

Building online learning communities for teaching and learning, which integrate online multimedia

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Introduction

Those who teach must espouse and exemplify in their professional activities and their teaching the values and environments that underpin their students' learning today and in the future. International, national and local technology initiatives have rapidly developed the role of ICT in all areas of learning and teaching. Teachers, schools, authorities and universities must develop strategies to build on-line learning communities that enhance the quality of teaching and learning.

On-line learning communities

The creation of on-line support systems for teaching and learning needs to:

- compliment and enhance present teaching and learning in a variety of ways;
- facilitate communication between peers (staff to staff/ learner to learner) and students to staff;
- provide access to and delivery of quality resources both in content and type; and
- interactively support the construction and access to learner resources created during the teaching and learning process.

Reflecting Bruner, it is important that in this process learners have an element of ownership of the community.

Given scope of the WWW, the context of learning is vital when designing online communities. The process must be scaffolded and resources supported by contextualised communication. A framework for both learning and development should available containing signposts, and feedback given in a transparent and open way, available to all involved in the community.

ICT and Learning

As educators we must be clear that these on-line communities support a context of external learning how ICT enhances internal dimensions of learning

outcomes is the scope much needed research (see case studies below).

For learners to be successful in online communities a process view of learning, as the ability to manipulate information, is crucial simply because of the amount of information available to learners is increasing exponentially. The World Wide Web today has 1.6 billion pages growing at a rate of 10 million pages per month. Simply transmitting information for collection is now meaningless: deciding the 'how' and 'where' to search is the essential process. The skills of handling must be supported by an understanding of the structure and organization of information categories in order to be able to make sense of them. This process of understanding helps us form concepts which we manipulate as symbols during the thinking process. ICT information systems support the acquisition of 'procedural knowledge' improving opportunities for cognition.

ICT information environments developed by teachers therefore provide the 'scaffolding' to support and enhance learner problem solving. It is in this capacity of supporting the learner to plan, select, refine and present that ICT is most useful.

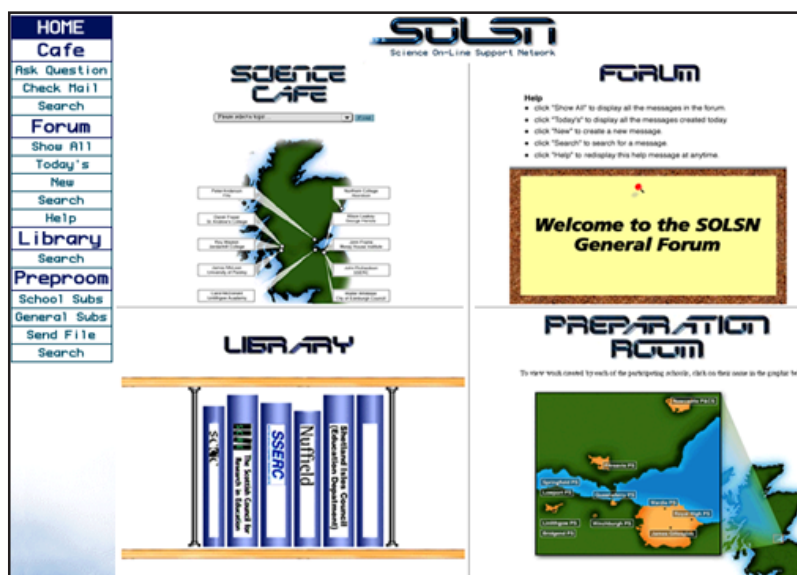
The advent of ICT investment and its development means that the requirement for new teacher training policies forces all educators to reassess the direction of their teaching and learning. It is essential, particularly in teacher development, that the use of new technologies is established to both enhance present learning environments and create for learners an opportunity which develops their process of learning through the use of ICT.

Features of an ICT teaching and learning support system

Science Online Support Network (SOLSN)

Communications:

- a) *Cafe*: helper's environment, learner access to appropriate expertise on-line, personalised responses, depersonalised Frequently Asked Question banks created and searchable. The map would reflect staff involved graphic of campus.



- b) *Forums*: open unstructured and thematic focused forum having with threaded response environments e.g. ideal for tutorial preparation all forums searchable

Resources:

- a) *Library*: quality libraries mediated by staff containing variety of media i.e. on line searchable texts, digitised video, focused URLs etc., all downloadable and accessible
- b) *Preproom*: student and staff generated resources to facilitate peer evaluation, support student refinement, provide exemplification of standards, allow the upload material to staff. The map would reflect staff involved graphic of campus.

