Office for Standards in Education

2004 Report: ICT in schools – the impact of government initiatives

Secondary business education

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Contents

Introduction

This report is based on subject-specific evidence from visits to secondary schools, made as part of the inspection of the impact of government ICT initiatives between April 2002 and December 2003, and supplemented by other inspection evidence where appropriate. This contributed to the main report, *ICT in schools*, which is available from the Ofsted publications centre (07002 637833) or via the Ofsted website (www.ofsted.gov.uk).

The relationship between business education and ICT is multifaceted: ICT is used to enhance teaching and learning; business education provides a context for developing ICT capability; and understanding how ICT is applied in business is included in many business studies examination courses. This report focuses primarily on how effectively ICT is being developed to improve teaching and learning, and raise standards in business education.

Main findings

- ❑ Business education departments are often at the forefront of using ICT in secondary schools, but in one school in six the use of ICT to enhance teaching and learning is unsatisfactory.

- ❑ Business education generally makes effective use of ICT for the purposes of presentation, research and data handling. Its use beyond these areas is less well developed.

- ❑ Good use is often made of the internet to research companies and obtain up-to-date statistics and other information. However, in some lessons pupils spend too much time browsing the internet and are indiscriminate in their use of material.

- ❑ Many business teachers, particularly newer recruits to the profession, are competent in using ICT and have a good understanding of how ICT is applied in business.

- ❑ New Opportunities Fund (NOF) training made a significant contribution to improving the quality of teaching in only a small minority of the schools visited. Other subject-specific training, such as that provided within departments and which built on prior knowledge, generally proved to be a more effective approach.

- ❑ Business education departments generally have good access to computers and other ICT facilities. Enhanced funding, made available through the National Grid for Learning and specialist business and enterprise designation, has been significant in improving the quality and access to ICT in many schools.

- ❑ ICT is generally integrated into schemes of work and departmental development plans. However, monitoring of ICT tends to focuses on the quantity of use, rather than its impact on teaching and learning.

❑   There are increasing numbers of departments which make very effective use of their intranet sites to support teaching and learning.

The impact of the initiatives

Teaching and learning in business education

Business education teachers generally make effective use of ICT in their teaching. Evidence from school inspections shows that good use is made of new technologies in business education in over half of schools. However, it remains unsatisfactory in approximately one in six schools. These statistics are reflected in the sample of schools visited to inspect the impact of government initiatives in ICT.

Many business education teachers have a good knowledge and understanding of ICT. This is particularly true of newer recruits to the profession, many of whom have experience of using ICT in business. The most effective use of ICT is made in those departments where teachers and pupils have immediate access to ICT, including the internet. In several of the schools visited, very good use was made of interactive whiteboards or data projectors linked to the internet or school intranet as an integral part of lessons.

In an advanced-level economics lesson, students were first asked to discuss what the relationship might be between the rate of inflation and the level of unemployment. The teacher then used a data projector, linked to an internet website, to show the trends in the statistics over the past ten years in the UK. This gave students the opportunity of testing their hypotheses and led to a discussion of issues such as time lags and causative relationships. Statistics from several other countries were then presented, enabling students to make comparisons. Students then had the opportunity to carry out their own further investigations on the data.

The use of ICT enhanced the teaching in this lesson because it provided immediate and up-to-date access to a wealth of statistical information, enabled the teacher and students physically to point out trends and relationships on the graphical representation of the data and gave the opportunity for students to carry out their own interrogation and manipulation of the statistics.

Teachers are making increasingly effective use of computers to prepare lessons and classroom presentations. The rapidly changing nature of business education means that teachers frequently need to revise and update their teaching resources. Computers, particularly with increasing access to laptops, helped teachers to achieve this in the schools visited.

The most effective teachers are aware of the problems associated with learning using ICT. In particular, they are alert to the fact that better presentation does not necessarily reflect better business understanding. Asking 'what if' type questions of business computer models is a powerful way of developing pupils' understanding of key concepts.

Often insufficient use is made of such strategies, and they are confined to particular areas of the syllabus, such as break-even analysis and cash flow forecasting.

Weak and sporadic use of ICT in teaching is often associated with poor access to ICT facilities. Difficulties in booking facilities or unreliable equipment are the most frequently cited reasons for not making more use of ICT in teaching. In a small minority of cases, teachers are not convinced that using ICT adds value to their teaching. They also argue that most examination courses in business studies and economics do not require students to use ICT or demonstrate an understanding of it. They argue from their experience that it is possible for students to obtain the highest grades in some business studies courses without ever using ICT and with very little knowledge of how it is applied in the business world. Given the importance of ICT in business, such a situation is a cause for concern and one that needs to be addressed by the Qualifications and Curriculum Authority (QCA) as qualifications are reviewed.

In some lessons, teachers make inappropriate use of ICT. Knowing when and when not to use ICT is an important skill. The assumption that pupils busily engaged on computers are also learning something is a false one. For example, some pupils spend large amounts of time trying to find out information from the internet when it is more readily available in a textbook; or they try to produce complex diagrams on the computer when they could be more rapidly drawn by hand.

