


Education Departments' Superhighways Initiative

Group B: Vocationally-Focused Projects

Final Report

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Evaluation Methodology and Procedures

1. The evaluation procedures for the projects in Group B necessarily varied according to the context of individual projects, however the following general methodology was employed for all projects.

2. All educational institutions involved in the ten projects were visited by members of the evaluation team, though where a large number of institutions was involved (e.g. London Colleges Multimedia Initiative) a large representative sample was visited.

3. Data was obtained through the use of observation of teaching and learning, through semi-structured interviews with participants at all levels, and through the use of questionnaires using fixed and open-ended response items. Emphasis was placed on eliciting and representing the views of a range of those involved in each project, from learners to teachers and managers.

4. In addition, the evaluation teams analysed project documentation, students' work and minutes of management meetings and, where possible, a member of the team attended project management and steering group meetings.

5. Regular evaluation team meetings were held to ensure a commonality of approach and to inform and refine the methodology adopted and the evaluation foci as findings emerged.

Section 2

Project Information

1. THE VIRTUAL WORKPLACE PROJECT (FORMERLY NAMED BROADBAND SUPPORT FOR GNVQ IT COURSES)

Project context and description

1.1 This project is located in the Greater Manchester area and arose after the original project was subsumed under the GEMISIS 2000 Project umbrella during the summer of 1996 at the suggestion of the DfEE.

1.2 The GEMISIS 2000 Project (Government, Education, Medical, Industrial, Social Information Superhighway) is a partnership between the University of Salford, NYNEX CableComms and the City of Salford which seeks to explore the economic, sociological and technological potential of the Information Superhighway. There are currently two Education projects within GEMISIS: the GEMISIS 2000 Schools Project (see Report B2.3) and this, the Virtual Workplace Project.

1.3 The Virtual Workplace Project is concerned with the support and delivery of the Advanced level GNVQ Information Technology (IT) course by the use of broadband communication technology as a mechanism by which students will have access to relevant interactive multimedia resources, narrowcast programming and video conferencing. The choice of curriculum is based on the fact that IT is both a Key Skill and a transferable skill and, thus, the potential market for the material extends beyond that of Advanced GNVQ.

1.4 The project is being developed in two distinct phases.

Phase I

1.5 This is an evaluation phase which will evaluate the potential of the broadband network, ISDN connectivity and the use of CD-ROMs to support learning through simulated work experience.

1.6 The production of industrial case studies will form the basis of the learning materials, and will be structured in such a way as to meet the learning outcomes and assessment evidence of the GNVQ Units.

1.7 The materials will be evaluated through the teaching of GNVQ students within partner FE colleges, making full use of the broadband connectivity between Salford University, the FE colleges and the industrial partner(s).

Phase II

1.8 During this phase of the project, the case-study materials are to be extended to incorporate other curriculum areas and, as connectivity develops, new industrial partners are to provide additional on-line work experience, thus bringing the Virtual Workplace into the classroom.

1.9 It is envisaged that, once materials are available in a number of curriculum areas, there will be a need to develop a Virtual Workplace Magazine to indicate what may be achieved through the use of Virtual Workplacements, as well as the products and services on offer.

1.10 It is planned that students and lecturers will have access through video-conferencing links to information and organisations which are at the forefront of IT developments and, as a result, the courses will be kept up-to-date, relevant and of immediate interest. The intention is that the method of course delivery will provide employers with the assurance that the students will be studying relevant and current IT practices and, in addition, the CD-ROM case studies will be accessible to different groups of students on demand, so the course will contain the necessary built-in flexibility to make it an attractive qualification for both would-be students and employers.

Project aims and objectives

1.11 The overall aim of the project is to support the delivery of GNVQ Information Technology through the use of broadband communications and, in so doing, to bring the Virtual Workplace into the classroom.

1.12 The project's objectives are:

Phase I

- to identify the elements within the Advanced GNVQ IT curriculum which can be delivered and certificated using the broadband network
- to identify suitable case-study material which can be used in the teaching of IT
- to present the case-study material in a multimedia format for use on the broadband network
- to commence the training of teachers in the use of the materials
- to develop methods of assessment and accreditation for the certification of the students'/trainees' capabilities.

