Providing Integrated & Tailored E-Learning Services

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Virtually a VLE (but a lot more)

Warwick is a big, diverse, and in many ways decentralised university, that also maintains a strong sense of its own uniqueness. The methods of teaching, learning and research employed within the University reflect these characteristics. We have an academic population who are adept at teaching in the best way possible for their own subject area, and who understand the optimum means for delivering learning to achieve their academic aims. This high degree of specialisation extends as far as differentiations within subjects. And at the same time there definitely is a "Warwick flavour" that runs across much of the University, and that many believe to be of great importance.

The benefits that e-learning may bring to a university, given careful application, are well documented: wider access to more relevant learning content; increased opportunities for interaction; just-in-time personalised learning; repurposing of content; and many more. There is already a wealth of experience in delivering these benefits to centralised and homogeneous institutions, although it must be said that even in these cases the acquisition of a one size fits all Virtual Learning Environment causes difficulties. For e-learning developers at Warwick, we have the more difficult task of providing services that work in the much more complex environment described above.

The e-lab team within IT Services is employing a four-track strategy to engage this problem. Of highest initial priority is the establishment of a well-integrated Web Architecture upon which services can be based. This covers the fundamentals of physical access to systems, improved reliability and usability, and the provision of some new generic services such as SiteBuilder and Warwick Forums.

Our second track is to develop a wide range of types of learning object. A learning object is a self-contained collection of linked resources or activities that are constructed to meet some well defined set of learning objectives. The online equivalent of a lesson. E-lab is developing the means for users to create such learning objects in a structured and managed way. We are developing systems for easily including interactive and discursive elements, multimedia, as well as conventional text. The SiteBuilder system presents an ideal means for building these learning objects, and we are currently experimenting with a specialised kind of SiteBuilder website for creating, storing, indexing, discovering and accessing SiteBuilder based learning objects (the learning object store codenamed Lobster).

In some cases, simply presenting the student with a website containing a directory of learning objects is not sufficient in itself. For example, we may wish to have them presented in some time-related order, with individual objects becoming available at certain points. We may also wish to track the progress of students as they complete learning objects. In some cases, we may need to present some learning objects as compulsory, while others can be selected from a list of options. There are many variations along these lines, but they essentially entail presenting learning objects in some kind of "course" structure or what has been termed as a "learning offering". Whereas most commercial VLE's allow learning objects to be presented in one or two such structures, the approach taken by e-lab has been to develop a service, in the form of a package of Java objects, that can model a wide a range of offering structures. This then is the third track of our e-learning development work. We have constructed a service that models the events and objects within a learning offering, and presents those them to the user through a web-based interface designed specifically for that particular offering.

And finally, with all of these possibilities becoming available, how can our academic users gain access to these them? The fourth track of e-learning development work is to provide a consultancy capability. We must provide advice upon the available services, and how appropriate choices can be made, along with more mundane issues such as cost, timescale and required effort. In the more

complex cases, we will need to employ an analysis and design process to correctly model the required learning objects and learning offerings, and to build the necessary interfaces.

As a first attempt at combining these four tracks of development work, e-lab has implemented an online system to support the teaching of the undergraduate Warwick Skills Certificate. We have created a pool of learning objects within the Lobster store, of varying complexity and interactivity. This is combined with an application of our generic learning offering system to present the WSC approach to teaching in a simple and elegant manner. Trials of this system are currently underway, but as an example of how, through our consultancy process, we can use our components and services to build a tailored solution, a description of WSC Online is given below.

CASE STUDY: WARWICK SKILLS CERTIFICATE ONLINE

The Warwick Skills Certificate provides an optional series of courses that meet the government's requirements for undergraduate skills training in areas such as literacy, numeracy, IT, careers, and enterprise, with a general ethic of reflective personal development. The Certificate programme provides qualifications that are increasingly seen as a valuable addition to a student's core studies. The Skills Certificate team, led by Kay Sanderson of the Centre for Lifelong Learning, asked us to investigate using e-learning systems to support the expansion of the programme, and to allow students to fit the Certificate into their already busy schedules. There is also a need to offer a wider range of learning objects, so that students may plan a programme of activities suitable to their own academic and career interests.

The Certificate programme consists of distinct Modules, covering different aspects of the skills curriculum. Modules last on average one term. To complete the Certificate, the student must complete a set number of Modules, collecting points for each one.

The Modules are taught using the approach often termed as competency or performance criteria based – the students are given a series of "Standards" in which they must demonstrate competency. For example, a Careers Standard could be: "Can write a letter of application for a specific job". The student must first understand the required Standards, then plan the activities that they will undertake in order to generate material that demonstrates their competency. When they have done the activities, they compile the results into a portfolio, which is submitted for assessment.

