sector specific instances for each line of learning.

An agile approach was taken to the development of tools and services. An iterative approach to user testing and evaluation was employed throughout the project. Both the developers involved with the tools are well versed in this method of implementation and reacting to the changing online environment, developments in Passportfolio and other systems, as well as the shifting diploma landscape was of fundamental importance, particularly as an increasing number of audiences became engaged as the project evolved. In fact, although the core IAG process remained intact, the skin, methods of navigation and the resources themselves changed significantly over time, and the final version represents an infinitely customisable tool with a variety of possible applications.

A prototype website was developed initially in PHP with the intention of gaining feedback and to help to illustrate what we were trying to achieve.<sup>13</sup> Following this, JOSEPH was developed in VB.NET with a SQL Server database, chosen because .NET was the main skill set of the developers, and also because the Passportfolio was a .NET application hosted on a Windows IIS server with SQL Server at Connexions. The rationale behind the architectural design (detailed further in the Technical Annex, see Appendix 2) was based on flexibility, with the intention that this ideology will be passed on at the end of the project, to make it as generic as possible. The tool is completely database driven so that any aspect, from the prompts and services linked out to, to the text and menus, can be picked up and used by another system. This approach will allow the developers of Passportfolio V2 to pick up the resources and pull them directly into their processes, thus creating a seamless experience for their users. JOSEPH can also be accessed as a stand-alone service for those not registered with Passportfolio.

The prompt responses as entered by the user are sent to the database in XML for flexibility and also to enable future developments to pick up data in a platform-independent fashion.

The project demonstrates a well documented framework that enables both inter-communicating web services to be aggregated (within a portal if necessary) and the instantiation of those individual web services in different ways to satisfy the needs of different application areas. The framework accommodates interoperability with services that have been developed elsewhere, facilitating the flexibility and extensibility of systems that is required to meet the changing requirements of the user. It provides a set of specifications of reusable web services to support delivery of IAG in conjunction with ePortfolio. The full technical report is in Appendix 2.

The content management system is configured in a way which means it is available in a form which will allow it to support all 17 lines of learning in which the Diploma will be offered.

Further work is being carried out to develop an adult version of the JOSEPH tool in collaboration with the LLN.

#### Scenarios:

The final agreed set of scenarios produced concentrated on key transition points for a range of learner types. They were as follows: (full scenarios can be found at Appendix 3)

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<sup>13</sup> <http://www.nottingham.ac.uk/~cczkc/joseph/default.php>

1. Transition at 16 – Level 2 borderline transition to Level 3 (detailed scenario using Peter Rees Jones's template, produced in collaboration with Becta)
2. Level 3 Diploma WP student applying to HE – need to co-ordinate IAG provision from multiple sources (produced in collaboration with Castle College)
3. 16-year-old interested in engineering moves into a level 3 apprenticeship (produced in collaboration with the LLN and Nottinghamshire Training Network)
4. Adult learner (developed with Connexions)
5. Year 9 pre-diploma student; also applicable at year 11 (developed with Connexions)

A report of the Engineering Day event held at the University of Nottingham in December 2008 aims to measure the effectiveness of the JOSEPH tool as well as gauge more general levels of awareness of engineering in relation to IAG. This demonstrates a very positive response to JOSEPH and the approach taken by the project to IAG and web services. The full report can be seen at Appendix 5.

## Outcomes

By linking IAG processes to selected web services to facilitate learners developing an action plan which could then be transferred and stored in an ePortfolio, learners are able to maintain control over the process and utilise the web services they consider most helpful and appropriate. Support staff are able to use these outcomes to further enhance other aspects of the guidance process. The action plan can form the basis for and enhance either a face-to-face or electronic interaction. This represents an improvement in how students on or preparing for 14-19 Engineering courses and their advisers can access and interact with both guidance information and each other, with a particular focus on making choices and preparing for transitions.

We showed successfully how ePortfolios can interoperate with a variety of on-line resources and on-line and/or face-to-face advice services provided by IAG organisations (primarily Connexions, but also FE/HE/workplace mentors). We identified a set of generic core processes for decision-making and preparation for transition, identifying the key resources to support those processes and the effectiveness of the eportfolio engine in orchestrating these.

We linked successfully to the local 14-19 online prospectus: work used to develop this feed has now been taken further as the result of the XCRI project taking standardised course information feeds from a number of local prospectuses into a single reference point (the AimHigher Progression Pathways site). We have thus been able to demonstrate integration of this information into a wider IAG framework, showing the added value this can offer prospectus data.

The IAG tool has been fully embedded in the work of at least one of our partners, Connexions, who have developed a sense of ownership of the work which will help to ensure that it has a sustainable future life. It is clear that IAG is crucial, as young people are being expected to make key decisions ever earlier, and as older people increasingly need to consider significant changes in career direction in response to the shifting economic climate.

The project came at an interesting time. While it was perhaps too early to link into the 14-19 Diploma timetable, as a result of the changing curriculum partners were highly responsive to what it offered. The decision to make the tool customisable so that it can be adapted to other lines of learning because of the generic skills encompassed should ensure its sustainability.

This project and associated work with the LLN has confirmed a preference amongst learners, advisors and teachers for an institution-free eportfolio which facilitates the personalisation of IAG support for students on vocational pathways. We anticipate that the outcomes of this project will contribute both to the incremental evolution of ePortfolio technology, situating ePortfolio in a wider ecosystem of web services, and to the body of knowledge around the developing practice for delivery of the Diploma.

We were able to show that the technology required for ePortfolio-based progression to FE/HE on this route is transferable. We also demonstrated that it has the potential to provide extensive help to learners preparing for transition at a time when the choices for young learners is becoming more and more complex. Feedback from piloting activity showed a distinct preference amongst learners for an electronic model. As the number of places on vocational pathways (including apprenticeships) increases, pressure is growing on IAG services and funding, as the number of trained and experienced professionals is not able to keep pace with the growth in learner numbers. The need for effective electronic support mechanisms to relieve pressure on face-to-face IAG is likely to grow still further in the next few years.

However we also highlighted the following considerations:

There is an issue around the ownership and attribution of data. Connexions allowed us to import their Vacancies Online data; we also pulled data directly into the site from the Nottingham 14-19 online Area Prospectus (My Choice Notts) so that users are able to search and save courses, while linking to the full information on the My Choice Notts website, all within the context of the decision-making process. However we are aware that some organisations are reluctant to participate in such arrangements as they see the importance of branding and prefer users to be directed straight to their own sites, where they can also gather usage statistics, rather than via a feed and aggregation.

There is an associated need to promote the benefits of a service-oriented approach in this area. Further work needs to be undertaken around the processes and agreements for sharing of data. There also needs to be work around raising awareness of the potential offered by using an SOA approach, and in overcoming some of the misunderstandings and myths associated with it.

## Conclusions and Recommendations

JOSEPH has built a tool which supports decision-making by learners to prepare for transition points, using eLearning processes developed with IAG professionals. It has taken an important step forward by providing a high-quality online approach to IAG, not just to Information, but to the more challenging areas of Advice and Guidance. We would like to highlight the implications and further potential of this work.

The findings are of immediate relevance to JISC's interest in supporting more work on facilitating IAG provision, in the face of the new and increasing demand highlighted by the government's adult skills agenda, the Government's development of policy for schools and colleges through The National Council for Educational Excellence and the New Opportunities white paper. We are aware that additional funding for IAG services is not yet on the DCSF timeline and may well depend on whether whoever wins the next election maintains the current plan to Raise the Participation Age (RPA) to 18. IAG will be crucial to minimise dropouts (and, therefore, waste) through students making the wrong decision. Similarly the uncertainty over supply of apprenticeships and the fact that the current format of Diplomas makes them expensive to deliver, allied to the need for cost savings, suggest that policies in this area would not be a priority. There is therefore a need to demonstrate how IAG can be efficiently implemented by supplementing existing services.

JOSEPH also includes successful work on ePortfolios and their synergies with IAG processes. Situating ePortfolios in relation to IAG has changed our thinking about the future of ePortfolio development in general. ePortfolios look like taking on really substantial purpose and engaging many more learners when they are used in a key but supporting role within a wider scheme of provision, rather than when pursued for their own ideal educational sake in a bell jar.

### The project has shown:

- The need for mature working relationships with a wide range of partners if a project is going to take forward work on ePortfolios in support of other related services
- That the core of IAG processes is generic and can be transferred readily from one area or phase of learning to another

- That the technology developed for ePortfolio+IAG processes supporting progression into FE/HE in this project is transferable to other transition scenarios involving different learners, e.g. work-based learners for whom IAG processes are going to be crucial
- How ePortfolios could interoperate with the variety of on-line resources and on-line and/or face-to-face advice services provided by IAG organisations (primarily Connexions, but also FE/HE/workplace mentors). By using a web services approach to join quality-assured distributed resources, we can ensure that information provided to the learner is current and appropriate.
- The feasibility of building ePortfolios into a wider, learner-centred ecosystem of services. JOSEPH has used XCRI to link IAG information sources and ePortfolios with the local 14-19 online prospectus. We have already started extending this through the JISC XCRI project linking all the East Midlands online prospectuses, a development which has further opened up our understanding of the potential for developing regional learning ecosystems.

