# A "Virtual Training Suite" for the UK's Resource Discovery Network: Enhancing the Value of Internet Resources for Learners and Teachers

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## Abstract

This paper describes the development of a virtual training suite, which aims to support lecturers and students in finding and using resources on the Web to support learning and teaching. The RDN Virtual Training Suite comprises a series of tutorials delivered over the World Wide Web. Many people know how to make good use of a traditional library but have not yet got to grips with making good use of a virtual library. The RDN Virtual Training Suite covers the key information skills for the new Internet environment. The tutorials enable lecturers and students to: **TOUR** (key Internet resources for their subject), **DISCOVER** (tools and techniques for Internet searching), **REVIEW** (the critical thinking required when using information found on the Internet) and **REFLECT** (on practical ways to use the Internet to support their study or teaching). The tutorials offer "any time, any place" training by supporting independent, self-paced learning over the Web. There are quizzes and exercises to lighten the learning experience. This paper will describe the rationale behind the development of the Virtual Training Suite and will provide examples of how such a suite of resources can be used to support learning and teaching.

## Keywords

*Information skills, Internet skills, Internet training, Web-based learning, Virtual learning environments, User education, Subject gateways, Virtual training suite, Internet resource discovery*

## Setting the Context

The Internet offers a myriad of resources that can support learning and teaching and it is increasingly recognised that an Internet search should supplement a library search in the academic process. Students and lecturers can now use the Internet to find: eJournals, eBooks, newspapers, course plans, lecture notes, scholarly discussion lists, company information, reference works, encyclopaedias, dictionaries, annual reports, online debates, videos, TV clips, images, sounds, data, theses, educational software - a list theoretically only restricted by the boundaries of human inventiveness.

The potential of the Internet to support education can only be met if people have the skills and inspiration to use it. Universities have their Internet innovators, but there are still a great many Internet novices. There is a considerable need and demand for training in eSkills, not only in the technical skills required to operate machines and systems, but in the information and critical thinking skills required to make effective use of Internet resources for academic work.

In 1999, the Joint Information Systems Committee (JISC, 1999) of the UK's Higher Education Funding Councils, put out a call for proposals and invested money in a number of national projects with the aim of enhancing the value of Internet resources for learning and teaching. This paper describes one of those projects: The RDN Virtual Training Suite (RDN VTS, 2000), which aims to enhance the value of the UK's Resource Discovery Network for the UK higher education community.

### *The UK's Resource Discovery Network*

The Resource Discovery Network (RDN, 2000) is an Internet search tool which aims to provide effective access to high quality Internet resources for the UK learning and research communities. In effect, it is the UK's "academic library of Internet resources", supporting academics by offering access to thousands of networked resources from around the world.

The RDN is a co-operative network consisting of a central organisation, the Resource Discovery Network Centre (RDNC), and a number of independent service providers called hubs. These hubs are located in different universities and museums around the UK and each takes responsibility for selecting, cataloguing and classifying Internet resources for a particular subject area. There are currently five hubs, some of which include well-established gateway services:

- **BIOME** - Health and Life Sciences (BIOME, 2000)
- **EEVL** - Engineering, Mathematics and Computing (EEVL, 2000)
- **Humbu**l - Humanities (Humbul, 2000)
- **PSIgate** - Physical Sciences (PSIgate, 2000)
- **SOSIG** - Social Sciences, Business and Law (SOSIG, 2000)

The RDN currently points to many thousands of high quality Internet resources that can benefit learning and teaching, but the JISC recognised the need to raise awareness of this very rich source of information and educational resources. Users need to know about the Internet resources available to them but also need help to enable them to make practical and effective use of these resources in their working lives.

#### *Enhancing the value of the RDN for the learning and teaching*

Just as a traditional academic library offers a programme of "user-education" to students and lecturers to maximise the benefit they receive from the library, the RDN should extend its own user-education programme, to build *networked* user-education to help people to get more from this very rich information service. Traditional library user-education in a university, college or school offers users:

- **Library tours** - to become familiar with the layout of sections of the library
- **Library induction sessions** - to learn about the services available and to learn how to use them
- **Subject guides** - to identify the key information resources for a particular discipline
- **Support from subject librarians** - to get specialist help
- **Information skills development** – to learn transferable skills in information handling

In a virtual library such as the RDN, these activities can take place in the virtual environment. Users can access the RDN at any time from anywhere and will appreciate being able to access user-education in the same way.

