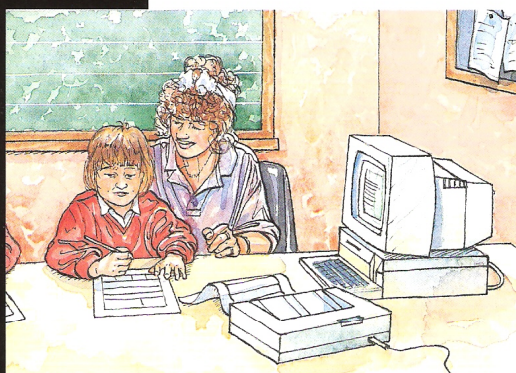


LEARNING TECHNOLOGIES

Open Learning in the Classroom

AUTOMATING RESOURCE-BASED LEARNING

The National Curriculum has created further challenges for teachers with new Attainment Targets and syllabuses generating a host of non classroom based duties.



Much educational software has been developed, but until now, little of it has been specifically to help teachers cope with these everyday burdens of organisation and administration. The need to free teachers to pursue their objective of progressing mixed ability classes successfully through a school curriculum is paramount.

HyperSMILE is a unique software facility, the development of which was part-funded by the Employment Department. It simplifies record keeping and helps teachers with the vital management of learning, monitoring and assessment of pupils' needs so that progress to nationally recognised standards is optimised.

HyperSMILE software is now being used by teachers of secondary school mathematics who have adopted SMILE – a unique scheme for teaching the subject .

SMILE – The Forerunner of HyperSMILE

The Secondary Mathematics Individualised Learning Experience (SMILE) is a scheme for teaching mathematics originally developed by a group of London-based teachers.

Faced with a disparate student population reflecting cultural differences and with varied learning needs, the teachers felt that existing learning materials were inadequate for teaching mathematics to mixed ability classes. SMILE activities consist primarily of workcards



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LEARNING METHODS CASE STUDY

and worksheets but also include computer programs, posters, games and puzzles; there are now over 1500 activities, and new units are constantly being added.

All materials are structured by subject area, degree of difficulty and National Curriculum Attainment Target and displayed on an easy reference chart index, known as the SMILE 'network'. This also acts as a recording device for the activities undertaken by students.

A pupil works through a 'matrix' of up to ten activities, recording his or her answers. After completing the 'matrix', tests from the test book are tackled and then marked by the teacher. Results, along with any comments, are recorded on a record sheet and on the SMILE network. The pupil then progresses to the next 'matrix' of work.

A Dynamic Approach To Classroom Activity

Using SMILE, the size of working groups can vary from individuals to whole classes.

The SMILE network is updated annually with new activities which are always designed by teachers, and it can reference other sources of learning materials.

This dynamic and flexible approach enables teachers to continually select individually tailored sets of work for each student, ensuring that the speed of progress is right for each.

SMILE is constantly changing, reflecting new ideas in teaching and, being teacher-led, is easily adapted to changing educational circumstances.

First Steps Towards HyperSMILE

By the late 1980s SMILE had become so complete a resource that the administration of the system was becoming a burden. Teaching priorities were being overtaken by the need to maintain records and manage the whole learning process.

ITCU, an educational research and development charity with a strong reputation for innovation in training and education, approached the Employment Department with a proposal to automate some of the administration of SMILE.

Their objective was not only to speed up some parts of the administrative process but also to provide improved information management for teachers.

It was at this point that the Employment Department formed a project partnership with ITCU.

Project Aims

ITCU identified four problem areas in the paper-based SMILE that would benefit from computerised solutions.

- 1 PROBLEM:** As the number of SMILE activities increased, it became more difficult for teachers to keep abreast of their content – particularly those new to SMILE.

L E A R N I N G T E C H N O L O G I E S

SOLUTION: An example of each of the activities was put onto a CD ROM, with a browsing facility which allowed the instantaneous display of any activity. Teachers were thus less reliant on their memories and began to be more adventurous with SMILE, for example linking complementary units of work.