#### **The JOSEPH tool itself is transferable, because:**

- It provides a national model of good practice through practical application. Connexions Nottinghamshire have incorporated the JOSEPH tool into their ePortfolio and are preparing to extend it to provide advice and guidance for additional lines of learning. This model could be disseminated further through the wider Connexions network, especially with the increasing take-up of models using a common online application form. This could be extended further to link to work with UCAS applications
- With minimal further work the tool can be linked to other ePortfolio systems and web services, increasing its flexibility and further potential
- Its decision-making functionality could contribute to a wider suite of IAG tools (currently starting to be developed for adults regionally by the team within the LLN) around skills analysis, competences and APEL. Integration of competence to support APEL could be re-worked to support IAG with methods to supply the appropriate vocabulary.
- It also has scope to be included as a module in a broader ecosystem (for which we have evidence of demand) linking ePortfolio, IAG, course discovery and application via a common application form, and FE MIS systems (including for induction).
- The tool could be developed stand-alone as a SCORM learning object, or the prompts themselves exported in the QTI (Question Test Interoperability) standard for inclusion in a VLE
- It has the potential to provide an evidence base to support assessment of Functional Skills and other new units within 14-19 qualifications and the QCF.

#### **To maximise the learning from JOSEPH, JISC might wish to consider;**

- That further work be done on combining ePortfolio use with further web-based IAG services to enhance a learner's experience, especially where that experience is gained across a range of institutions/learning situations, including workplaces
- That the full potential of aggregating the IAG tool, ePortfolios, 14-19 prospectuses, XCRI, a common application form and college MIS systems be explored further in a variety of contexts and settings, possibly via a set of 'mini projects' and rapid development to explore effectiveness.
- That further testing and implementations of the 'thin ePortfolio' model be done in conjunction with real users and real systems in different practical situations
- That links be made with LEAP 2A interoperability work which, on our recent experience of LEAP 2A work, we think would be useful to link the existing tool with other sets of services and ePortfolio systems
- That work is carried out around the use of the common application form and its integration into wider systems, especially IAG and induction, to provide a seamless experience for the learner

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- That MIAP services, including the ULN, are factored into all of the above landscape.

## References

<http://yp.direct.gov.uk/diplomas/>

## Appendices

### APPENDIX 1 – External evaluator’s report

#### Summary of Project Aims

- Identification and scoping of Information and Guidance (IAG) processes involving learners and advisers for 14-19 education
- Produce SOA solutions to co-ordinate the use of the Nottingham Passportfolio with IAG processes and resources focussed on support for students considering the Engineering line of the new ‘Diploma qualifications
- Explore issues concerning ‘personalisation of eportfolios that are shared by several agencies to support specific career choices.
- Investigate interoperability issues
- Determine the re-use of the solutions in other F/HE scenarios.

#### The Satisfaction of Objectives

Objective	Success in Meeting Objective
To work with the 14-19 Nottingham partnership (Connexions, AimHigher, Children’s Services in the City and County) to identify e-portfolio enabled web services to enhance access to IAG for students in local schools/ colleges, including links to the 14-19 prospectus to be introduced in August 2007.	<p>One of the key successes of the project was the continuation and extension of relationships built up by the preceding JISC funded RIPPLL project. Connexions staff in Nottingham in particular were considered as an integral part of the project team. The real-life implementation of deliverables from the RIPPLL project, the Passportfolio self-review, action planning and common application system is currently being undertaken, and the Information and Guidance Services identified processes developed for the JOSEPH project are an essential extension. Technically, the interoperable modularity of these developments led by the University of Nottingham, combined with flexibility of instantiation to meet different user views and requirements, has been an essential element in convincing the commercial technical staff/ partners within Connexions to enhance and support the outcomes of the project for ‘real life’ implementation.</p> <p>A parallel HEFCE funded LLN project to support increased opportunities for students to undertake higher education in the East Midlands which has shared and complemented the technical infrastructure underpinning JOSEPH has led to engagement with a wide range of agencies such as AimHigher in this region of the UK.</p> <p>One important factor leading to the success of the project was the experience of working with schools and FE within the technical and project management members of the JOSEPH team.</p>
To focus practically and strategically upon IAG processes for learners on pathways in Engineering, especially those	The partnership with Connexions and their intention to implement the system for Nottingham and Nottinghamshire ensured there was a practically based focus on development. The system achieved its

<p>following the specialised Diploma in Engineering, one of the first to come on stream in 2008.</p>	<p>objectives in enabling students through an easy to use and comfortable interface to explore their strengths and investigate their potential interest in Engineering through access to a range of resources including professional information resources and local intelligence concerning the job market in Nottinghamshire. The additional outcome of a student-developed Action Plan that could be shared with his/her tutor is an exciting core contribution to the IAG process. The interoperability of the project's outcomes with those of the previous RIPPLL project and Passportfolio has led to the development of a pioneering online tool to support the career development, and hence potential, of young people. The disappointing uptake of the Diploma during the lifetime of the project has led the team to broaden the potential use of the tools under development. Easy-to-implement changes of instantiation can be accommodated by the architecture. Systems can quickly be developed to support curriculum areas other than engineering.</p>
<p>To identify the kinds of personalised, cross-institutional programmes which will be characteristic of the new Diplomas and to provide an instantiation of the 'e-portfolio engine' as proposed by the e-portfolio Reference Model project, in relation to IAG requirements to support learners operating across one/ more institutional/ learning situation.</p>	<p>The Diploma is designed to be delivered by consortia of schools and colleges with limited input from commerce and industry. The sharing of student data (including IAG) within such consortia is important for successful implementation.</p> <p>Due to the relatively small uptake of Engineering Diplomas in Nottinghamshire in September 2008, the need to focus project development on these requirements was re-considered.</p> <p>Limited student numbers on Engineering Diplomas in Nottinghamshire has meant that there is little demand for the flexibility of options (and therefore personalisation) facilitated by the Diploma model.</p> <p>The principle of using the e-portfolio engine to access, process and deliver user and institutionally owned personal data was maintained and developed by the architectural framework adopted.</p> <p>Individual VB. Net services could access XML-defined data from defined sources, process that data with user input and make defined output available to other services. Such services are capable of being combined as required within a single portal.</p> <p>Although the initial application of sharing data within Diploma consortia partners has not been undertaken (for circumstances, identified above) the ability to support learners across institutions has been proven by the use of the architectural framework to support the application by students to other educational institutions.</p>
<p>To provide and evaluate year-long pilot implementations in 07-08 with specific groups of learners who will be using the new Passportfolio, involved in a pilot for the new Specialised</p>	<p>Because of the problems concerning the take up and nature of the Diploma, the evaluation by students was limited. However as the report acknowledges, the students who took part in post-trial surveys were positive in their responses. It is important to note that although the government has</p>

Diploma in engineering and considering applying for entry to FE and /or HE	key objectives in implementing Information and Guidance services, linked to the 'Area Prospectus' and 'Common Application Process', the adoption within schools and colleges is somewhat slower than the headlines suggest. The outcomes of the project are somewhat 'before their time'. These tools developed by the University and taken up by Nottinghamshire County Council should support the necessary culture changes within school staffs to adapt to the requirements of the Government's agenda.
To produce a scalable solution and demonstrate its scalability by supporting the take-up of the outcomes of the project across the Nottinghamshire/ Derbyshire Lifelong learning Network 2007-2010	<p>This was objective was certainly achieved. There are few JISC projects which have the opportunity to be tested 'for real'. The implementation of the software for the whole of Nottingham demonstrates that scalability has been achieved.</p> <p>The ability of the database-driven architecture underpinning the software has allowed the tools to be taken up by other work undertaken by the University. The tools have proved to be easily adaptable not only in interoperating with different resources but in the presentation of different interface styles.</p>

### Key Messages

For projects, especially those such as JOSEPH that have outputs that can be applied in the 'real world' (as opposed to those projects which investigate/ research opportunities provide by technical and user environments) I believe that the following factors are key to success:

- Select partners that have a clear understanding of the project's objectives and are passionate about delivering workable outcomes. The contribution of Connexions in Nottinghamshire was a key element in the success of the project.
- Ensure that the project outcomes are user driven and that those users are pro-actively engaged in the continuing development of the project (feel part of the project team). The use of easily demonstrable pilots throughout the life of a project is important. Perversely, I believe that Nottingham University's success in realising the outcomes of their projects has been due to the non-technical backgrounds of key members of the team's management and support.
- Maintain appropriate detail and clarity when providing technical updates to partners. Provide an 'atmosphere' by which challenges from users can be made.
- Ensure that there is clarity concerning the structure of the architectural framework to be employed. For example, the requirements of an 'e-portfolio engine' had to be crystallised into a commonly understood architectural model.
- Use accepted XML data definitions (such as XCRI) when required but produce pragmatic local definitions where there are gaps. Waiting for agreement by standards organisations and other government agencies is de-motivating. When national standards are developed to fill such gaps, transformation services can be applied.
- Include in the development team staff that have a clear understanding of user needs in addition to the necessary technical expertise. The in-depth knowledge and experience of schools and FE within the University of Nottingham team has made a vital contribution to JOSEPH's success.
- Engage pro-actively with complementary projects both within and without the institution leading the project. Nottingham's success with JOSEPH, in no small part, has been their willingness to share experience and expertise with other institutions. The technical teams in Nottingham, although working on their given projects, have opportunities to cross-fertilise each other's work.
- When attempting to support Government agendas, be aware that there can be delays to delivery and changes to the scope and detail of the initial plans and specification.
- Ensure that technical services are well annotated and documented. Although exemplar documented 'programs' are shared informally, attempts to formalise sharing of good practice should be extended. I have personally been struck by the interoperability of the web services

developed and the ease with which Connexions in Nottinghamshire have been able to combine JOSEPH services with others (including some from commercial vendors). Such opportunities should be more nationally available.