Gateways are already offering Help pages to users but they could offer a lot more. One medium that seems appropriate is the online tutorial – carefully authored sets of Web pages designed to offer users a structured learning environment. Online tutorials can support deeper learning than simple instructional Web pages, since they can incorporate practical

exercises, interactivity and feedback. This interactivity challenges the users to apply the knowledge they acquire to practical tasks and supports experiential learning.

Online tutorials also offer a very flexible "any time, any place" learning opportunity to people in many different situations. They offer user-education to a wide audience, including students and lecturers in educational organisations across the UK (and indeed, further afield). They have the potential to benefit large numbers of users who can work through them at their convenience.

#### *Internet information skills training*

Our experience shows that many users do not realise how rich a source the Internet can be and do not yet know that the RDN - a relatively new service - can help them. The subject gateways within the RDN point to collections of high quality Internet sites that are freely available to students and lecturers, including:

- reference materials
- online books, newspapers, journals and articles
- home pages of key organisations (eg governments, companies, societies)
- resource guides and bibliographies
- discussion lists, newsgroups and mail archives
- educational software and multimedia

The Virtual Training Suite gives users an overview of the different types of Internet resources available to them and highlights some of the most important Internet resources in their subject field.

#### *Showing how Internet resources can be used for learning and teaching*

Internet resources can be used to support learning and teaching in a wide variety of ways, but our experience shows that many users have not yet adapted to incorporate the full range of Internet resources into their working practices. Internet resources can be used to support various learning and teaching activities, including:

1. **Finding teaching resources** (teaching aids, educational software, course-plans, lecture notes)

2. **Finding learning resources** (online tutorials, online text-books, reference materials)
3. **Finding information on a particular subject** (for planning courses/lessons or doing course-work, essays, assignments)
4. **Making contact with people**
5. **Conducting a literature search** (to create reading lists or to write assignments etc)
6. Maintaining current awareness in a subject area
7. Finding out about conferences and professional development

The Training Suite offers users ideas of ways in which they might use the Internet to support their learning or teaching. It passes on tips, techniques and examples of innovative practices to the higher education community.

#### *Ways to use the Virtual Training Suite to support learning and teaching*

The tutorials are aimed at teachers and students who are beginning to use Internet resources to support their learning and teaching. The Web tutorials can be used by a wide variety of users in all sorts of ways:

- They can be used for **independent learning** – students can chose to do them of their own accord and can complete them at their own convenience. Many students like doing online tutorials – with the opportunity for interactivity via the quizzes and with a palatable, light-hearted approach.
- Lecturers can **incorporate them into their teaching curriculum** – asking students to do the tutorial as part of a wider course, perhaps supporting the tutorial with face-to-face lectures, group work and assignments. Teachers and lecturers who do not have time themselves to develop online learning tools often welcome ready-made packages that they can then use as a teaching tool.
- They can be used for **distance learning** – as they can be accessed from any networked workstation with a Web browser. Such tutorials can be used by people in remote locations, who might not have easy access to face-to-face training courses.
- They can be used **to support training sessions in generic, transferable skills such as Internet skills or information skills.** The Virtual Training Suite can be used as a training tool on core skills courses and we believe that they will be an invaluable tool for people teaching transferable Internet and information skills.

## The RDN Virtual Training Suite

The Virtual Training Suite comprises a series of tutorials delivered over the World Wide Web. Many people know how to make good use of a traditional library but have not yet got to grips with how to making good use of a virtual library. The RDN Virtual Training Suite covers the key information skills for the new Internet environment. It introduces basic ideas, techniques and examples of how the Internet can be used in education within specific subject disciplines.

Each tutorial offers instruction in Internet skills for a particular academic subject. In the first phase of the project has developed 11 tutorials which went live in July 2000. A further 27 tutorials are due for release in May 2001, meaning that the suite will cover the main academic subjects taught in UK universities. Existing tutorials are:

1. **Internet Medic**
   Jennifer Ross, BIOME, University of Nottingham
2. **Internet Aviator**
   Emma Turner and Annie Maddison, Cranfield University and Royal Military College of Science
3. **Internet for History**
   Frances Condron & Grazyna Cooper, Centre for Humanities Computing, University of Oxford
4. **Internet for English**
   Stuart Lee & Grazyna Cooper, Centre for Humanities Computing, University of Oxford
5. **Internet for Lawyers**
   Sue Pettit, Wills Memorial Library, University of Bristol
6. **Internet Business Manager**
   Kate Sharp, Biz/ed, ILRT, University of Bristol
7. **Internet Politician**
   Heather Dawson, British Library Political and Economic Science
8. **Internet Psychologist**
   Annie Trapp, LTSN Psychology, University of York
9. **Internet Social Worker**
   Angel Upton, National Institute for Social Work, London
10. **Internet Sociologist**
    Stuart McWilliam, University of Exeter Library
11. **Internet Economist**
    Libby Miller and Martin Poulter, LTSN Economics, ILRT, University of Bristol