Case Study – New Opportunities Fund (NOF) ICT Training for Primary School Teachers

Applying the principles of what constitutes a good quality on-line learning environment has been the cornerstone of the Scottish Teacher Education Consortium's (STEC) approach to the design of materials for delivery through the Scottish Executives (UK Government) initiative. This funding makes ICT training on the pedagogical application of the use of ICT available to teachers.

The materials produced by STEC try to emphasise the importance of:

- Interesting presentation
- Ease of use
- Flexibility in time and place of use
- Inclusion of examples
- Opportunities for choice
- Peer and tutor support

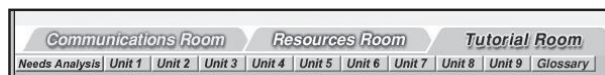
[Murdoch (2000)]

The Scottish Teacher Education Consortium is composed of staff from Scotland's three largest

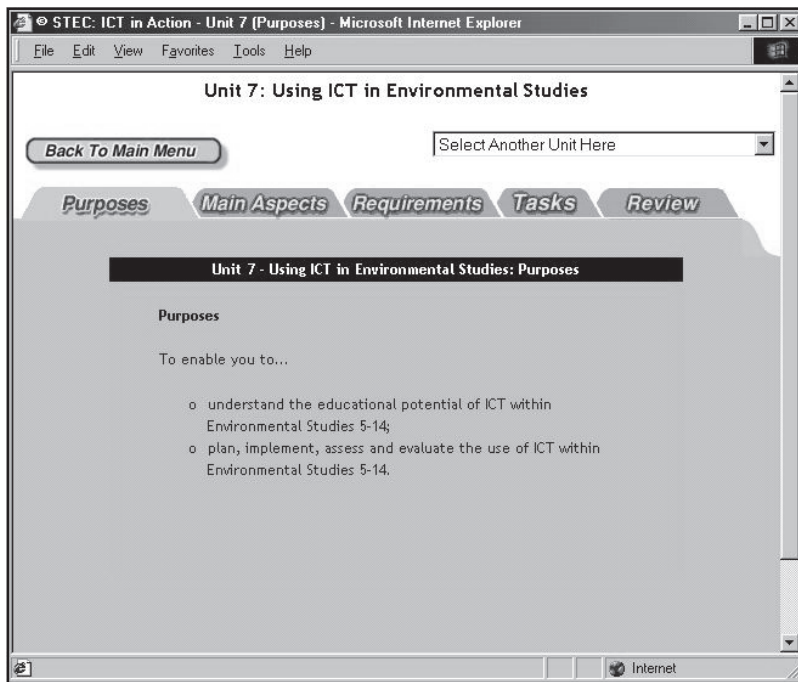
Initial Teacher Education providers: Moray House (Edinburgh University), Jordanhill (Strathclyde University) and Northern College of Education. In designing the NOF materials the Consortium has tried to embrace a philosophy of 'learning in and learning through the use of ICT'. To this end the training course tries to present the 'medium as the message' and delivers the NOF training as a computer based course. The materials are presented via an on-line learning environment, a CD-ROM housing a copy of the tutorial materials. This has proven essential to allow flexibility of access to the training materials for teachers who do not have internet access either at home nor work. Further flexibility is

afforded by the provision of paper copies of the tutorial units. Not every learner will wish to sit in front of a computer to read materials and the prospect to some of reading the materials whilst sitting on the sofa with a cup of coffee after the kids are in bed may be the most viable option for learning.

The on-line version of the materials has three key components: the Communications Room, the Resources Room and the Tutorial Room. Each Room has a colour theme allowing a user to know which of the Rooms they are in. Graphic designers worked on the site layout to enhance its aesthetics. Graphics icons and careful selection of layout style was utilised to further enhance the look of the site. Large 'Tabs' across the top of the screen allow easy navigation for inexperienced users. Hyperlinks from these 'Tabs' open up in new windows that have limited toolbar functionality. A user can always return to the main Tutorial Room window by closing down the window that they are in. The functions of each of the Communications Room, Resources Room and Tutorial Room will be discussed later in this paper.



Teachers undertaking NOF training with STEC are assigned a tutor. In the first instance the participant completes an initial needs analysis and sends a copy to their tutor. This is important as it presents both the tutor and the learner with information allowing them to negotiate an Individual Study Plan. The Individual Study Plan takes account of the fact that teachers have different entry points with regards to their present capabilities in ICT. The tutor and participant also negotiate a Course Schedule suggesting the rate at which the participant will wish to work through the course materials. This facilitates differentiation allowing a variety of entry points and study strate-



gies to be adopted by a learner reflecting the individual needs of participants. A good example of this is in the curriculum based tutorial units where participants will look at case studies and undertake development work in relation to the needs they have to supplement their classroom practices.