- Be more aware of developments (mainly commercial) that are being adopted for the school and FE sectors. Up to now ICT-based developments in these sectors have been mainly piecemeal. Now, for example, the ring-fencing of 10% of the expenditure to be allocated to rebuild all secondary schools (through the Building Schools for the Future Policy) for ICT has meant that commercial consortia are developing total solutions. JOSEPH has recognised the challenges in dealing with different vendors of Management Information Systems. Other challenges such as interoperating with the Systems Interoperability Framework (SIF) should be addressed by JISC-funded projects.
- Provide more guidance and support to projects that engage with commercial vendors. The success of JOSEPH has paradoxically led to other challenges: the development of fruitful partnerships (for the University) with private companies.
- Provide regular key updates to JISC advisers.

## Conclusion

I am proud to have acted as a 'critical friend' to the team developing JOSEPH. The project has generally satisfied its aims and objectives in providing interoperating services that not only support Information and Guidance for the Engineering Diplomas but also enhanced the application of the Passportfolio system.

The project has also developed a realisable re-incarnation of the e-portfolio engine that allows for personalisation through the aggregation of communicating services.

Any failures to meet the initial aims and objectives have been due to changes by Government and the Qualifications and Curriculum Authority in altering the ethos of the Diploma qualification and the lack of enrolments for the course nationally (not just in Nottinghamshire) in September 2008.

Work such as this produced by the JOSEPH team has real opportunity to underpin not only future JISC projects but also those national architectural models necessary for the success of government agendas such as the 'Common Application Process'.

The initial bid indicated that the Project Outcome would be:

"By helping users directly to adjust to and meet the challenges presented by the new Specialist Diplomas, the project will change how students on 14-19 Engineering Courses and their advisors access and interact with guidance information and with each other both online and face to face in engaging with a number of processes, including

- Using eportfolios to integrate and review the learning across multiple locations
- Making choices and preparing for transitions."

In short, the project succeeded.

Clive Church  
March 2009

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Date: June 2009

## **APPENDIX 2 - Technical report**

Available at <http://www.nottingham.ac.uk/joseph>

## APPENDIX 3 – Scenarios

### Scenario 1: Borderline learner progresses to Level 3 Diploma at Year 11

Institution			
Title	<i>A name given to the scenario.</i>	IAG for entry to level 3 Engineering Diploma	M <sup>14</sup>
Language	<i>The Language of the title</i>	English	
Description	<i>An account of the content of the scenario.</i>	A learner who is borderline for progression to level 3 goes through an IAG process to progress to a level 3 14-19 Diploma course	M
Language	<i>The language of description</i>	English	
Date	<i>Date Created</i>	18.06.07	M
Language	<i>A language of the intellectual content of the resource.</i>	English	M
Creator	<i>A person or entity primarily responsible for providing the content of the resource.</i>	Sandra Winfield	M
Audience	<i>The intended audience for this scenario.</i>	IAG advisers, policy makers, ePortfolio practitioners	M
Source	<i>A Reference to a resource from which the present resource is derived/linked to,</i>		O <sup>15</sup>
Other Contributors	.	Angela Smallwood, Terri Kinnison, Peter Rees Jones	O

#### ***I. The policy and practice context in which the scenario was developed***

*Enter in this section brief details of the background, in particular the needs driving the development of the process. You may wish to say whether the practice being developed arises from a formal policy, and whether it builds on existing paper based practice. A reference to a scenario of policy is sufficient*

The introduction of 14-19 Diplomas, to be piloted from September 2008, is central to UK government strategy on 14-19 reform, especially the policies about strengthening vocational pathways into higher education and supporting personalised learning.

Diplomas will be available at 3 levels: level 3 will act as the entry level to HE.

#### ***1a What problem(s) does the scenario address?***

Learners making pathway decisions at 15 and 16 need access to Information, Advice and Guidance (IAG) to support their decision-making process. Learners need to consider both their academic achievement and potential and their personal aptitude in areas such as personal, learning and thinking skills.

#### ***1b How does the scenario resolve the problem?***

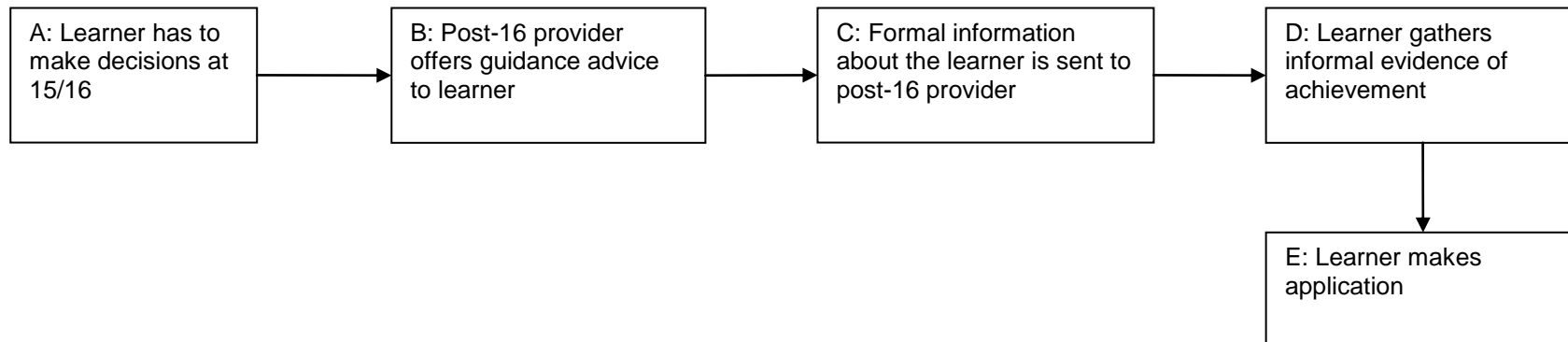
The learner receives support and advice from the current school, potential receiving institution, online resources including the eProspectus, and parents and friends.

<sup>14</sup> M = Mandatory

<sup>15</sup> O = Optional

## II. The flow diagram

Enter here a simple flow diagram with reference numbers to link it into the text provided in the next 2 sections. Some of the key sections of the diagram may represent more detailed use cases of how an e-portfolio is used.



## III. The Scenario

Enter here the text of the scenario told from the perspective of an external narrator linked by reference numbers to the flow diagram and the next section

- A** A learner aged 15 in Year 11 has to make pathway choices for the next year. The learner is on the borderline for progression to level 3, being predicted 4 C grades at GCSE or equivalent, and is interested in following a vocational pathway. The learner is not expected to achieve level 2 functional skills at this stage, but the learner's parents are keen for him or her to remain in formal education as long as possible.
- B** The FE college offers the learner a guidance interview in which the learner's achievements to date are taken into account. The college adviser would like to find out as much as possible about the learner to make sure he or she applies for a suitable course
- C** The learner gathers evidence of academic achievement to share with the college adviser
- D** The learner consults informally with parents and friends to gain a picture of his or her areas of strength and gather suggestions about other evidence which could be shared with the college

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**E** The learner applies for a 14-19 Diploma in Engineering as this offers a choice of pathways and the opportunity to work to achieve level 2 functional skills

***The same narrative told from the perspectives of different actors.***

*Enter here the text of the scenario told from the perspective of two or more stakeholders, one of whom must be the learner. Each of the sections making up these narratives may represent individual use cases which you have or will be developing. You are welcome to provide links to any resources you may feel to be relevant. For groups developing scenarios collaboratively this is a good workshop exercise.*

