

## Supporting UK Teachers through the National Grid for Learning

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Abstract: In 1997 the “New Labour Party” came to power in the UK. Since their election they have announced spending of over one billion pounds on Information and Communications Technology (ICT) in Education. Most of this investment centres on the National Grid for Learning (NGfL). Two years after NGfL’s launch, this paper examines the background to, and introduction of, the NGfL in the UK, and how this investment will support school teachers. The paper tends to focus on how teachers might use the NGfL to relieve their administrative burden, rather than the features of the NGfL that might be used in the classroom to teach pupils and aid their learning. The paper also reports on teachers’ initial reactions to the opportunities provided for electronic communications.

### 1. INTRODUCTION

Comparatively little has been written about how Information and Communications Technology (ICT) can support classroom teachers in improving their own professional efficiency and reducing their administrative and bureaucratic burdens. However, in response to the UK Government’s Green Paper “Teachers: Meeting the Challenge of Change” (DfEE 1998) one of the strongest views from 41,000 responses was the potential of ICT to reduce teachers’ administrative burdens (Becta, 1999). Addressing this issue in terms of the intended outcomes of training teachers in ICT, the Teacher Training Agency (TTA, 1998a) notes that teachers should be using ICT for:

- Administration, record-keeping, analysis, reporting, and transfer of information;
- To join professional discussions, locate and access teaching plans, material and other sources of help through the National Grid for Learning (NGfL); and
- To support their continuing professional development.

Whilst the prime purpose of the NGfL is not to support teachers in the areas noted, it undoubtedly has the potential to do so. This paper will examine how the NGfL in the UK has developed and how in particular it can be used to support classroom teachers in some of the areas detailed above. However, due to the nature of the topic and the fact that many classroom teachers have or will progress to managerial roles, other areas such as using ICT to support teaching and learning and the use of ICT to support educational management will be touched upon.

## **2. BACKGROUND**

The idea of supporting teachers on-line is not new. Since the early 1980s telecommunications have been used to provide schools with on-line educational databases to support teaching, learning and administration. Administration in this context is taken to cover not only administration of the school but the day-to-day administration that classroom teachers are expected to do, such as planning schemes of work and lessons. In his paper "Successfully Establishing a 'National Grid for Learning': Have we been here before?" Selwyn (1999) discusses some of the early remote electronic information systems (Prestel Education, TTNS (later Campus 2000) and NERIS) used in the UK. Many of the resources available on these systems were of undoubted value. However, the cost of subscribing and communicating with them and the technology of the day, a modem connected to at best one early PC, meant that uptake and usage of all three systems were limited. Also, technological developments, including the rapid development of the Internet in the early 1990s, sounded the death knell of these early systems.

In 1995, speaking at the British Education Training and Technology Exhibition, the then Secretary of State for Education invited industry and the education community to work together to develop a commonly accessible national - and ultimately international - education superhighway (DfE, 1995). After initial consultation, the Government published a policy paper and launched the Education Departments' Superhighways Initiative (EDSI) (DfEE, 1995). EDSI involved 25 pilot projects and related initiatives

involving more than 1000 schools of all types and phases. The schools involved used ICT for a wide variety of purposes including electronic communication (fax, email, text-based and video conferencing), and accessing and creating resources on the Internet. The evaluation findings of EDSI (DfEE, 1997) reported benefits including: improved subject learning across a broad range of subjects and ages; increased differentiation, shift towards project work and a more integrated curriculum; the development of network literacy; improved motivation, attitudes and self-esteem; the development of independent learning, research skills, creative thinking and problem solving; and social development and peer tutoring. However, a word of caution should be included here as the results of such “experiments” with learners may be influenced by the novelty factor. Less likely to be influenced by novelty factors and more central to this paper are the four key benefits for using ICT in management and administration reported in EDSI evaluation. These are:

- Reduced administrative communications costs for schools when contacting other schools, exam boards, local and central Government departments;
- Easier communications in such matters as pupil transfer and liaison on pupils with special needs, and supporting curriculum continuity between phases;
- Teachers able to access the school electronically from home for record keeping, school reports, exam administration; and Training in educational management and administration can be cheaper and enhanced by saving on travel and cover costs.