The materials have been designed to cater for the different learning styles of participants. The tutorial sections are written in compact blocks. This allows participants to dip in and out of the materials when they have time during a packed and busy working day. Video and audio clips are used to vary how the participants interact with the materials. Encouraging participants to reflect on their own practice in relation to issues raised by the course materials facilitates interactive learning. It is expected that participants will address these issues in the context of their own classrooms.

The study units have the following foci: Orientation, Planning, Implementing, Assessing and Evaluating, Using ICT to support ES, Using ICT to support Maths, Using ICT to support English Language, a classroom based Mini-Project and these units culminate in the formulation of a Personal Development Plan by each participant. Each unit of study has a similar structure detailing the purpose of the units, identifying its main aspects, detailing prerequisites for undertaking the unit, unit tasks and allowing the participants to give feedback on their learning and the quality of the teaching and learning materials presented in the unit. The unit tasks are split into manageable sections designed to allow a flexible approach to working with them.

The materials draw on case studies of good practice in the use of ICT selected from Scottish Primary Schools. A case study generally includes information from the headteacher, class teacher and

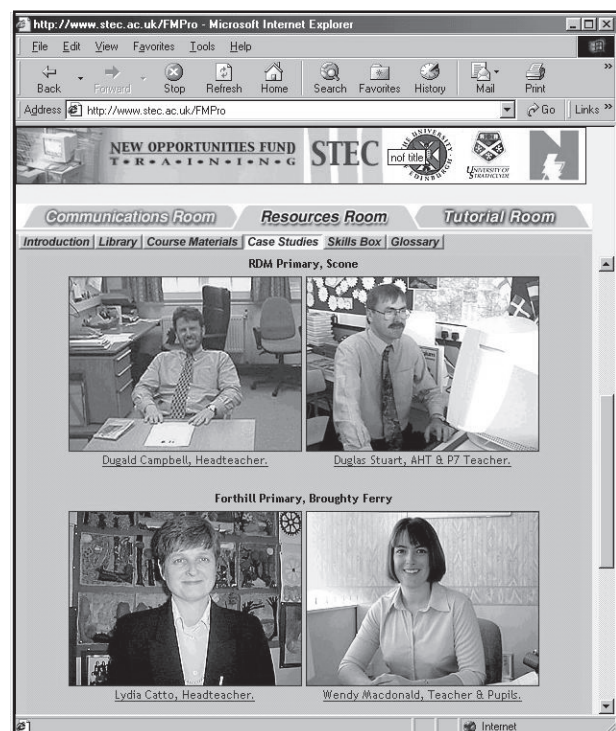
pupils from a school. It may also include School Development Plans, class teacher's forward plans and pupils work products. This contextualises the materials for learners.

Below are examples of the case study from Forthill Primary School, Broughty Ferry and RDM Primary Schools, Scone. The case study includes audio clips from the headteachers of the schools (Lydia Catto and Dugald Campbell), class teachers from the schools (Wendy Macdonald and Douglas Stewart) and pupils from classes at the schools. The school development plans from each school are also included in the tutorial materials as are sample pupil products.

Whilst there is a natural progression within the site from Units 1-9 a learner has ownership in the way that they approach the materials. If a

learner requires they can independently view materials from various parts of the site selecting how long they wish to spend on a particular topic. There is also a facility for the learner to work relatively independently on the site by accessing materials via the Resources Room. Here all audio clips and case study materials are grouped according to school. There is also an area where there is a large bank of educationally useful web-site links searchable by subject area and key words.

Support for learning is a particularly strong feature of the materials. As previously mentioned



each participant is assigned a tutor. In addition to help in formulating the Individual Study Plan and Course Schedule the tutor provides additional support. The on-line materials have a communication facility. This allows each participant to request help from both their tutor and their peer group. The later is an important aspect of the on-line materials. It allows the participant access to a wider community of learners who can help and support the learning of each other.

Participants access this help through the Communications Room. In this area they can send messages to a peer or a tutor via their Message Box. They can also post a message up onto a News Board that has public access. There is also a facility for the tutor to run threaded discussions on an ICT related topic where participants will discuss a relevant issue with both the tutor and peer group whilst on-line.