Learner's Perspective		School Adviser/tutor's Perspective		Head of Department at receiving institution's Perspective
<p>I feel there are a lot of important decisions to be made about what I do next and where I do it. I enjoyed my work experience at a small local engineering firm and did think about an apprenticeship, but my parents want me to stay in formal education as long as possible. I don't want to stay on at school as I have already been there for 5 years, and think their 6th form provision is too academically-focused for me. I like the idea of the local FE college as my friends who are already there feel they are treated more like adults and don't have to wear uniform. I heard about new Diploma courses at school and went to an options evening with my parents but am not sure whether the Diploma is right for me, even though I enjoy doing practical work. I am (slightly) dyslexic and not doing well in English. I am also struggling with Maths and don't see the point of most of what we have to do at school.</p>	<p><b>A *</b></p>	<p>I recognise that staying on at school is not the best decision for this learner, and think that he/she could do well in the new environment offered by the local FE college. I feel that this learner is not meeting his/her full potential at the moment and think that a more vocational course which puts key and functional skills into context would suit him or her better. I want similar information to the learner at this stage, but in more detail and with a practitioner focus: information about content, progression, UCAS points, job prospects, types of students who have been successful. I find access to case study information via the eProspectus and the College website particularly useful. I am advising a number of learners with different needs and ambitions and am interested in feedback both from them and their destination colleges.</p>	<p><b>A *</b></p>	<p>I need to collect and distribute information not only about the Diploma in general but also the College's own specific delivery, especially how our employer partnership works and where learners will be located (how much time they spend in college, how much with employers, how much in any other location). I am clear about the type of student I am looking for as I feel some applicants are better directed towards apprenticeships.</p>
<p>I have a guidance interview with a College Diploma tutor who asks what subjects I enjoy and whether I have any ideas about what I want to do after College. I explain that I am interested in the Level 3</p>	<p><b>B</b></p>	<p>I have a conversation with the learner about what sort of things to expect so that s/he doesn't feel too nervous, and encourage him/her to feed back to me after the interview so that I can</p>	<p><b>B</b></p>	<p>I meet the learner for a guidance interview: I am looking for evidence about achievement so far, but also about aptitude and potential. Is this learner interested</p>

<p>Diploma; the tutor wants to know about my grades so far and the levels I am working at. In my GCSEs I am predicted a C in Media Studies, D in Maths, D/E in English and Cs in double Science. I am also predicted a C in my AiDA ICT qualification, and I explain that I have enjoyed the autonomy this work gave me far more than the conventional GCSE courses I am doing. The tutor wants to know more about which Science topics I enjoy and do well in. It would be helpful to have a transcript of my unit grades to show him.</p>		<p>advise my other students about the process.</p>	<p>in a suitable course at an appropriate level? I want to gain an idea of how much thought the learner has put into his or her choice of course, and am prepared to point the learner in the direction of other courses if they seem more suitable, or even other institutions if I feel this is not the right place for him/her. I want to get an idea of whether this learner is ready for college and how well informed he or she is about the options available. As this learner has not previously studied a Diploma course, I need to make sure he or she is aware of the commitment, especially given the Diploma's functional skills requirements. We discuss some of the options for meeting these if the learner does not achieve the necessary levels in his or her GCSEs this time around. We also talk about the possible options for the Diploma's Additional/Specialist learning component as I want to get some idea of whether the learner has any ideas in this area.</p>
<p>I begin thinking about my application and have found some evidence from my Science books to show the College. I think about how I can demonstrate my functional skills to show I can meet the requirements; I would like to show work from my ICT presentation 'Should we use</p>	<p><b>C</b></p>	<p>I help the learner to go through the information the college is asking for and select appropriate and relevant information to share. I arrange for samples of schoolwork/records information to be made available to the college tutor and begin thinking</p>	<p><b>C</b> There are no final exam results I can access yet: what evidence of the learner's potential can I gather from other coursework? By looking at samples of work and informal information from the learner's ePortfolio I am able to fill some of</p>

<p>nuclear energy?’ and I have been doing some remedial ICT maths on SAM learning which means I have some electronic evidence of achievement which I would also like to share, but am worried that I might have to find a way of printing this out so that someone outside my school can see it. My tutor says the school might be able to share some of the diagnostic evidence with the college.</p>		<p>about a reference.</p>		<p>the gaps in the formal evidence. I am interested in the Functional Skills requirement and whether the learner will need to top these up as part of his/her Diploma.</p>
<p>I chat to my parents and friends about what other evidence I might share with the college. They point out that I like working in teams/groups and that I can draw on this to evidence Personal, Learning and Thinking Skills. I also decide to share the report from my work experience and the diary I kept during the two weeks I was there.</p>	<p><b>D</b></p>	<p>The learner’s parents ask me about what they can do to support him or her, and I encourage the learner to talk to friends about how they see him/her. I investigate ways of sharing the learner’s work on the school VLE with the college</p>	<p><b>D</b></p>	<p>I encourage the learner to maintain informal email contact during this period in case he wants to ask further questions arise or find out more about college life.</p>
<p>I think I might be interested in a career n Electrical Engineering, but am not completely sure so I decide to do a L3 Diploma in Engineering as the local consortium means that this will have an electrical slant but also enable me to find out more about the industry as a whole. I realise that I will need to work on my functional skills, especially my maths, as this will be important to me as an engineer.</p>	<p><b>E</b></p>	<p>Now that the learner has made an application I am able to share diagnostic evidence and information about the support needs for his/her dyslexia. I want to know about any pre-enrolment activities that might be helpful and help the learner to be involved in these where possible.</p>	<p><b>E</b></p>	<p>I set up some transition activities, including granting the learner access to some areas of the College VLE to help plan activities over the summer and start to think about a possible work placement. I make sure the learner has a list of the kit s/he will need and circulate a list of the options the College is offering in the Additional and Specialist learning for this Diploma.</p>

\* *Cross references to the Flow Diagram*

## A list of stakeholders

Enter here the stakeholders involved in the scenario and what each wants. By adding in attributes and comments you can capture some of the information on which more formal representations of the scenario may be based.

### b) Main types of stakeholder

Stakeholder	What the stakeholder wants
<b>Learner</b>	<p>Want to feel will be treated as an adult for the next 2 years (empowerment)</p> <p>Wants to stay with chosen peer group</p> <p>Wants advice that she/he can understand and act on</p> <p>Wants to know has made an informed decision</p> <p>Access to good quality, accurate information a) about the course b) about the progression routes/prospects (LMI)</p> <p>Reassurance will enjoy the course and do well on it</p> <p>What sort of things will I be doing/studying?</p> <p>How much independent/group work is there?</p> <p>How will I be tested and how often?</p> <p>Will I meet the functional skills requirement?</p> <p>What else can I combine with it?</p> <p>How do I choose what to do for Additional/specialist learning?</p> <p>What else can I do if I don't like it?</p>
<b>Parent</b>	<p>Wants the learner to be happy</p> <p>Information about progression routes/LMI: are these secure?</p> <p>Wants to know there is a choice of progression routes</p> <p>Wants the learner to stay in a supportive learning environment</p> <p>Information about support and facilities available</p> <p>Status of the qualification: who else is doing it, and where</p> <p>Where the course will be taught and where students need to travel to (how many different locations?)</p> <p>Information on financial support</p>
<b>Head of Year at current school</b>	<p>Wants happy, engaged learners</p> <p>Retention/completion/success records (do students get good grades?), successful progression</p> <p>Maximise added value (Diploma might be able to do this better than current GCSE?)</p> <p>Wants a good understanding of the kind of learner that does well on Diploma courses</p> <p>Wants information on the best preparation for potential Diploma students (data/profiling of successful students)</p> <p>Archiving personal learning space: will learners need to access records once they have moved on?</p> <p>What data needs to follow the learner to the new institution?</p>
<b>Head of Department at new institution</b>	<p>Wants access to profiling information</p> <p>Wants engaged learners who achieve their potential</p> <p>Doesn't want to waste time teaching learners what they already know/can do</p> <p>How will they show added value?</p> <p>Retention to maintain funding</p> <p>Early access to accurate/previous data on the learner for planning and continuity</p> <p>Early information to facilitate planning of resources</p>
<b>Adviser/tutor</b>	<p>Access to enough information to be able to give sound advice</p> <p>Wants to feel confident that their advice is up to date and</p>

	accurate (academic/personal), may include 14-19 online common prospectus Wants to see learner matched to most appropriate course at most suitable institution Latest information on financial support available; continued availability of additional support needs Outcomes: feedback loop from the college about what did/didn't work Final destination information
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### c) sub types of stakeholder

Sub types of stakeholder:	Wants:
Gateway consortium	Successful enrolments and completions for Diploma courses; more information about the kinds of learner applying for courses; feedback about what does and doesn't seem to work; evidence of success to use to engage further employers
Becta	Information about how technology can best be used to support these types of learner
DSCF	Track record of success for the new qualification; respectable levels of uptake
Employers	Motivated and well-informed young people for work placements, who may translate into successful future members of the workforce

## VI. A list of other actors

*Enter here information about any other people or systems which play a role in the scenario, but have no interest in its outcome, for example a human or electronic filing system.*

a) School MIS	Stores unit grades for learner
b) Learner ePortfolio	Contains work experience report, other evidence selected by learner, including reflections on experiences and information to support decision-making
c) College course database	Information about offerings at the FE college
d) 14-19 online prospectus?	Disseminates information about courses, locations etc

Data flow list for 14-19 Diploma E-portfolio Scenario

Outputs

Feedback from A&G process

Feedback from application process

**Transition learner profile (Transcript???)**

Organisational

Course information

MOSAIC-type organisation details

(including added value; course related; learner profiles)

Learner details (MIS)

?does this include Statemented special needs including dyslexia

Learner achievement record (MINERVA or AB's)

School/previous course report/s

Work experience report

Summative assessment record/previous grades

Learner tracking (LP) including

functional skills,

personal learning and thinking skills

termly targets (does this have an official name?)