2 PROBLEM: Multi recording of students' work – on the network, on a record sheet and for the student – is onerous and time-consuming.

SOLUTION: Software was written which allowed single entry recording of all activities in a matrix with automatic generation of all necessary versions.

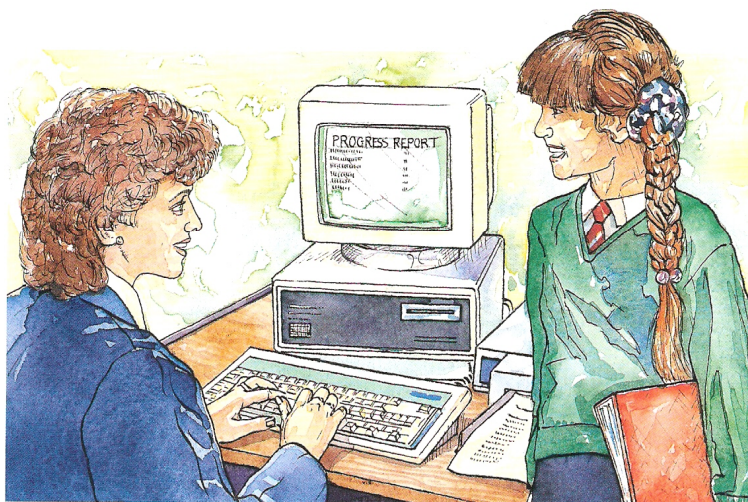
3 PROBLEM: Students were spending too much time locating tests in test books and teachers did not always have adequate stocks of worksheets to hand.

SOLUTION: To provide a facility by which tests were automatically compiled and printed for a matrix of work, with worksheets. Less time was wasted looking up tests and for the first time pupils were able to take tests home.

4 PROBLEM: Marking tests was a lengthy process, involving finding answers in a large answer folder and recording results in more than one place.

SOLUTION: To provide answers on screen, with a single-entry facility to simultaneously record results in several places.

ITCU knew that software developed in Hypercard, a development medium for interactive text and graphics on the Apple Macintosh, had to make the resource base accessible to users and allow close tracking of students' learning progress. This would not



only be of enormous benefit to SMILE but to any resource-based learning system, in any subject, at any level.

Trials and Feedback

Independently assessed trials for HyperSMILE were conducted in four schools and with a disabled teacher who had found it difficult to use the paper-based SMILE management system.

In the first year, HyperSMILE software was constantly updated as new facilities were completed and, whilst HyperSMILE facilities were considered useful, the drawback was that ITCU was unable to condense the double A3 sized SMILE network onto a Macintosh screen.

However, a later version of Hypercard allowed screen scrolling. Additional design modifications to the user interface were added after consultation with teachers and a second version was released for trial.

Further Enhancements

This time HyperSMILE was an immediate success.

The improved user interface and extra information-handling features allowed teachers to improve their monitoring of students' progress and precipitated requests for more features to help with GCSE assessment and profiling.

The solution was to allow the easy export of HyperSMILE data to other software packages, so that data could be manipulated at will.

Changes have been made to HyperSMILE to reflect the National Curriculum for mathematics. The system now covers the five Attainment Targets in over forty subject areas at ten different levels of difficulty.

SMILE itself is now in use in 7 per cent of UK secondary schools as well as abroad. It is hoped that the savings in time and effort realised with HyperSMILE will encourage users to switch from the paper-based system and that it will introduce SMILE to many more teachers.

A Promising Future

HyperSMILE has proven its ability to incorporate changes in teaching methods and trends and has led to the full flexibility of resource-based learning being enjoyed by increasing numbers of mathematics students.

It helps teachers to increase the effectiveness of their work, makes the mundane tasks of record-keeping easier and quicker and provides better information about the needs of mathematics students.

ITCU is set to develop a generic system that can be applied to any subject and any learning materials. Immediate plans include adapting the package for other science-based subjects.