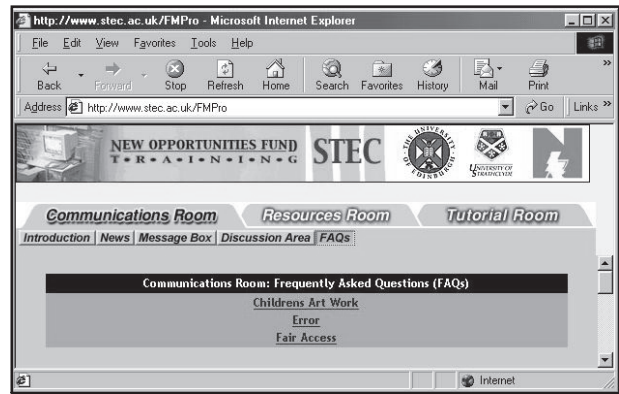
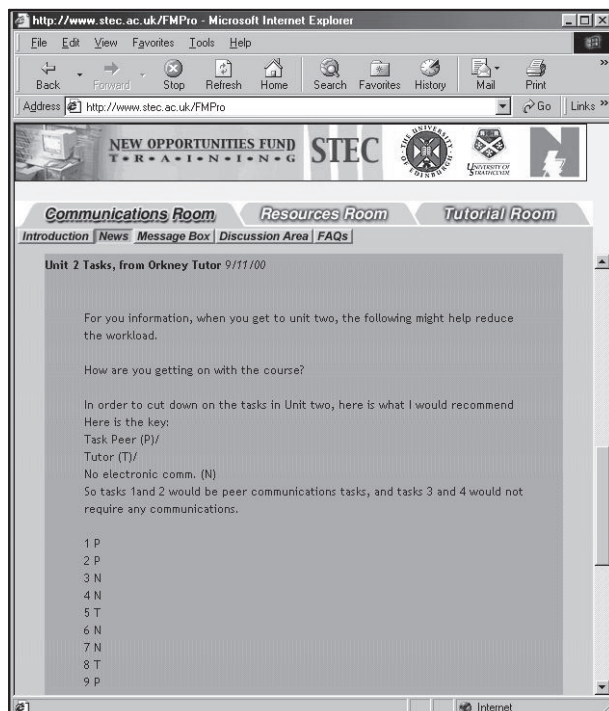
Pritchard (2000) reports that use of a communications facility in such a way lead to ...

‘a valuable exchange of ideas, information and experiences . . .’ and participants in such an environment ‘benefit from the moral support provided by such exchanges.’

The presentation of learning materials in a format that allows peer support and an on-line learning community to form is referred to by Hiltz (1994):

‘Most distance learning has taken place using an individual or self study strategy. . . . However, computer-mediated communication is especially well suited to collaborative or co-operative learning strategies.’

All communications that take place here can be added to a bank of frequently asked questions. Hence, if a learner searches these first they may find an appropriate response to their point already there!



In addition to these support mechanisms telephone and letter communication is available from the tutor for those who do not have internet access either at home nor work.

Davis and Denning (2000) in reference to their analysis of the social and learning dynamics of on-line learning environments state that they hope . . .

‘the on-line world can be a powerful learning environment that demands effective and challenging facilitation. . . .’

We hope to have echoed some of that sentiment in the on-line learning environment that we have created.

Further information can be found online at

Reading the Reader

<http://sicc.education.ed.ac.uk/projects/readingthereaderonline.html>

Raising the Standards

<http://sicc.education.ed.ac.uk/projects/raisingthestandard.html>

Demonstration of how online exemplification of teachers and learners supports learning and teaching.

http://sicc.education.ed.ac.uk/projects/case_studies.html

References

- Davis M, Denning K (2000) On-line learning: frontiers in the creation of learning communities. In: Asenio M, Foster J, Hodgson V, McConnell D (eds) *Networked Learning 2000, Innovative Approaches to Lifelong learning and Higher Education Through the Internet*. Proceedings of the Second International Conference, Lancaster University/The University of Sheffield, pp 78–85. ISBN 0 902831 38 0
- Hiltz SR (1994) *The Virtual Classroom: Learning Without Limits Via Computer Networks*. Albx: New Jersey, p 24
- Murdoch J (2000) *Developing a Web-Based Science Module*. SCICentre 2000 and ASET Conference Report. SCICentre, Leicester, pp 25–29. ISBN 1 902126 12 2
- Pritchard J (2000) *Using First-Class E-Mail Conferencing Facilities in the PGCE Secondary Course*. SCICentre 2000 and ASET Conference Report. SCICentre, Leicester, pp 140–150. ISBN 1 902126 12 2