**Rich learner profile** (c.f. Passportfolio)

Preferred learning style

Self and peer review

Personal learning goals

Repository of assets (may be part of LP)

Learner generated

Non-formal records of learning (NB some will be in learner tracking)

Witness evidence (e.g. from work experience)

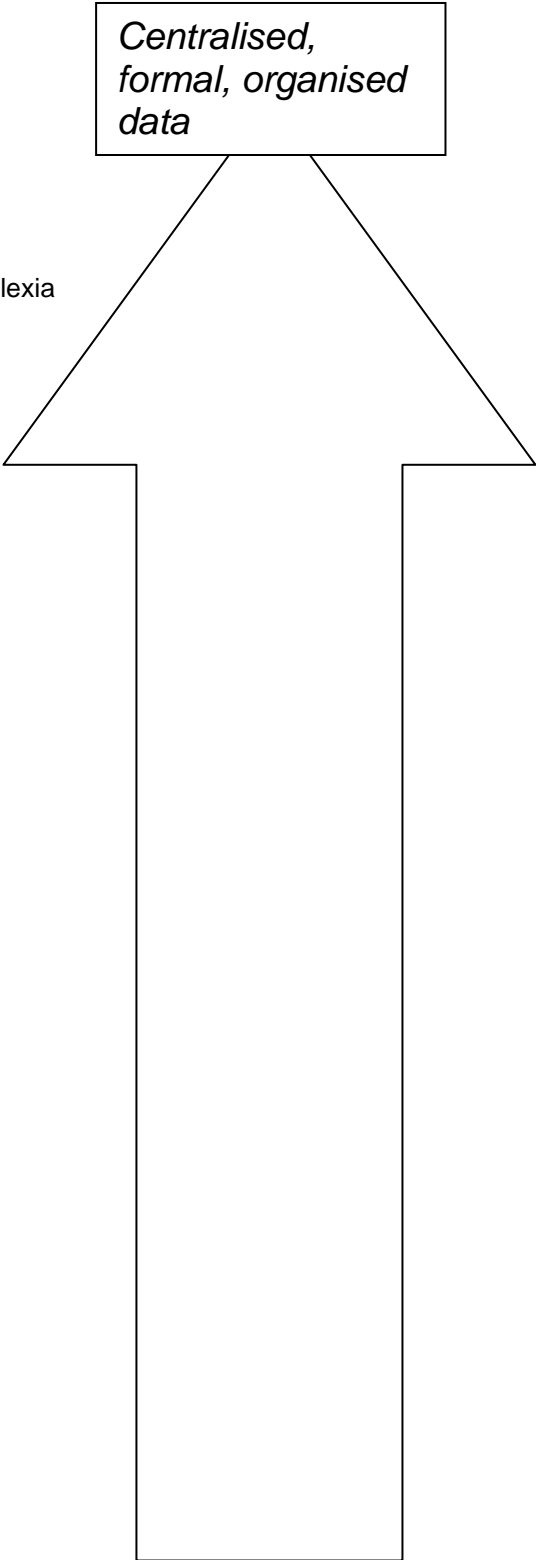
Youth club curriculum

Informal evidence from e.g.

Online gaming evidence

Social networking sites (self and peer)

Photos and videos



*Centralised,  
formal, organised  
data*

## Scenario 2: Diploma student progresses to HE from FE

### ***The problem***

A learner needs to co-ordinate IAG provision from a variety of sources to support decision-making and application to HE. She needs to ensure that the richness and potential resulting from choosing a Diploma rather than traditional A levels informs and is carried through into her HE application. If she makes the wrong choice she is likely to drop out.

### ***The solution***

1. Taz is a new student in an FE college: she has come from a school where vocational options were limited, and although she has 8 good A\*-C grade GCSEs in academic subjects she would like to study something more sector-directed. She thinks she might be interested in a career in Engineering but isn't entirely sure and wants to keep her options open, so she chooses to do a Level 3 Engineering Diploma and AS levels in Maths and German at FE College.
2. After a term at college, Taz finds that she is enjoying her course and that post-16 learning is very different from her experience at school. She enjoys the mix of practical and theoretical learning in her Diploma course far more than the more traditional structure of her AS courses, and is considering dropping German. She goes to see her personal tutor, who encourages her to continue with the German course for a while longer and also suggests she might start thinking about applying for HE as she has the academic ability to succeed and enjoys studying. Taz isn't entirely sure about this, as no one in her family has been to university before.
3. As Taz would be the first in her family to go to HE the College is able to connect her with a wide range of IAG contacts. She works with college Student Services IAG staff, her course tutor SAG (Study Advice and Guidance), her personal development tutor, a faculty-based PPD coach, an AimHigher adviser, and a company mentor through her work placement. Her formal advisers see the importance of making her aware of creative possibilities and offering her help in exploring the sector. As she works with so many agents, it is important for Taz that she can collate her IAG provision through a single platform. She uses the JOSEPH tool to collate her findings and generate an action plan which she can then share with all the IAG practitioners she works with.
4. Taz also receives informal support and advice from her family and friends, and has contact through Facebook with friends who have already gone to university.
5. Taz is still nervous about the idea of a traditional degree course, so she is encouraged to also consider a Foundation Degree which she can do at her local college.
6. Through AimHigher, Taz goes to a master class her local university is holding for level 3 Diploma students. As a result of this she decides that she wants to go away to university and do a full degree. She also decides to persevere with German as one of the students she met at the master class told her about opportunities for working abroad as part of her course and that the university has a good relationship with a number of German car manufacturing firms. However

as she knows she should gain enough UCAS points from her Diploma and other AS subject, she asks the college if she can transfer to a more practical OCN language course.

7. Taz revisits the JOSEPH resource and decides that she wants to study Mechanical Engineering. Student Services direct her to the Course Entry Profiles on the UCAS website; she is able to use the skills and techniques she has developed through using JOSEPH to combine this information with what she finds out through Facebook groups. She registers to use the college ePortfolio
8. Taz is able to record, store and sort/access resources to help in selection and organisation of her application to an HE course. She imports her JOSEPH action plan into her ePortfolio and shares it with IAG staff. They help her to narrow down her choices to five institutions for her UCAS application.
9. Taz works on her Personal Statement with her advisers before she logs into UCAS Apply. IAG staff help her to make sure this is explicit about the particular skills she has acquired through choosing to do a level 3 Diploma course; she needs to ensure that the richness and potential resulting from choosing a Diploma rather than traditional A levels is carried through into her HE application. Her extended project and work experience are particularly useful for this.

### **Scenario 3: Education in employment – Advanced Apprenticeship**

*(Scenario completed with LEAP AHEAD and Nottinghamshire Training Network staff)*