EDSI undoubtedly influenced what was to follow. However, an election was imminent in the UK and the then opposition, “New Labour”, were campaigning on a platform of improving education. Central to this was their belief in the value of ICT in supporting teaching and learning. In 1995, Tony Blair had promised that if elected, all schools would be connected to the Internet. New Labour also commissioned an independent enquiry into the state of ICT in schools (Stevenson, 1997) informed by a survey “The Future of Information Technology in UK Schools” carried out by McKinsey and Company (1997). The inquiry concluded that the state of ICT in UK schools was primitive and not improving and that it should be a national priority to increase the use of ICT in schools. Stevenson also introduced the concept of an external ICT network to be set up to enable teachers to learn from each other.

Following its election in 1997, the “New Labour” Government introduced a proposal for such a network: the National Grid for Learning, in

its consultation paper “Connecting the Learning Society” (DfEE, 1997b). This can be seen as a direct response to Stevenson’s recommendations. In it the Government outlined its targets for ICT in Education, many of which revolve around the setting up of the NGfL.

### **3. THE NATIONAL GRID FOR LEARNING (NGfL)**

The NGfL was visualised as:

“A mosaic of inter-connecting networks and education services based on the Internet which will support teaching, learning, training and administration in schools, colleges, universities, libraries, the workplace and homes” (DfEE, 1997b:33).

Thus the NGfL was envisaged as supporting all kinds of learners and teachers at all levels, though schools and their teachers were to be the initial focus. The NGfL is conceptualised not just as a website but as an Internet-based on-line communications network linking schools, colleges, higher education, libraries and museums to other education services and web sites. These include government funded virtual teachers’ centres for England, Northern Ireland, Scotland and Wales (see Appendix 1), LEA sites and Intranets, school sites and industry funded sites. Many sites allow and will continue to allow free access, although some sites will require subscriptions or payment. Moreover, the NGfL is seen as having three components, infrastructure, content and practice (Becta, 1999).

#### **3.1 Infrastructure**

It is government policy that by 2002 all schools will be on the NGfL/Internet. To achieve this, £700 million of government funding has been made available to set up access to the Internet (normally ISDN2 or Leased Line), create the infrastructure in schools and replace obsolete hardware. The first schools have received funding and are now connected.

Other aspects of the NGfL, such as setting up 700 ICT learning centres and developing community grids for learning based on public libraries, are also funded but are outside the scope of this paper. The Government is also trying to ensure that telecommunications costs in general, and for schools in particular, will fall. Additionally, the Government has established a system of NGfL Certified Managed Services. Certified (approved) providers will supply educational institutions with a local area network of computers, cabling infrastructure, Internet access, technical support and training (NGfL, 1999).

## 3.2 Content

The Government's aims are ambitious with regard to content. They would like the UK to become a centre of excellence in the development of networked software content for education and lifelong learning and become a major exporter of learning services. To achieve this aim, £50 million is available to create content to support life long learning. Schools and LEAs are also encouraged to develop content and make it available over the NGfL.

## 3.3 Practice

For the NGfL to be a success (i.e. to improve education), teachers must be confident and competent in their use of ICT, and this is another of the Government's targets. Stevenson (1997) highlighted the need for training teachers in ICT, and this was supported by statistics produced by the Department for Education and Employment (DfEE) (1999). Two initiatives were introduced to meet this need. From September 1998, a National Curriculum for ICT (TTA, 1998b) in teacher education became a mandatory part of initial teacher training. In the (northern) summer of 1999, a £230 million, lottery funded (New Opportunities Fund (NOF)) scheme to provide training or re-training for all 500,000 practising teachers and school librarians began, again to be completed by 2002. The curriculum for initial teacher training and the expected outcomes of the NOF training (TTA, 1998a) are, as one would expect, extremely similar. Though the focus of these two schemes is on developing teacher competence in "The Use of Information and Communications Technology in Subject Teaching", administration and management are not ignored. Outcomes in the NOF document include:

"can employ common ICT tools for their own and pupils' benefit, ...and can use a range of ICT resources, at the level of general users *rather than network...managers*' (TTA, 1998a: 9); and

"Teachers should know how to use ICT to improve their own professional efficiency and to reduce administrative and bureaucratic burdens..." (TTA, 1998a:13).