Phase II

- to extend the applications of the project to other curriculum areas.

1.13 In addition, it is proposed that an interactive electronic magazine-style resource, which will promote student interest, will be developed. This is to act as a source of information for the students, provide knowledge about the companies which are involved, give details about any research which is being undertaken, and provide a form of gateway or filter to avoid companies being swamped by routine enquiries from students. The plan is that it will also act as a newspaper, a bulletin board, a video-conferencing phone-in centre and a software/hardware hotline, as well as being an advertising and public relations medium which, it is hoped, will attract funding from local industry.

Location

1.14 During Phase I, the project is located at four institutions: Salford University, where the CD-ROM server is located; Bolton College; Manchester College of Arts and Technology; and Salford College. The latter three colleges are responsible for the GNVQ courses and supervision. During the trials early in

1997, access will also be made available to the Royal Mail offices in Manchester.

1.15 Once the initial trials are complete and connectivity is extended, it is hoped that the digital superhighway can be used to offer this course initially in other parts of the North West of England and then nationally.

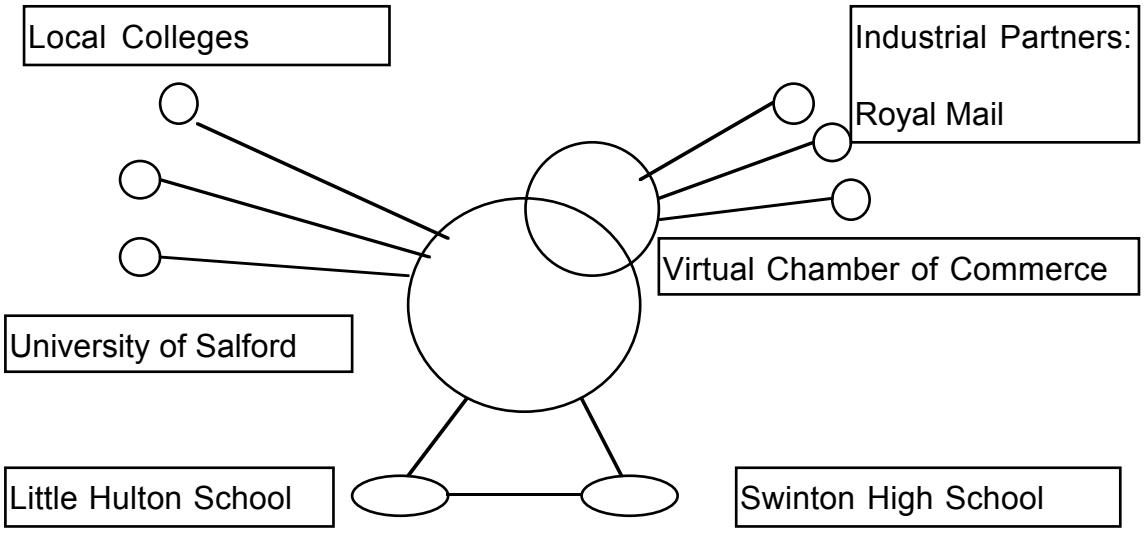
Technical issues

1.16 Connectivity will ultimately be achieved through the NYNEX broadband cable and will link all the institutions indicated in Figure 1. Salford University will house the central CD-ROM server which will provide access to the case-study material. For the 1997 trials, however, it is likely that some links will be via ISDN lines. It is important to note that connectivity between the colleges and the industrial partners (and vice versa) is via Salford University.

1.17 In the original project, the hardware requirements for this system were specified in terms of basic 486 PC equipment. However it is likely that such specifications will not now be sufficient to sustain the planned usage of the software.

1.18 Figure 1 indicates the connectivity which is involved in the GEMISIS 2000 project.

Figure 1



1.19 It should be noted that Little Hulton and Swinton High Schools (see Figure 1) are also involved in the GEMISIS Schools Project, thus establishing a practical link between the two projects.