1. Chris is an Y11 (aged 16) student who is interested in a career in Engineering.
  2. He discusses this with his school careers service. He is a bright student and could go on to university; he expects to leave school with a good set of 5 A\*-C GCSEs (level 2 qualification). He also has mild dyslexia but in spite of this has had limited study support from the school.
  3. He has been interested in engineering for some time and in Year 9 (aged 14), as part of his career programme, he completed the JOSEPH module which confirmed his choice. The module allowed him to produce an action plan which he has stored in Passportfolio. In terms of socio-economic background and the fact that no one in his family has ever been to University Chris has been identified as part of the widening participation cohort AimHigher and has consequently taken part in a number of AimHigher organised activities. Under the Student Associate Scheme, he has been working with a student mentor, who is also dyslexic, at the local university. Chris has a Passportfolio account which he has been adding to since Y9, and they have been using this to support eMentoring. In Y10 (aged 15) Chris took part in a number of university visits, also organised by AimHigher. There is also the possibility of him taking part in an engineering challenge.
  4. The school careers adviser suggests that Chris revisit the results of working through JOSEPH, which helped him to think about the qualities that would make a good engineer, and match these to his self-assessment in Passportfolio. He knows a family friend who is an engineer, and talks to him about his work. Chris thinks he could be a successful engineer, but does not want to stay on at school: no one in his family has ever been to university and he/they are afraid of the cost. Through JOSEPH he is able to see the sort of qualifications and pathways he will need to follow in order to do what he is interested in. He thinks he would like to do an apprenticeship so that he can both work and study for a qualification at the same time.
  5. Chris uses the 14-19 online prospectus to find courses at a local college, and applies using the electronic application form in his Passportfolio. The college invite him for an initial group interview and an aptitude test (Literacy and Numeracy, they use BKSB, which is all online, plus a trade test specific to Engineering). He is successful and the college offer him a place conditional on getting 5 A\*-C grades in his GCSEs. He then gets in touch with his Connexions advisor at the Local Authority who directs him to a number of local engineering firms who have vacancies for apprentices (Connexions in Nottingham is brokering between vacancies and applications). He is able to access these via SortItOnline and his Passportfolio. Meanwhile a number of local employers seeking apprentices have contacted Connexions to ask for possible pre-vetted candidates: Connexions puts them in touch with the colleges to see who has been offered places on courses.
- After an application to a number of prospective employers using his Passportfolio for information, Chris succeeds in gaining employment on an apprenticeship programme.
6. Chris gains 5 A\*-C grade GCSEs and is able to confirm his college place and his employment. He begins work and undertakes induction with his employer, who adds him to their HR system: he also enrolls with the college and gains access to student systems and is recorded on their MIS.

7. Although most of his apprenticeship is spent with his employer, Chris spends his time at College working towards the three qualifications that support his apprenticeship: an NVQ Level 3 in Engineering, an appropriate Key Skills qualification demonstrating appropriate levels of literacy, Numeracy and use of computers and a Technical Certificate (certified by an Awarding Body, BTEC or C&G) that shows that he has the underpinning technical knowledge and principles to support his intended career in engineering

8. To record and track the evidence of the practical work that he has performed to support the achievement of his NVQ level 3, he uses an approved ePortfolio (such as ENVQ) which is accessed by his Assessor, the Internal Verifier and the External Verifier.

9. Through the LLN, the college also gives him a PebblePad ePortfolio account. He now uses this as a personal space to store his reflections, goals, informal achievements and links to work from his NVQ ePortfolio that may be useful to support future professional development or employment opportunities. He is still able to access his Passportfolio data via the college but no longer uses this as his primary store.

10. The college stores data on Chris as a learner. They record his attendance, progress, etc and his entitlement to student services.

11. When Chris feels that he has satisfied the requirements of one of the NVQ 'performance statements' he loads the necessary evidence into his NVQ ePortfolio system which sends an automatic alert to his tutor to inform her that there is work that is ready for assessment.

12. Chris' employer is required to support and monitor his progress via a 4-weekly review with his college assessor. The college assessor and employer mentor meet to discuss his progress first and to review opportunities that are coming up in the next period that will help him meet performance criteria, then they have a 3-way meeting with Chris. In preparation for these meetings his workplace mentor pulls together data from the company records and Chris also shares parts of his ePortfolio with both so that he can get feedback. This way his college tutor and his workplace mentor are able to see each others' feedback on his work, and this supports his learning. The employer also records his achievements in their internal systems as part of his performance review process.

13. Chris realises that he may want to move on from his present employer, so he makes sure that his PebblePad account includes a verified record of his skills not covered within his NVQ performance record.

14. The college identify that Chris's employer is not able to offer him sufficient experience to complete his apprenticeship; they can help him progress to Level 2 but not to Level 3. He needs to move to another employer to gain enough experience for his Level 3.

15. As Chris is still under 19, Connexions are able to help him identify and apply for a place with a new employer. His new workplace mentor is given permission to access the materials from his first employer and the materials from the college.

16. Chris completes his apprenticeship successfully at Level 3. He remains with his new employer for a time.

15. After a year, the LLN Higher Level Skills Adviser works with the employer and identifies that they have a skills gap which could be filled by sending an employee on a Foundation Degree. The adviser works with the employer to identify a number of potential employees whose profiles match, and this includes Chris.

16. Meanwhile Chris has been receiving internal coaching and considering his future; he feels that he would like to take his training further and into HE, but he still wants to stay in employment. A Foundation Degree, studying part-time as a work-based learner, would give him the flexibility he needs. He is still able to access both PebblePad and Passportfolio.

17. Chris applies for an Foundation Degree [through UCAS] and is accepted. The college creates new records for him as a learner in HE but is able to cross-reference these to his earlier records. He is able to use evidence from his PebblePad account to support his application for APEL, which allows him to be accredited for 30% of the modules.

## **Scenario 4: Adult learner who decides to change career and gain some further qualifications**

Adam left school at 16 with a couple of GCSEs and went straight into work for a local shop. He has worked there for 10 years mainly performing general shop duties, cashing up, stock taking and customer service but has not been promoted in that time.

Adam has experience of using a computer both at work and at home, being a regular user of Facebook and eBay. He is also keen on fitness and exercise and spends most evenings at his local Gym.

Changes in Adam's personal circumstances, rumours of his employer's financial difficulties and 10 years at the shop, Adam has come to the decision that he needs to find a way of increasing his earnings and improving his job prospects generally and decides that it is the time to take some positive action.

Adam knows about Connexions and rings them to find out if he can get some advice. As a result he gets referred to an LLN sponsored Adult IAG Adviser.

The IAG adviser has a short telephone interview with Adam and establishes that he could do with:

- a) Establishing a direction in terms of staying in retail or moving onto another sector
- b) Gaining some qualifications
- c) General CV and job hunting skills

Adam explained to the IAG Adviser that he is interested in sports and enjoys going to the Gym so she emails him details on using the JOSEPH tool that is configured for the Sports & Leisure sector.

Adam logs on at home and creates a JOSEPH account. The tool guides him through a series of stages, starting with undertaking some self-awareness activities. This prompts Adam to think about his current job and the range of activities involved and experience he has gained over the past years, as well as his personal interests in sport and gym related activities.

The tool then takes him to an area where he can access external web services to explore the sector and reflect on the information. He is invited to identify people who he can ask further, and makes a note to contact his Uncle Brian, who is a PE teacher, as well as his friend, Jo, who works at his gym.

He then explores the jobs and labour market information within his local area to see what sort of positions and salaries are available, and also the likelihood of him being able to get work. He notices that working with people is a big part of these roles and reflecting back on his self awareness activity, notices that he has considerable experience in this area.

The next stage is to see what sort of courses and training are available in the local area. The JOSEPH tool automatically pulls in course information from the regional Progression Pathways website into the system. Adam is unwilling to travel too far to undertake a course and could only attend a course in the evening, so he searches for courses using JOSEPH and saves those that look relevant. For more detailed information about the courses and to view progression routes available, he clicks directly out to Progression Pathways to view the routes.

He is quite impressed with the range of jobs available and also that he could progress into management through this sector. He also finds out that there are a range of options at his local colleges from work-based learning options, to evening classes, BTECs to A levels, with further qualifications available right up to doctorate level. Adam had not ever considered that the scope for progressing in this area could be so wide.

Each area within JOSEPH allows Adam to develop an action plan which he can make available to the IAG Advisor.

The last sections of JOSEPH are for consolidation and summaries. Adam feels that he has learnt a great deal about the sector and is enthused in terms of the opportunities available to him. He clicks on the 'summary' which fires an email to his IAG Adviser.

The IAG Adviser sees the results of Adam's use of the tool and emails him with an appointment. The detailed activities and results from JOSEPH allow the IAG Adviser to prepare some targeted information for Adam. Together, they talk through the progression routes identified and the sorts of roles that Adam prefers, as a result, Adam enrolls onto an evening course and applies for a Saturday job working on the reception at his Gym.

He is able to access JOSEPH at any time to refer back to his plans.

## **Scenario 5: A year 9 student being recruited onto a level 1 or level 2 Diploma course**

Sam is a year 9 student with a general interest in building and making things. She attends an 11-18 school which has specialist status for foreign languages and the performing arts. Currently Sam quite enjoys parts of school, but thinks that the school does not totally cater for her interests.