The final target that must be mentioned in this section is the Government's wish to see general administrative communications to schools, by the UK Education Departments, Ofsted, and non-departmental public bodies, and the collection of data from schools, cease to be paper based by 2002 (Becta, 1998). This target has subsequently been modified and quantified - 25% of

communications from DfEE to schools are to be electronic by 2002 (Becta, 1999).

The most recent government initiative, only announced as this paper was being prepared, that will undoubtedly encourage teachers to use ICT, is the "Computers for Teachers Initiative" (NGfL, 2000). Computers for Teachers is a three year, £20 million initiative to assist teachers to buy their own computer by offering a subsidy of up to £500 per person. The subsidy will cover up to half the cost of specified packages and will include free Internet access.

### **3.4 The NGfL site (<http://www.ngfl.gov.uk/ngfl/index.html>)**

The home page of the NGfL site provides links to its various sub-sections: Schools, FE, HE, Lifelong Learning and University For Industry, Career Development, Libraries, Museums and Galleries, Community Grids, International Links, Government and Agencies, and the Learning Resource Index (LRI). Most of these areas do not directly concern schools. Nevertheless, their content may well interest teachers of particular subjects, for example History and Art teachers would find 'Museums and Galleries' useful. Following the 'Schools' link takes users to a somewhat disappointing set of links: the four VTCs; the standards site; governor, parent and special needs centres; Maths Year 2000; Managed Services; and Computers for Teachers. There is no link to Becta, who maintain the NGfL and have their own useful site; this link has to be found elsewhere.

### **3.5 Virtual Teachers' Centre (VTC)**

The main initial focus of the NGfL was originally seen as the creation of a Virtual Teachers' Centre (VTC) (DfEE, 1997b), and this is probably the area that should help teachers most in the area of administration. The reality is that four VTCs have been created (Appendix 1), each of which serves their own area of the UK, though it is obviously possible to access all of them. Each VTC has a different structure and contents, though there are strong similarities between the English and Welsh VTCs. What follows is a brief overview of the English VTC - henceforth VTC. Becta (The British Educational Communications and Technology Agency) manages the VTC for the DfEE. The VTC can be searched by subject (curriculum area), search engine or site map. There are currently six major areas.

1. **Reception**— contains news, copyright, and feedback about the site.
2. **Library** – the library at present mainly contains links to other sites, such as Education Departments and Educational Agencies, information about current projects, and various publications.
3. **Meeting Room** — is designed to act as a starting of point to join various educational forums. Links are provided to many web-based discussion groups (conferences) and details of how to join mailing lists are given.
4. **Classroom Resources** — links at the top of this page lead to: 1000 independent reviews of CD-ROMs; Supporting the Curriculum with ICT, which contains resources developed under the DfEE-funded curriculum IT support projects (and can be searched by subject), and web site reviews; the LRI, which is discussed later; and an Educational Software database. There are also areas for Primary, Secondary, Special Needs and Careers.
5. **School Management** — this area has far more options than any other area. Initially it is divided into sub-groups entitled: Effective Management and Leadership, Financial Resource Management, Data Collection and Information Management, National Curriculum and Raising Standards, School Policies and Procedures, Consultations, and Other Publications. Click on any of these and you are presented with a wealth of further links to sites and documents within those sites. This section certainly appears to be comprehensive when it comes to official publications from the DfEE and other educational agencies concerning all aspects of school education.
6. **Professional Development** — contains support materials from several projects to help teachers enhance their use of ICT; information about and links to PD providers, though these are limited to ICT, including those approved under the NOF training scheme and the TTA; links to subject and professional associations; and, strangely, some links to various sources of classroom materials.

It is apparent when examining the range of facilities offered in the VTC that, with the addition of an email facility, most of the uses of ICT raised in the introduction are available through the VTC. However, the depth and breadth of coverage are open to question, and if this were the only site available to teachers there would be cause for concern.

### **3.6 Learning Resource Index (LRI)** **(<http://www.ngfl.gov.uk/ng/Iri/index.html>)**

This is potentially a very valuable resource for classroom teachers as it should save time in finding resources and planning lessons. However, the

LRI does cover all phases of education so its use will be wider. In many ways its aims are similar to its predecessor NERIS, but is far more ambitious in that it gives NGfL users a ready means of locating sites and resources that are on the Grid. The NGfL also includes links to many educational sites, which lie beyond the Grid itself, and references non-Internet educational resources and support. The rules governing entries to the LRI are stringent and should help to guarantee quality. The search mechanism is effective and simple to use.