Pupils and students generally make good use of ICT in business education to present their work, to analyse data and carry out research. In a small minority of schools, the use of ICT is confined mainly to word-processing coursework. Greater use tends to be made of ICT in vocational courses, such as the Advanced Vocational Certificate of Education (AVCE) and General Certificate of Secondary Education (GCSE) applied business, than in GCSE and GCE AS/A2 business studies.

There is good evidence that the use of ICT in business education helps increase pupils' motivation. Many pupils, particularly boys, opt for business courses at least partly because they often include a strong ICT component. Access to real examples through the internet helps to bring relevance to courses. Word-processing improves the appearance of work for pupils who experience difficulties with handwriting. However, in some lessons pupils spend too much time on computers at the expense of other forms of learning, particularly whole-class discussion.

Standards and achievement in business education

Departments making extensive use of ICT tend to be ones in which pupils achieve well, but it would be wrong to assume a directly causative relationship. These same departments are often well managed, have effective teachers and provide good accommodation; and there are some very effective departments which do not make extensive use of ICT.

ICT was judged to have had a significant impact on raising standards and achievement in business education in three quarters of the schools visited. However, there were relatively few schools where ICT was judged to have made a very significant impact.

Inappropriate use of ICT in a small minority of schools had a detrimental effect on standards and achievement.

The most significant impact of ICT on achievement has been on the quality of coursework presentation. Portfolios are often produced to a high standard and include good quality word-processing or desktop publishing, graphical representation and imported pictures. The ease of redrafting and restructuring work has generally led to work which is better and more clearly presented. This is particularly important in vocational courses where there is a greater emphasis on coursework assessment. However, there are distinct dangers. Coursework is meant to be original, but word-processing makes it easy for students to copy material from each other or from other sources. Well-presented graphs and charts, generated almost instantaneously by the computer, sometimes conceal pupils' lack of understanding about what they show and how they might be interpreted. The most effective teachers hold individual discussions with pupils to check whether the work was original and to test the extent of their understanding. Coursework portfolios also reflect better and faster access to the internet that has enabled pupils to obtain up-to-date information and data. However, the interpretation and evaluation of this information are the keys to raising standards and achievement. Too often, large quantities of information are downloaded into coursework with little understanding or critical awareness of its content.

The quality of students' presentations has improved with the greater availability of data projectors and increased emphasis by teachers on discussion with students about the assessment criteria for an effective presentation. Where this has not occurred, students tend to put too much text on each page, use too many different fonts or introduce too many special effects.

Good achievement in using ICT for data analysis was observed in several schools. Typically, this involved analysing data collected from questionnaire surveys carried out by pupils, for example as part of a market research assignment. This was most effective when it followed a discussion about what type of data analysis was most appropriate and the statistical significance of any findings.

Increasingly effective use is being made of the internet to carry out research. This has been helped by improved technology, particularly broadband connections. Good examples were observed of students researching company websites, finding out about particular products or investigating different geographical areas. The following example is from a GCSE business studies lesson:

Pupils were provided with information from a local newspaper on property prices and then asked to predict whether they thought prices might be higher or lower in different parts of the country. Pupils then worked in pairs to investigate property prices in one of five towns, using the internet. The teacher provided guidance on finding appropriate websites if pupils failed to make progress after 10 minutes. Each pair then compared findings with other pairs who had researched the same town. The results were then discussed as a whole class and compared to their original predictions. Finally, pupils were set the task of presenting the data, together with their conclusions, using computers.

This lesson made effective use of ICT to obtain up-to-date information, which was not readily available through other sources. A brisk pace was maintained by the teacher who made appropriate interventions when pupils experienced difficulties.

Some poor use of the internet was observed, with pupils spending too long browsing websites. The most effective departments invested time in developing students' research skills, gave guidance on which websites were likely to be most useful and helped students develop a critical awareness of the information they identified.

There is less good work using ICT for other applications, but there are some notable exceptions. For example, in a GCSE business studies lesson, stock control was taught using a simple computer model. Pupils' understanding of concepts such as minimum stock levels, restocking and destocking was developed by looking at the effects of changing circumstances, such as falling sales. In an AVCE business lesson good use was made of a basic accountancy package to develop students' ability to draw up and interpret company balance sheets. The computer program enabled them to model the effects of changes in particular assets and liabilities. Effective use of spreadsheets was also observed in developing students' understanding of cash flow forecasting and break-even analysis.

In a General National Vocational Qualification (GNVQ) intermediate lesson, the teacher checked students' understanding of break-even analysis and then set them the task of producing break-even graphs manually and by computer, using spreadsheets. Students timed how long each approach took. The pros and cons of each approach were discussed. Students were then set a series of 'what if' questions by introducing changes to costs or revenues. The effects of the changes were predicted and some were carried out both manually and on the computer, with the outcomes again being compared.

The lesson made effective use of ICT as it demonstrated the benefits of using spreadsheets for modelling while ensuring students understood the methodology involved by carrying out some of the tasks manually. Students developed a better understanding of break-even analysis by being able to make rapid changes to the data and immediately observing the effects on the graph.