1. In a tutor period Sam is given an Options Pack which not only includes details of courses on offer at her school but also something called diplomas which can be taken partly at another school and a college in the area. Sam is quite excited because it includes an option to do engineering although she is not sure what this entails. Sam already knows that she enjoys more of the practical/design lessons at school
2. Earlier in the year Sam took part in a session in PSHE using Passportfolio which she enjoyed, especially the quizzes and activities on thinking about her strengths and learning styles. Sam remembered that there was something on there about engineering. That took her out to explore interesting websites. She had created a login with her Hotmail and knew that she could access Passportfolio at home. She had saved some interesting links into her Passportfolio folders at the time.
3. Having looked at Passportfolio and the links to some of the information on progression pathways that it had on it, she discovered that there were lots of good job opportunities in engineering. She started to fill out the action plan on the site and went to the options evening with greater confidence. Sam also followed the more detailed information on Sortitonline.com and talked about what she had found with she dad who was also going to the options evening.
4. The diplomas were well represented at the options evening and Sam found out about travelling to college to study engineering, what to wear and also had a quick chat with a Connexions adviser. Sam signed up for a Taster day session to be held the following month.
5. Sam really enjoyed the Taster Day and decided to opt for the engineering diploma. There might even be the possibility of a trip to the local university which sounded a bit scary but also fun. Sam took lots of photos of the day and that evening went home and uploaded them into her Passportfolio account. She also went into her personal space and wrote some reflections on the day. Sam was very definite about her decision but was still not sure quite what engineering involved and also Sam's dad wanted some confirmation that doing this new qualification (the Diploma) would be the best thing for Sam and would keep her options open for the future and getting a good job.
6. Back at school the Connexions adviser organised a session for all students interested in doing one of the Diplomas. Although Sam was still keen on engineering she wanted to check if the skills and abilities she had matched those she would need. There was a lot to look at but Sam logged on to Passportfolio first and followed the links. She worked through Kudos, the Buzz personality test and also checked her SATs scores to see if they would be good enough to get her on to a level 2 Diploma course. Sam recorded all of this in Passportfolio. The session went very quickly but the adviser said that there would be another session the next week and anyway Sam could carry on exploring what engineering involved at home.
7. Sam did carry on at home and focussed on the JOSEPH engineering module, using her Passportfolio login. JOSEPH allowed Sam to continue to look at what engineering

involved but also to carry on filling out her action plan online. Sam had written learning plans before but never online and this was much more fun. Sam downloaded all sorts of information about the different types of engineering and was able to store it all in her space on Passportfolio. When her dad came in to check what she was doing he was interested in the link to 'What is the 14-19 Diploma' as he still had some doubts!

8. At the next session with the Connexions adviser Sam finished the JOSEPH action plan and stored it in Passportfolio ready to use it to help her with the Diploma interview where she would try and convince the Engineering Diploma tutors that she had what it would take. Sam made an appointment for a personal interview with the Connexions adviser the next week. Sam was pretty exhausted after all the research and decided to spend the weekend hanging out with her friends. She did, however, remember to share a copy of the completed action plan with her adviser.
9. The next week, before her interview, Sam was able to go through the information into Passportfolio. The Connexions adviser had already read Sam's action plan and commented on it although Sam had forgotten to check this. They talked about the plan and the adviser was very impressed with the research that Sam had done and took a lot of interest in visual presentation Sam had created in Passportfolio. The Adviser helped her to share her action plan and presentation with the Diploma interviewers, so they would have it ready at the interview. Towards the end of their session, they discussed what questions the interviewers might ask and how Sam could answer them.
10. Sam thought that the interview went well and they seemed very impressed that she had shared, not only the action plan, which was required, but the presentation too. Sam asked if she could continue to use her Passportfolio whilst at college and was pleased that the answer was yes.

## APPENDIX 4 - Student questionnaire

### Pre JOSEPH Activity Questionnaire

Name..... Tutor Group ..... Sex: M / F

1. ... Have you used Passportfolio? ..... YES / NO
2. Have you used an eportfolio before? ..... YES / NO
3. Do you have a clear understanding of what an eportfolio is? ..... YES / NO
4. What mobile technology do you use?
5. Do you use social software? ..... YES / NO
6. Have you received any career advice? ..... YES / NO
7. What kind of advice did you receive?
8. How helpful was the advice?
9. What is your present course?
10. Why did you choose this course?
11. Are you interested in engineering as a career?..... YES / NO
12. Have you written an Action Plan before? ..... YES / NO
13. Have you used electronic templates before?..... YES / NO

**Please select the answer that most closely matches your feelings for each of the following statements. (Please tick one box for each statement)**

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I know what career I want	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I am clear about what engineering involves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I am clear about the subjects involved in engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I think my skills match those needed in engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I am clear about what courses are available in engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I am clear that I want to study engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I feel confident that I can write a good Action Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I feel confident using a computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I enjoy using a computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

#### LEARNER QUESTIONNAIRE ABOUT JOSEPH

The information you provide is completely confidential and no information will be stored on computer media that could identify you.

**Please select the answer that most closely matches your feelings for each of the following statements.**

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I felt confident using JOSEPH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I enjoyed using JOSEPH	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I found it easy to navigate around the site	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The pages were well organised	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The organisation of the information seems quite logical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The text was easy to read	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I understood all the language used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Instructions and prompts were helpful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Completing the text boxes was straightforward	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- |  |                          |                          |                          |                          |
|--|--------------------------|--------------------------|--------------------------|--------------------------|
| 10. The graphics were interesting  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11. I enjoyed using the links to other sites   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12. I have learnt more about engineering having carried out the activities                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13. I think these activities would be useful in helping me to write my Action Plan/Summary | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14. I enjoyed writing my Action Plan on the computer                                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 15. It was useful to have so much information in one place                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16. I felt in control using my eportfolio  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Tick below those sections in JOSEPH you found useful and enjoyable.

Section	Useful	Enjoyable
Strengths		
Explore		
Course Options		
Jobs and Careers		
Sorted		
Summary		

Please list any other comments about the activities or about the new software

.....

.....

Each section of JOSEPH has links to other websites. Tick the links you used and then grade them 1 to 5 for usefulness and enjoyability. (1 being the least useful and 5 being the most useful).

Section	Link	Link Used	Useful (1 – 5)	Enjoyable (1 – 5)
Home	Passportfolio			
	About JOSEPH			
Strengths	The Buzz Personality Test			
	Passportfolio			
Explore	Environmental Engineering			

	Why study engineering?			
	Engineering quiz			
	Science fiction? (BBC)			
	Girls in Engineering			
Course options	14-19 Prospectus			
	14-19 What is the 14-19 diploma?			
	14-19 What does the diploma offer me?			
Jobs and careers	Jobs4U			
	Vacancies Online			
	The job market			
	Examples of engineering			
Sorted	Students and money			

## Post-Activity Questionnaire

***Please select the answer that most closely matches your feelings for each of the following statements. (Please tick one box for each statement)***

	Strongly Agree	Agree	Disagree	Strongly Disagree
10. I know what career I want	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I am clear about what engineering involves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I am clear about the subjects involved in engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I think my skills match those needed in engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I am clear about what courses are available in engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. I am clear that I want to study engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I feel confident that I can write a good Action Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. I feel confident using a computer

18. I enjoy using a computer

## **APPENDIX 5 - Engineering day report**

### **Programme**

#### **J O S E P H | Supporting Engineering Pathways University of Nottingham**

16 December 2008

-----  
9.45 am - Young people arrive

10.00 am - Welcome and introduction

Group activities  
Using the JOSEPH IAG tool

11:15 am - Engineering activity

12.30 noon - Lunch

1.45 pm - "What have I learnt"

JOSEPH IAG tool evaluation

3:00 pm – Close

## Pre Activity Questionnaire

	Yes	No
Have you used Passportfolio?	0	23
Have you used an eportfolio before?	1	22
Do you have a clear understanding of what an eportfolio is?	2	21

This is an obvious first question to test knowledge base. There was a very low level of prior knowledge of ePortfolios amongst participants. This could demonstrate that the term 'ePortfolio' was not understood although it was briefly explained to them at the beginning of the day. I think it is a fair record of their experience with ePortfolios.

### What mobile technology do you use?

Mobile Phone	Games e.g. Playstation	MP3 Player	Laptop	Notebook	USB internet
19	6	3	7	1	1

Stuart commented that this indicated a wide use of mobile technology and social software, as could be expected. He also said that the use of mobile technology can be expected to broaden as it becomes more affordable. I, on the other hand, felt that this usage was quite low which probably says more about my own preconceptions than anything else.

	Yes	No
Do you use social software?	21	2
Have you received any career advice?	16	7

There were some questions during the session about what 'social software' meant but the question is relevant inasmuch that eportfolios have often been compared to some current social software. Given the IAG nature of JOSEPH it was felt necessary to elicit the level of previous career advice given.

### What kind of advice did you receive?

Positive	Negative	Neutral
what to do in the future (1)	things I already knew (1)	Options (6)
one to one (1)	decision making (1)	Research (1)
what to do when I am older (1)	I hate this advice (1)	Career (2)
	bad advice (2)	course info (1)

Many of these answers reveal that this question needed further clarification.