### **3.7 Becta(<http://www.becta.org.uk>)**

Becta (British Educational Communications and Technology Agency) is a Government funded agency “...who work to ensure that ICT supports the Government’s efforts to drive up standards...” (Becta, 2000). Becta also maintains the three sites thus far discussed. Since its inception, the Becta site has always been one of the first places for UK teachers to look for help on all aspects of the use of ICT in education. The site was re-launched in January 2000 and now consists of nine main areas – About Becta; News and Comment, including key educational documents; Publications; Schools; Lifelong Learning and FE; Support Providers; Inclusion; International Activities; and Technology Advice and Information. This last area contains many useful information sheets concerning ICT, but unfortunately no longer contains all the school subject information sheets it used to. Mailing lists and forums also exist on the site but users must register for these. Whilst many of the areas mentioned briefly above have implications for administration, the ‘Schools’ area now contains the ‘Senior Managers in Schools’ section (<http://www.becta.org.uk/schools/smanagers/index.html>). This has subsections on ICT policy and planning, Senior Managers’ Conference, NPQH (National Professional Qualification for Headship), Training Providers, News, and Managing with ICT.

The sites detailed above (in Sections 3.4, 3.5 and 3.6) are the probably the main sites on the NGfL, but according to Becta in October 1999 the NGfL contained 250,000 documents from 250 sites (Becta, 1999). Many of these contain information that support teachers in the sort of administrative activities noted in the introduction, and have the sort of benefits highlighted in EDSI evaluation (DfEE, 1997). The sites are there and growing, but are teachers using them?



#### 4. TEACHERS' INITIAL RESPONSES TO THE NGfL

The implementation of the infrastructure for NGfL has been broken down into yearly phases. What follows are some of the results of a survey carried out in a Midlands LEA at the end of the initial hardware installation to provide or enhance Internet access in approximately a third of their schools. Questionnaires were sent to 98 schools and 51 (8 secondary and 43 primary) were returned (52%). The answers to the following questions are of interest.

##### 4.1 Are you satisfied with the equipment and software now it's installed?

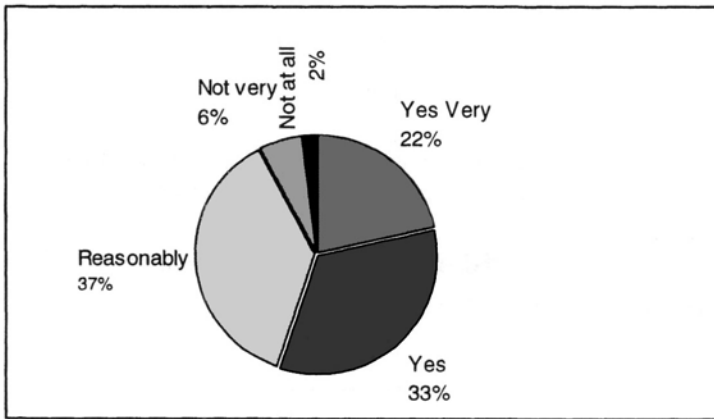


Figure 1. Satisfaction with equipment and software

The majority of the respondents were satisfied or very satisfied with the equipment and software once it was installed. Twenty-seven of the schools commented on the completed installation. Some hardware was causing problems, and hardware fault reports accounted for 19% of comments. A number had problems with software installation and set-up (15%). The company doing the installation was also criticised (19% of comments) for having a not very helpful 'Helpline' and manuals that were 'a bit vague'. However, one respondent commended the support materials and another was pleased that having the new equipment encouraged staff use of the Internet.

## 4.2 Do many staff use the Internet?

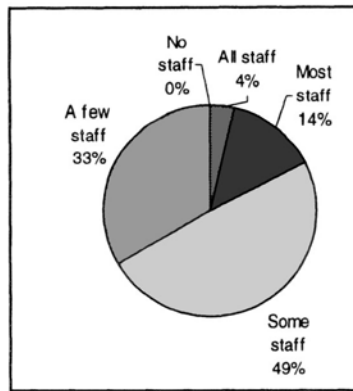


Figure 2. Staff use of the Internet

In every school in the sample at least some staff had tried using the Internet. However, only 4% said that all staff in the school used it.