An online module closely follows this structure. Each module has its own website, the main part of which is the Module Timeline page. A screenshot of this page is shown below:
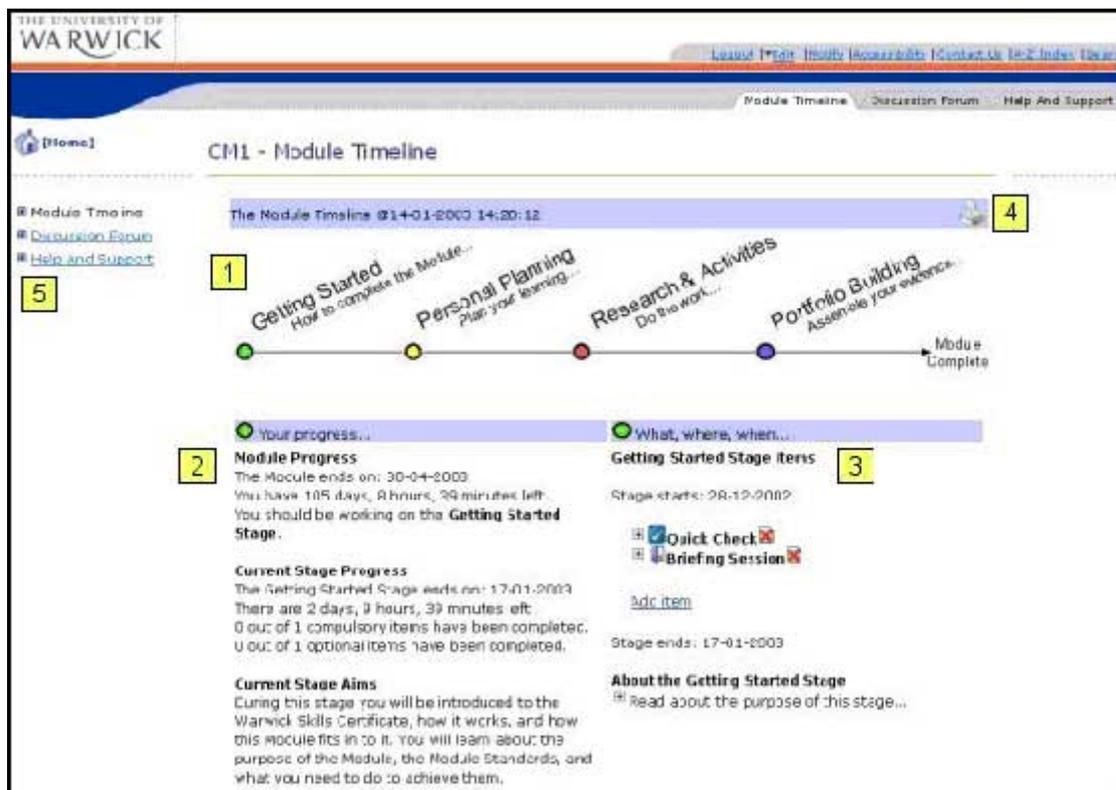
The components of this page are as follows:

1. The Module Timeline diagram – this shows the four stages that the student must complete. Each stage has a set start date and end date. The stages are colour coded, and as stages are completed, the coloured circle for the stage on the diagram becomes greyed out;

2. The Your Progress panel – this keeps the student up to date with their progress through the module, with key dates such as the end of the current stage and the end of the final stage, and a description of the aims of the current stage. The number of optional and compulsory items (activities and events) completed by the students, and the number remaining, is also shown;

3. The What, Where, When panel – this shows the list of items (activities and events) included in a selected stage. The student can add and remove optional items, mark items as complete (if appropriate), and get more details about each item;

4. Print view/text only rendition – this opens up an entirely text based version, with the Module Standards listed and any personal options added.

5. Discussion Forums and Help & Support pages.

Many different kinds of learning object can be included as items in the schedule for each stage. The icon next to each item identifies its type. For example, this is a Classroom Seminar with its full properties visible:

The red cross icon indicates that it has not been marked complete. In this case, it will change to a green tick after the end date-time of the seminar has passed. The brief description field should contain a statement summarizing the learning objectives.

The following item is an optional item, and hence the student can remove it from their individual list. They can set a date/time at which they plan to do the activity, and also manually mark it complete. The type of information given under the location field will vary depending upon the type of item, for example, this is a type of questionnaire.

When the user clicks on the link to access the learning object, it will open in a new window, displaying the learning object from the Lobster store.

An example learning object, the Learning Styles Questionnaire, is shown below:

Each learning object has a home page, with some useful metadata stated. This particular object is a questionnaire in which the results are analysed to present information about the student's preferred "learning style".

Two further aspects of the system are currently under development. We would like to add a Personal Planning Wizard that will guide the student through the process of choosing learning objects to meet the Standards. Designs for this are being evaluated. We also hope to add a specialised Weblogger, through which the students can record reflections on their progress and present them as a series of web pages.

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**To discuss any issues raised by this article please contact CAP tel: 024 7652 4766 email:
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