



## A 'Community of Learning' – the UWS Nepean Science Virtual Resource Centre

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### Introduction

The Science Virtual Resource Centre (VRC) (<http://edtech.nepean.uws.edu.au/science/vrc/>) has been modelled on web sites that are already successfully engaging students, notably The University of Sydney's Biological Sciences site ([http://fybio.bio.usyd.edu.au/sobsfyb/fyb\\_StuRes.html](http://fybio.bio.usyd.edu.au/sobsfyb/fyb_StuRes.html)) and Hypertext Books at the College of DuPage (<http://www.cod.edu/dept/KiesDan/>).

The site was established with six main aims:

- to provide level one science students with greater access to learning resources and information, and encourage the use of technology as a learning tool;
- to free staff from being seen solely as information providers, enabling them to have access to a venue through which they can experiment and develop rich and interactive learning resources;
- to establish a site where collaborative learning is encouraged and supported, and where teaching staff can challenge and stimulate students;
- to assist students to develop the skills of independent learning, encouraging them to take responsibility for their own learning;
- to help students develop their computer skills and familiarity with the web, via an easily accessible, low technology site; and
- to begin the development of a 'community of learning' (Hough and Paine, 1997) whereby students and staff share common learning interests and purposes.

The VRC site was launched in first semester 1999, and is thus in its infancy. Subject Resources, Further Tools for Learning, and the Discussion Forum, are still being developed. The process by which the site has developed, and continues to evolve and the manner in which we hope to achieve our aims will be the focus of this paper.

### Access and usage of the technology as a learning tool

In a survey of level one science students, it was found that only 48% of students are regular users of computers, though 66% reported feeling either very confident or fairly confident when it comes to using computers. Student experience in using computer software packages is fairly varied with large numbers being familiar with word processing (92%), database (61%) and email (69%). Though 82% have regular access to computers outside the university, only 53% have regular access to the Internet, while 78% are familiar with using this medium. When asked about their interest in receiving some, or any of their coursework via computers, 81% are either very interested in doing so, or didn't mind if this development takes place.

Given that this is the current status of student access and usage, the VRC site will remain low technology for the foreseeable future; not requiring students to have state of the art hardware, and avoiding the need for them to download software from the web. In an effort to help students become more computer literate, they were introduced to the computer laboratories, logging on procedures, email access and the VRC site in the first week of semester 1. Difficulties with name and password access are still current, but with perseverance and patience, such problems are gradually being overcome. Students are encouraged to seek assistance whenever it is required, and tutorials have also been offered to assist the less confident students. The non-threatening nature of the Discussion

Forum will also help students develop the specialist skills necessary for using the computer and Internet effectively. Student usage of the site will continue to be monitored throughout the next 12 months and beyond.

### **Free staff from being seen solely as information providers**

At present, the VRC is nothing out of the ordinary, though its potential is great. Though commencing its life in a fairly traditional manner, it is anticipated that the site will evolve away from a didactic and content driven approach. Much of the content material for semester one is now available on the web giving students access to this information prior to attending lectures. Thus teaching staff now have the opportunity to use their valuable face-to-face time in a different manner. For example, rather than using this time to present new material, these sessions can be used to explore the main concepts in more depth through student discussion, debate, and role play. The extent to which such teaching sessions change, will depend upon the enthusiasm and interest of the individual lecturer, the amount of support and encouragement they receive, and how students respond and adapt to such changes.

With the addition of links from the core content material contained in the VRC, to other specialist resources available on the web, core resources can be augmented, and enable students to explore the material in more depth. Lecturers can use this as an opportunity to investigate the validity and authority of the scientific information currently available on the web, whilst encouraging students to critically analyse the information sources they consult.

Times of cultural change, as represented by the emergence of sites such as the VRC, are not always easy, or seen by staff as rewarding and challenging. Many see such change as not only time-consuming but of little visible benefit to student learning. Certainly if teaching and learning practices do not change concurrently, there will be little improvement in learning outcomes. Therefore it is essential that both academic development and the establishment of student support systems develop hand in glove with the evolution of the web site.

### **A site encouraging collaborative learning, individual challenge and stimulation**

UWS Nepean draws the majority of its students (67%) from the Greater West region of Sydney, and though the majority of students (59%) attend university full-time, a significant number (41%) of part-time students are enrolled. All discipline areas have students for whom English is not their first language, but science (56%) is one of the disciplines most affected. Such characteristics affect the types of resources developed, the way concepts are expressed, the manner in which face-to-face sessions are conducted, and the activities that are advanced to enable students to interact with the material. However, working and learning collaboratively are essential skills in today's workplace, irrespective of the student's background, and as such should be encouraged, valued and nurtured. By developing both challenging and stimulating material for consideration in the Discussion Forum, and assessment tasks that require students learn in teams, both in class time and on-line, such skills can be practiced in a congenial environment.

### **The development of the skills of independent learning and individual responsibility for learning**

An attitude that is commonly encountered amongst students is that the content covered in lectures is the extent of what should be learnt; it can come somewhat of a shock to learn that more is expected. The VRC will enable students to access material to the minimum depth and beyond, depending upon individual interest and motivation.



It is also often the case that students will only treat learning seriously when it is assessed. If we require students to value the learning outcomes as intended, we must develop assessment tasks in which the attainment of such outcomes is fostered and rewarded. Again, over the coming months, lecturers will be assisted in developing suitable materials and activities, and at the same time, students will be helped develop the skills to enable them to tackle the required tasks.

Students who use the Discussion Forum to raise issues of concern in their learning, will find it helpful in developing their questioning and problem solving skills, assisting them to take more responsibility for their own learning.

## A 'Community of Learning'

From the beginning, both staff and students have been encouraged to view the VRC site as their own, its evolution to a form that is beneficial to all being the aim of the early years. Thus each participant has a common purpose, and the barriers between lecturer and student should weaken. The Discussion Forum will also encourage the further development of a 'community of learning' by giving all staff and students a voice. Such a community should thrive through student and staff participation in well chosen discussion topics and structured stimulus material; in an environment where thoughtful and considerate discourse is insisted upon, as are the norms of open-mindedness and civility.

## Conclusion

Now that the site exists in a physical form, teaching staff are beginning to see possibilities, and offer suggestions that will help students with their learning. Self-assessment questions, tasks that require students to interact with the material and each other, and simulations that enhance laboratory learning, are all currently being developed. Staff are also actively exploring the Internet for sites of excellence that can be included as links to their material. There are also signs that the emphasis on a content driven curriculum is weakening.

The Science Virtual Resource Centre is not meant to replace existing resources or teaching practice, rather it is seen as an additional resource that enables students to access and interact with materials in a manner that may better suit their learning needs and learning styles. The site has provided the impetus for change, and as a dynamic site, it itself will alter to suit the changing needs of staff and students. Reconstruction of the VRC will not only occur from the top down, both students and staff will be asked to participate in its evolution, providing a truly flexible resource, and the beginnings of a 'community of learning'.

## Reference

Hough, M. J. and Paine, J. (1997). *Creating quality learning communities*. South Melbourne: Macmillan Education Australia.