Although the subject matter differs, each tutorial has the same structure - enabling students and lecturers to:

- **TOUR** key Internet resources for the subject
- **DISCOVER** tools and techniques for Internet searching
- **REVIEW** the critical thinking required when using Internet information

- **REFLECT** on practical ways to use the Internet to support their study or teaching

The tutorials offer "any time, any place" training by supporting independent, self-paced learning over the Web. There are quizzes and exercises to support deeper learning.

Although the tutorials cover different subjects they all share the same Web design, architecture and content structure (ie. sections called Tour, Discover, Review and Reflect). They all include additional features such as a glossary, print and download versions and a Links Basket that lets the user gather their own set of useful Web links as they work through the tutorial.

### *Access to the Virtual Training Suite*

Users are able to access these tutorials via a number of routes. The RDN Web site offers access via the central Web site so that users can instantly see all the tutorials available in all subject areas. Hubs also offer access via the subject sections of their gateways, so that for example, someone exploring the Law section of SOSIG would see a link to the Internet for Lawyers tutorial. The tutorials are being marketed both as a suite *and* individually as appropriate for different audiences.

#### Harnessing the knowledge of Internet and subject experts

Development of the RDN Virtual Training Suite has been a fascinating exercise in collaborative and distributed working. The project has taken full advantage of the existing JISC structures in the RDN and has benefited from a distributed model of working where expertise from a wide number of institutions was drawn upon to build a rich academic resource. We were able to commission expert authors who had knowledge of the Internet *and* their subject area. The authors included librarians from national and university libraries, academics from the new Learning and Teaching Support Network centres (LTSN, 2000), formerly the Computers in Teaching Centres - CTI Centres and staff from the RDN itself. This network will help the tutorials reach the heart of the learning and teaching communities. The project involves partners from all the existing RDN hubs. Because the working structures already existed we were able to achieve rapid results with only a light management touch.

### *Internet Detective: a tried and tested tutorial model*

The concept and the technical approach for the virtual training suite originated from the Institute for Learning and Research Technology (ILRT), where staff had been working on a project called DESIRE (DESIRE, 2000), funded by the European Union. DESIRE produced an online tutorial called Internet Detective (Internet Detective, 2000), a Web-based tutorial designed to teach people to question the quality of information found over the Internet. The success of the Internet Detective tutorial was a key motivation in developing the new project. The global uptake of the tutorial and the overwhelmingly positive feedback convinced us that there was a widespread appreciation of such tutorials and that there was a market for further tutorials to be developed. The tutorial has been recommended and adopted by many universities as well as the media, notably The Independent newspaper, BBC Online (Web Wise), USA Today, NetSources, Choice Magazine and IFLA (The International Federation of Library Associations).

The Internet Detective tutorial was published on the Web in July 1998 with a second edition published in 2000. The response has been very positive. Extensive email feedback and examination of links to the tutorial provides evidence that Internet Detective is being used by the following kinds of people in the following ways:

- **university lecturers** are using it to support their teaching of information and Internet skills
- **school teachers** are using it in their classrooms to facilitate basic skills development
- **librarians** are encouraging their users to use it to develop their skills in information handling
- **computing service staff** are recommending it to their users as a resource
- **library and information science departments** are incorporating the tutorial into the curriculum
- **individuals** are using it for personal skills development
- **businesses** are using it in their staff training courses

The experience gained from developing Internet Detective was used to develop the RDN Virtual Training Suite.