## 4.3 Do staff feel confident that they can access useful material on the Internet?

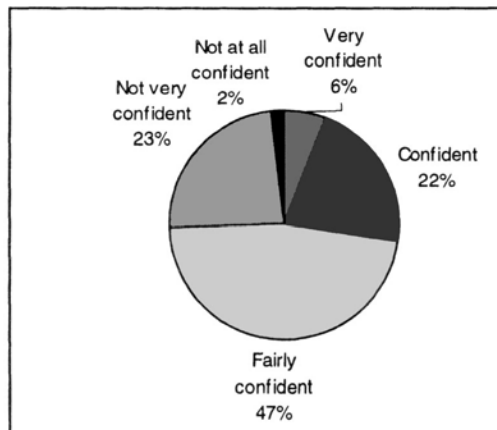


Figure 3. Confidence in accessing the Internet

The majority of staff in schools were fairly confident, confident or very confident about using the Internet.

#### 4.4 Do staff use email?

Table 1. Staff email use

Used in school	Percent	Used outside school	Percent
Yes	34.7	Yes	75.5
No	65.3	No	24.5

Over three quarters of the schools said that staff used email outside school but only 34.7% used it internally at school.

#### 4.5 Which staff regularly use the WWW in school?

A wide range of responses was obtained from this question. The only consistent information was that most schools used the World Wide Web, though 16% of the schools reported that staff did not use the WWW or did not use it regularly. Only 10% claimed that most or all their staff used it regularly. One respondent said that parents also used the web regularly in school.

### 5. CONCLUSION

This paper has examined the background to, and introduction of, the NGfL and the aspects of it that should support classroom teachers in their work.

The results of the Midlands survey show that even at the early stages of implementation, teachers are using the Internet, the WWW and Email, and are confident in their use - though there is scope for far greater and more regular use. Though the survey focused on schools' connection to the Internet, it appears that most use of Email is made from teachers' home computers. Many teachers choose to carry out administrative tasks at home and it is here that the latest Government initiative of supporting teachers in purchasing their own computers (NGfL, 2000) may reap rewards.

The paper has demonstrated that the structures are in place to support the intended outcomes of training teachers in ICT (TTA, 1998a) and the four benefits detailed in the EDSI report (DfEE, 1997) that relate to administrative uses of ICT. Many more sites could have been mentioned as they do offer support to classroom teachers by way of resources, lesson plans, schemes of work, work sheets, assignments, discussion forums, and on-line activities for pupils. However, reviewing sites is not the purpose of this paper and is an impossible task as there are so many. There has undoubtedly been an explosion of educational sites over the last two years

with LEAs, schools and even supermarkets (<http://www.tesco.schoolnet2000.com/>) providing educational web sites. There are, however, problems that must not be overlooked. Teachers will not use the NGfL or Internet unless they have access to hardware and are confident and competent to do so. The UK Government's schemes for improving the infrastructure and hardware in schools will go some way to meeting their aims. More important is the teacher training aspect and this has been problematic in the past (Selwood, 1999). However, the latest government initiative of supporting teachers in purchasing their own computers (NGfL, 2000), coupled with the current training initiatives (much of which involves the use of the Internet), may resolve the situation. It will have been noted in reading this that all government plans end in 2002 – the date of the next general election. Without continued government funding after the next election those sites, and schools' connections to the Internet, currently supported through public money will not survive, the impetus will be lost and targets not maintained.

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## **APPENDIX 1 - VIRTUAL TEACHER CENTRES**

*Table 2. UK virtual teacher centres*

Country	
England	<a href="http://vtc.ngfl.gov.uk/">http://vtc.ngfl.gov.uk/</a>
Ireland	<a href="http://www.nine.org.uk/">http://www.nine.org.uk/</a>
Scotland	<a href="http://www.svtc.org.uk/">http://www.svtc.org.uk/</a>
Wales	<a href="http://vtccymru.ngfl.wales.gov.uk/">http://vtccymru.ngfl.wales.gov.uk/</a>