1.20 The Virtual Chamber of Commerce acts as a focus by which the GEMISIS project hopes to deliver effective services to business. These services will be provided by agencies such as the Manchester Training and Enterprise Council (TEC), Business Link, and the Manchester Chamber of Commerce, as well as the University of Salford and other industrial organisations. A range of targeted pilot initiatives, utilising broadband and multimedia technologies alongside the large-scale introduction of narrowband, intermediate and broadband services to business, are planned to provide opportunities for companies to progress from narrowband to broadband services. In addition, the project is to establish video-conferencing facilities at a number of locations in the Greater Manchester area.

Sponsorship and partners

1.21 The original project was totally reliant on funding from sponsors; namely, Salford University, NYNEX, IBM, Royal Mail, Manchester Training and Enterprise Council, and UBI (Understanding British Industry). This original project encountered difficulties (chiefly funding and management) and, during the summer of 1996, was subsumed under the GEMISIS project umbrella, with a new management team from the University of Salford in place.

1.22 GEMISIS is essentially a partnership between the University of Salford, the City of Salford (representing the City Pride Region) and NYNEX CableComms. The chief objectives of the GEMISIS 2000 programme are to develop information technologies which achieve maximum benefit to the community; to promote economic regeneration; to forge links between the private and public sectors; to improve the quality of life for the community; to provide test-bed sites for multimedia activities and initiatives; to develop the University of Salford as an international education and training and consultancy centre for the new telecommunications and cable industry; and to develop joint applications between the University of Salford and NYNEX CableComms.

1.23 Many of the original project partners remain and the current ones are: Bolton College, British Gas, CBI/UBI, IBM, Manchester College of Arts and Technology, Manchester Training and Enterprise Council, NCVQ, NYNEX CableComms, Royal Mail, Salford City, and Salford College.

Project evaluation

Project management

1.24 At top-management level, there is the Director of the GEMISIS 2000 Project and representatives of the three GEMISIS partners (one from Salford University, one from NYNEX CableComms and one from Salford City Council).

1.25 The Virtual Workplace Project champion is from Salford University and liaison with industry is undertaken by a representative from UBI. The co-ordinator for the project, who is from Salford University, is also a member of the core team responsible to the GEMISIS 2000 project director.

1.26 The day-to-day running of the project is the responsibility of the project co-ordinator and this is overseen by the Project Working Group, which comprises representatives of the partners involved in the project, namely, Salford University, NYNEX, Royal Mail, Manchester TEC, IBM, NCVQ, British Gas and the FE colleges. The Project Working Group reports in turn to the GEMISIS 2000 Steering Group.

Evaluation visits and procedures

1.27 Because of the difficulties experienced in this project, the evaluation visits have been necessarily restricted to attendance at Steering Group Meetings and discussions with the project management team.

Progress and achievements

1.28 One of the perceived difficulties with the original project (along with finance and management), which ultimately led to radical restructuring, was the lack of progress in achieving some of the short-term project objectives. Since becoming a GEMISIS project, there is now an assurance of a sound financial base upon which the objectives of the project can be achieved. The new management is now in place, the project has been launched as an official

GEMISIS project and materials have been produced by Royal Mail in CD-ROM format. Evaluation trials were undertaken in three FE colleges during the Spring term of 1997.

1.29 The first case study to be developed is based on the activity termed Automatic Processing Control (APC) which is used in Royal Mail postal sorting offices. The software is essentially an interactive simulation of this activity which also embodies a 'tracking' system so that teachers are able to monitor student progress. The software requires password access and records student performance on a series of set tasks geared to GNVQ requirements. The simulation comprises still drawings, text, sound, animation, run-time video and multiple-choice question banks. All the set tasks use 'real' data and are targeted at different ability levels. Additional support is to be provided by Royal Mail through a video-conferencing link.

1.30 Broadband connectivity is as yet incomplete. However, the trials will be undertaken so that an evaluation of the initial materials can be reported before more widespread usage is adopted.

Costs and cost effectiveness

1.31 The overall funding for the GEMISIS 2000 Project has been provided by the European Regional Development Fund. However, it is important to note that there is no direct source of funding for the project champions or Working Groups in the GEMISIS projects and each project is dependent upon generating money based on outcomes.

1.32 In Phase I, the estimated budget is as follows:

Material development costs £20K
Administration/project support £10K

1.33 All hardware necessary to run the project in the colleges will be provided by the colleges. The University of Salford will provide the file servers, with the industrial partners providing their own hardware to develop the case studies.