### How helpful was the advice?

- Very (6)
- not very (1)
- quite (6)
- poor (2)
- very poor (1)

### What is your present course?

- Engineering (13)
- year 9 (5)
- POD course (3)

### Why did you choose this course?

Positive reasons	More general	Negative
Interesting (5)	enjoyed design/tech previously (2)	because we have to (1)
leaves job options open (1)	appealing (1)	had too (3)
good opportunity (2)	enjoy the activities (2)	I didn't choose it (3)
help me with future jobs (1)		
because it relates to business (1)		

Generally the response to the section on advice and guidance was less than positive. There were as many negative responses to the nature of IAG given as positive, and by far the largest type of advice recorded was of the practical, information-giving type. The reasons given by students for choosing their course were often difficult to categorise but generally more students felt positive about their decision and in a couple of cases recognised some future benefits.

JOSEPH provides advice at the student's own pace and in a way that they can control, which should improve this process.

	Yes	No
Are you interested in engineering as a career?	21	1
Have you written an Action Plan before?	3	20
Have you used electronic templates before?	13	10

This is a worrying response to the question on action plans and one that should be used to promote the use of JOSEPH and the advantages of eportfolios.

### Pre Questionnaire Skills Analysis

	Strongly Agree	Agree	Disagree	Strongly Disagree
I know what career I want	6	8	8	
I am clear about what engineering involves	2	16	4	
I am clear about the subjects involved in engineering	2	15	5	
I think my skills match those needed in engineering	3	16	3	
I am clear about what courses are available in engineering	2	14	6	
I am clear that I want to study engineering	5	13	4	
I feel confident that I can write a good Action Plan	1	10	8	3
I feel confident using a computer	17	5		
I enjoy using a computer	17	5		
	<b>55</b>	<b>102</b>	<b>38</b>	<b>3</b>

Already high on engineering

### Post Questionnaire Skills Analysis

	Strongly Agree	Agree	Disagree	Strongly Disagree
I know what career I want	6	10	3	1
I am clear about what engineering involves	10	9	1	
I am clear about the subjects involved in engineering	11	13	1	
I think my skills match those needed in engineering	4	14	2	
I am clear about what courses are available in engineering	9	11		
I am clear that I want to study engineering	7	11	3	
I feel confident that I can write a good Action Plan	2	14	4	1
I feel confident using a computer	13	2		
I enjoy using a computer	14	1		
	<b>76</b>	<b>85</b>	<b>14</b>	<b>2</b>
<b>Pre Questionnaire Totals</b>	<b>55</b>	<b>102</b>	<b>38</b>	<b>3</b>

The purpose of these questions was to determine levels of awareness, including self awareness, before and after using JOSEPH and participating in the day. There is a shift in the second questionnaire especially in relation to the students' understanding of what engineering involves. Two students had a better idea of the career they wanted but interestingly there was very little shift on the question relating to student skills. An additional four students felt more comfortable with action plans.

### Learner Questionnaire about JOSEPH

Please select the answer that most closely matches your feelings for each of the following statements

	Strongly Agree	Agree	Disagree	Strongly Disagree
I felt confident using JOSEPH	8	12	2	
I enjoyed using JOSEPH	3	13	3	2
I found it easy to navigate around the site	6	13	2	1
The pages were well organised	7	11	3	
The organisation of the information seems quite logical	4	17		
The text was easy to read	10	11		
I understood all the language used	9	10	2	
Instructions and prompts were helpful	4	15	1	
Completing the text boxes was straightforward	5	15	1	
The graphics were interesting		15	5	1
I enjoyed using the links to other sites	3	14	4	
I have learnt more about engineering having carried out the activities	7	12	2	
I think these activities would be useful in helping me to write	6	13	2	

my Action Plan/Summary				
I enjoyed writing my Action Plan on the computer	3	5	9	1
It was useful to have so much information in one place	7	11	3	
I felt in control using my ePortfolio	6	9	2	1
	<b>88</b>	<b>196</b>	<b>41</b>	<b>6</b>

This shows how initial impressions of software in terms of trust are important.

20 users agree that they felt confident using JOSEPH, with 16 users enjoying the experience. Comparing these results with the initial responses about careers advice shows that JOSEPH compares favourably with the careers and guidance the students had previously experienced although no definite correlation can be shown.

Design of the application also performed well with 19 finding the tool easy to navigate, 18 agreeing that the pages were well organised and 21 students (100%) stating that JOSEPH was both logical and easy to read.

Use of language (19), prompts (19), textboxes (20), graphics (15) and links (17) all performed well.

19 learners agreed that they learnt more about engineering by using JOSEPH and that by using the tool it would help them to write an action plan. 18 learners agreed that it was useful to have so much information in one place.

15 users felt in control using JOSEPH although this could have been diluted by technical problems in the morning session.

Tick below those sections in JOSEPH you found useful and enjoyable

	Useful	Enjoyable
Strengths	18	4
Explore	15	10
Course Options	15	7
Jobs and Careers	17	9
Sorted	16	6
Summary	14	4
	<b>95</b>	<b>40</b>

Each section of JOSEPH has links to other websites. Tick the links you used and then grade them 1 to 5 for usefulness and enjoyment (1 being the least useful and 5 being the most useful).

Section	Link	No of Times Link Used	Useful (Av) (1 – 5)	Enjoyable (Av) (1 – 5)
Home	Passportfolio	14	3.4	2.1
	About JOSEPH	9	3.2	2.1
Strengths	The Buzz Personality Test	19	3.5	3.9
	Passportfolio	11	3.1	2.6
Explore	Environmental Engineering	4	4.3	3.5

	Why study engineering?	10	3.1	2.5
	Engineering quiz	4	2.8	3.0
	Science fiction? (BBC)	4	2.0	2.5
	Girls in Engineering	5	3.7	2.2
Course Options	14-19 Prospectus	4	2.3	2.0
	14-19 What is the 14-19 diploma?	4	2.8	1.7
	14-19 What does the diploma offer me?	4	2.8	2.0
Jobs and Careers	Jobs4U	17	4.6	3.6
	Vacancies Online	6	4.0	4.0
	The job market	3	3.7	2.3
	Examples of engineering	5	3.0	3.4
Sorted	Students and money	6	3.5	3.2

I would add a caveat here, as some students commented on links they did not use, showing an obvious flair for research and statistics!

### **Engineering Pathways Evaluation Sheet**

	Average (Out of 5)
How interesting did you find this event on a scale of 1 to 5?	3.9
How much did you know about engineering before today?	3.2
How knowledgeable do you think you are now?	4.4

(Marked between 1 and 5: 1 having no knowledge at all, 5 having wide knowledge)

A mark of almost 4 out of 5 for enjoyment shows that on the whole the day was enjoyable for the students. However it would be fair to assume that many students were very excited about the prospect of visiting a large University so this mark should look to be improved upon if the day were to be repeated.

A 37% increase in knowledge before and after the event shows that the day was successful in that the students acquired knowledge, which was a primary purpose.

### **What are the top 2 things you learned today that have changed the way you think about engineering?**

- Many different types of engineering (13)
- Lots of jobs available (7)
- Different Opportunities (3)
- 

One each for the following:

- There is not as much work as I thought

- Some of the jobs aren't what you would think
- You can study a course based on your interests
- Other things can be involved
- The money!
- All the different projects you get to do
- Lots of fun things to do like building a F1 car
- Information
- Learn how to use the Joseph site
- What the university makes and how good it is
- What knowledge is needed for the jobs
- Different skills needed for engineering
- A sector that would suit me
- Bio engineering is interesting
- Science pays a big part in engineering
- Different web resources through Joseph
- University environment

**Which parts of the day did you particularly enjoy?**

- Using the computers (14)
- The tour (19)
- Working with different people (1)
- Looking at the machines (1)
- The Joseph website (2)
- Lecture room (3)
- The personality test (1)
- Finding jobs in engineering (1)

Summary

Despite only having a limited period in which to experience JOSEPH in the afternoon session, the responses to the questions held in the database show that there were 254 responses made by the students to the 30 different prompts. On average the 22 students answered 11 questions each with all managing to create an account in less than 2 minutes.

Although there were some technical issues the students were clearly not put off by this.

Perhaps the most compelling results were the student's feelings about careers and guidance in general. In the pre questionnaires the students, on the whole, had not had good experiences in this area with most students providing negative feedback. Responses to JOSEPH were far more positive, with students feeling empowered and enjoying the process of advice and guidance (perhaps not realising!) with a majority of them improving their engineering knowledge as well as their experience of careers and guidance.

The use of this software to empower and encourage the user to find out information for themselves provides the key to the user's experience.

## **APPENDIX 6 - JOSEPH Dissemination List**

- Local FE Colleges
- Local schools (Top Valley, Kimberley)
- City Technology College (Djanogly)
- University of Nottingham - Widening Participation Team
- Nottinghamshire County Council 14-19 Team
- Nottingham City Council 14-19 Team
- Derby City 14-19 Team
- Lifelong Learning Network - Leap Ahead Team
- Progression Pathways Aimhigher Employer Engagement Group
- Nottinghamshire Training Network
- EMDA – Skills team
- JISC RSC East Midlands
- HE Academy Engineering Subject Centre
- Becta
- NEBA
- Summit Skills
- Skills Set
- SEMTA