Achievement in business education is often high where business scenarios are used to provide realistic contexts to develop ICT capability, as in the following example.

The school bases much of its Key Stage 3 ICT program around a simulated business. This provides pupils with the opportunity to develop their skills in word-processing and desktop publishing, spreadsheets, databases and multimedia presentations. It also helps them gain knowledge of business vocabulary and an understanding of basic business concepts which are clearly identified in the scheme of work.

Such contexts are no guarantee of high achievement. For example, pupils' understanding of business vocabulary and concepts were not improved where, in a GNVQ intermediate ICT lesson, students entered financial data on spreadsheets without fully understanding the meaning of costs, revenues and profits.

Implementation in schools

Leadership and management

Leadership of ICT in business education was good in just under half the schools visited. It was unsatisfactory in one in five of the schools. Leadership was most effective when the head of department had a good understanding of the potential for using ICT in the subject, a clear vision of how it should be developed in the department and where staff were encouraged to share expertise and good practice.

Aspects of ICT were included in nearly all of the departmental development plans in the schools visited but the emphasis was mainly on increasing resources, rather than improving teaching and learning by using ICT. The most effective plans made it clear how improved ICT resources were expected to lead to better teaching and higher standards of work.

The most effective use of ICT occurs where it is identified and specifically planned for in schemes of work. This was done well in just over half the schools visited and was satisfactory in nearly all the other schools. However, it was relatively rare for ICT to be separately assessed or evaluated, except where it was a specific part of the course.

The use of ICT was monitored either formally or informally in most of the schools visited. However, nearly all monitoring was concerned with the quantity of use, and there was very little evaluation of the impact of ICT on achievement. This meant that most departments were unable to make value-for-money judgments about the deployment of ICT resources. Very few departments were able to say with any certainty what ICT resources and types of teaching strategies were having the most impact on raising standards and achievement.

Many business education teachers make good use of ICT for administrative purposes. ICT was commonly used in the schools visited for recording assessments and tracking pupils' progress. There is evidence too of increasing use of electronic attendance registers and mark books, although they are not yet a feature of most of the schools.

Staff development

Much of the early NOF-funded training was ineffective in business education. This was mainly because it did not take sufficient account of teachers' prior knowledge and understanding of ICT and was too generic in nature. Many business studies teachers already had a strong background in ICT and gained little from the training. Later training often recognised these deficiencies by attempting to align it more closely to the individual needs of teachers and making it more subject specific. It was best received when it focused on improving teachers' confidence in using more advanced software applications, such as relational databases, or developing their abilities in web-page design. In-house training was judged to be more effective than NOF training in many schools, mainly because of its greater flexibility and better match to teachers' needs. However, in many schools, insufficient emphasis was given in the training to how ICT might help raise standards and achievement.

Resources and accommodation

Accommodation for ICT was good or very good in two out of three of the schools visited and satisfactory in nearly all others. There was good access to ICT in nearly all departments, with many having their own computer suites, interactive whiteboards and data projectors. This was most often the case where a combined ICT and business education faculty had been established. This is a more positive picture than from the evidence from section 10 inspections, which identifies accommodation as unsatisfactory in one school in eight. Some schools do not have any specialist accommodation for business education. In others, the shape of rooms, particularly where they were long and narrow, made whole-class teaching difficult.

The government initiative to provide teachers with laptops had a significant impact on improving access to ICT in over half of the schools visited. Additional funding had been provided from other sources in some of these schools to enable all members of the department to have a laptop. Good use was made of the laptops for the purposes of administration, accessing the internet, preparing resources and classroom presentations.

The high coursework content of some business courses means that pupils need to use computers outside of lessons to research information and present assignments. Pupils generally had good access to computers in the schools visited in non-teaching periods, during lunchtimes and outside normal school hours. A high proportion of pupils also had access to computers at home, including the internet. However, in some schools, up to one in five pupils did not have computer facilities at home, raising issues of social inclusion.

The provision of computer software was good in just under half the schools visited and unsatisfactory in about one in ten schools. Most of the software used was generic and there was little evidence of schools making use of commercially produced software to enhance or reinforce learning. This is in part due to a dearth of up-to-date and high-quality resources, particularly for use at Key Stage 4. Some good multi-media software has been produced for the GCSE applied business course but this is often expensive for individual schools to purchase. There are some good-quality business games and simulations for use on advanced-level courses, but there is a lack of similar material for use in GCSE and GNVQ intermediate courses.

Increasingly effective use is being made of departmental intranets to provide resources for pupils and students, and to support their learning.

In a sixth form college, resources to support all economics and business studies syllabuses could be accessed by students. These included lesson notes, which provided reinforcement and valuable support to students who were absent. The resources were regularly updated and contained links to useful internet websites. The intranet was also used to remind students of deadlines for coursework and homework assignments, record assessments and provided up-to-date information on current developments. Plans were in place to provide secure access to the site from home.

A few departments are piloting the use of virtual learning environments to provide access for teachers and pupils to resources from home and to exchange ideas and raise questions through chat rooms. The work is still at a very early stage of development but offers considerable potential for the future.