### *Using the Web to deliver online training*

We believe that Web-based tutorials such as these appeal to many users because:

- They are free
- There is a demand for training in Internet skills
- They can be accessed over the WWW at any time, from any where
- They are fun to do, light-hearted and informal, but still of educational value
- They offer a ready-made teaching tool that can be picked up by lecturers, trainers and librarians
- People like learning in different ways and the mix of quizzes, worked examples, illustrations and "try it yourself" sections make it possible to please people with different learning styles

## Building a Virtual Training Suite

### *Time scale and cost of the project*

Perhaps one of the most striking things about the project was its relatively small budget and time frame, showing that Web tutorials can be quick and cheap to build, given the right expertise. The project began in January 2000, running for six months in the first instance. The project was able to mobilise resources quickly as the central team already had the necessary communication and management structures in place, via the already well established RDN. An additional success factor was that the lead site, the Institute for learning and Research Technology (ILRT, 2000) had both the technical expertise (in terms of software developers, Web designers and Web masters) and the pedagogical expertise (in terms of experienced practitioners, information specialists and researchers) to support the project development and ensure that it was built within a robust technological framework, with a clear educational focus.

### *CALnet: Tutorial software that enhances the learning experience*

CALnet tutorial software (CALnet, 2000) was selected for development of the RDN Virtual Training Suite. A number of software options were evaluated that could help build Web-based tutorials, but CALnet was chosen largely because:

- There were no costs associated with using CALnet for the project (it was developed in-house at ILRT). Other software such as WebCT would have required a significant license fee that exceeded the project budget, especially since our target audience was the whole UK higher education community and beyond.
- CALnet makes it easy to build large numbers of tutorials fast, as once a central component set has been written that dictates the style, navigation features etc it can be used across all the tutorials saving significant effort in HTML mark-up. It takes specialist skill to develop the component set but this was done in-house at ILRT at extremely reasonable rates. Once this is done, tutorials can be constructed relatively easily, though given that there is some outlay in training people to use the software we decided that it would be more efficient to train a central team rather than every author.
- CALnet sets up the navigation features (ie. expanding Tables of Contents in the left index and the Next and Previous buttons on each page) automatically once a component set has been written.
- CALnet enables the creation interactive tutorials, with of 5 types of interactive quiz – more than the other packages looked at, and with more variety.
- CALnet builds tutorials with a very simple file structure, making them easy to edit and copy over to a live site.
- One of the outstanding benefits of CALnet is that it builds *portable* tutorials. This means that they can easily be copied onto hard drives, floppy discs, CD-ROMS or other machines without any loss of functionality or interactivity. (This was not true of other software evaluated, which required the quizzes to be held on a central server, meaning they were not portable). This is valuable for the target audience, likely to want to use the tutorials in classroom and training sessions.

#### *Attempts at future-proofing the tutorials*

A stable curriculum for Internet training is not possible in this ever-changing environment but this cannot be used as an excuse for failing to provide users with the help and instruction they so badly need. Future proofing of the tutorials has been given priority when authoring, to keep the necessity for continuous editing to a minimum. Carefully chosen sites and examples can significantly reduce the need for maintenance and updating. Internet Detective went live in 1998 and is still relevant and up-to-date two years later because it teaches basic skills that are not dependent on volatile Web sites or technologies. Live links have been

kept to a minimum and any sites cited will be chosen for their stability. Many of the Internet information skills taught are likely to be relevant over time.

### *Publicity and dissemination*

Publicity and dissemination has been co-ordinated by the RDNC with input from ILRT (drawing on the publicity channels used successfully by Internet Detective). This has include Web-based publicity but also press releases and targeted publicity to the education sectors. A launch event will be held at the end of the project to cascade knowledge of the tutorials out to the learning and teaching communities.

### *Evaluation*

**Quantitative evaluation**
The University of Bristol Library will conduct quantitative evaluation based on statistics generated by registration and use of the tutorials, and from result from an online evaluation form, included at the end of each tutorial.

**Qualitative evaluation**
The Library will also conduct some qualitative evaluation based on feedback obtained from users in the context of library user-education programmes.

## Conclusion

This paper has described the development of a suite of Internet tutorials, which aim to provide a comprehensive and structured introduction to finding and using resources on the Web. This Virtual Training Suite is timely for a number of reasons: Across the UK HE-sector, institutions are increasing their use of Information and Communications Technology in learning and research and hence the number of staff involved in using ICT shifts from the early adopters to the late majority. This shift means that there is a higher proportion of staff needing support and introductory guidance on using the Internet. The Virtual Training Suite is an example of a resource which is particularly designed to meet this need. Secondly, the Virtual Training Suite's link to the RDN is important, as it provides a valuable resource to support the work of the hubs and helps to signpost lecturers and students to these valuable resources. Thirdly, it has an important part to play in a new national development, the Distributed National Electronic Resource (DNER, 1999), which aims to provide a comprehensive suite of online resources to support learning and teaching in the UK. The Virtual Training Suite is an important example of a means of providing critical mass for this new resource.

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