1.34 It is too early in the lifetime of the project to comment on the cost effectiveness, since it is only recently that the trials have taken place and, as yet, there have been no large-scale applications of the materials.

1.35 One clear beneficiary of the project will be the students, since the project provides an opportunity for them to gain experience of the workplace without leaving the classroom and, as a result, either replaces the need for students to undertake industrial visits and/or helps prepare students for their first work placement.

1.36 It is anticipated that, once the project gathers momentum and the complete set of learning resources are produced and available, then this will have a significant effect on the way in which GNVQ IT courses are delivered both locally and nationally as more FE institutions avail themselves of the resources produced from this initiative.

1.37 The project has increased the liaison between the colleges and local industry, and has underlined the importance of developing up-to-date contextualised training materials since, in a technological world, developments are undertaken at an alarming speed, and it is important that industry, commerce and education work together to deliver appropriate training.

Commentary and recommendations

1.38 Since becoming a GEMISIS 2000 Project, the Virtual Workplace Project has now acquired a strong management team and an assured financial base. The general aims and objectives of the new project are in many ways similar to the previous project, but they have been put into a more realistic time-scale, and current developments would indicate that the short-term objectives should be realised.

1.39 It is somewhat disappointing that one of the major features of the project, the broadband connectivity, is not yet fully in place and there appears to be no accepted time-scale for this to be achieved. Such connectivity depends solely upon one of the project partners, NYNEX CableComms, physically laying appropriate connections to the institutions involved in the project. However, cable connectivity cannot be established by laying disparate sections of cable without intermediate connectivity and, thus, some aspects of this project will be dependent upon progress made by NYNEX. In the meantime, the case-study trials will proceed and the materials developed will be evaluated in their CD-ROM format, with any video conferencing achieved over ISDN links. This poses technical and management problems which are quite different from those which would be expected from using a central server at Salford University and accessing the materials over broadband cable connections. Thus, the trialling evaluation is likely to be valuable in a pedagogical rather than a technical sense.

1.40 It has taken several months for the initial materials to be developed by Royal Mail (the software development started during the original project) and the costs of this development have been borne by Royal Mail. Although the materials have not been evaluated in use during the EDSI evaluation period, they appear on demonstration, and from initial responses from project personnel, to be more than satisfactory. However, the project does rely for its ultimate success on bringing the workplace to the classroom, and this would require a variety of case studies to be produced. How this will be achieved during the lifetime of the project is unclear. Organisations have to be approached, finance has to be raised, software has to be produced and trialled, all of which takes considerable time and patience as well as organisation. It is to be hoped that steps can be taken to ensure that such work is started once the initial trials with the Royal Mail materials are complete and the early potential of the project has been achieved.

1.41 The value of the project in terms of developing support for the Advanced Level GNVQ IT course is clear to see and this should be indicated in the initial trials. However, to extend this beyond the restricted usage of a number of FE Colleges within the Greater Manchester area may pose serious problems, in terms of broadband connectivity, to the file server at Salford University, if, as envisaged, many other FE Colleges wish to use the materials. What may be an appropriate strategy to overcome 'bottleneck'-type difficulties is to have 'mirror' sites at other institutions, or to look to other forms of material distribution, such as the Internet. Such problems may resolve themselves in the long term since this course support is available at any time of the day and, consequently, slack periods may develop when institutions or individuals may log in without difficulty.

1.42 Video-conferencing links to support the delivery of courses are ideal in theory, but, in practice, they will encounter difficulties once the project begins to gain momentum and it is not difficult to imagine times when the providing institutions/businesses will be approaching demand overload. It is difficult to see how such problems may be resolved without some form of time rationing.

1.43 It is particularly important that projects which rely so heavily on sponsorship and the active involvement of partners should establish mechanisms whereby ideas and responsibilities can be identified. This project now has such a mechanism through its Working Group, which has links to all of the partner organisations and through the project co-ordinator with the management team at GEMISIS.

1.44 Whilst there are many worthwhile, and perhaps unique, features to this project, it really depends upon the broadband connectivity being in place for it to realise its full potential. This effectively makes it dependent upon the industrial and commercial partners to respond to the requirements and responsibilities they have been asked to undertake.