Uses of ITC in Modern Education System

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Information Technology in Education is the effect of the continuing developments in information technology on education. The pace of change brought about by new technologies has a significant effect on the way people live, work, and play worldwide. New and emerging technologies challenge the traditional process of teaching and learning and the way education is managed. Information technology, while an important area of study in its own right, is having a major impact across all curriculum areas. Easy worldwide communication provides instant access to a vast array of data, challenging assimilation and assessment skills. Rapid communication, plus increased access to IT in the home, at work, and in educational establishments, could mean that learning becomes a truly lifelong activity—an activity in which the pace of technological change forces constant evaluation of the learning process itself.

The IT strategy for schools was initially developed in England, Wales, and Northern Ireland through the government-funded Microelectronics Education Programme. Then followed the Microelectronics Education Support Unit, which provided professional support to local education authorities. This merged in 1988 withthe Council for Educational Technology to become the National Council for Educational Technology, with the wider remit of evaluating and promoting the use of new technologies in education and training. NCET was a registered charity, funded primarily by the Department for Education and Employment. Between 1991 and 1995 twelve mill ion of government funding was made available through NCET for the purchase of CD-ROM systems by schools and the development of curriculum materials. This strategy resulted in over 90 per cent of secondary schools and more than 30 per cent of primary schools in England having access to CD-ROM systems, and in the development of an independent market for CD-ROM hardware and software for schools. Similar initiatives of varying scales and technologies, including portable computers for teachers, communications technologies, multimedia desktop computers, satellite technologies and integrated learning systems and

libraries, have all contributed to keeping UK schools up to date with changes in technology. Research conducted by NCET showed clearly that IT changes what people learn and how they learn it.

After Labor came to power in May 1997, there was a marked changein government strategy in information and communications technology(ICT) for schools and colleges. Much of this strategy was based ondeveloping a National Grid for Learning (NGFL). The concept was of amosaic of networks and content providers linked together to create anationwide learning network for schools, colleges, libraries, and, eventually,homes. To achieve this the government set targets for the year 2002: allschools should be connected to the NGFL, all teachers should be competentand confident to teach with ICT, all students should leave school with agood understanding of ICT, and all transactions between central and localgovernment and schools will be electronic. Plans were also made forsubstantial teacher-training programmes across the United Kingdom; thescheme was run by the New Opportunities Fund (NOF), which reported in2000 that, to that date, almost half of the teachers in England had registeredfor ICT training.In 1996 there was an average of 96 computers per secondary school and 13 per primary school. Despite this positive picture, hardware provision is variable, with some schools having a computer-to-pupil ratio of 1 to 3, while others have a ratio of 1 to 60.

The provision of hardware and software resources varies substantially in further education (FE) colleges. Learning resource centres now often contain learning materials published on CD-ROM, and most colleges are connected to the Internet. These technologies have the potential to develop "virtual campuses" and thus increase student access and participation. Although there is a trend towards individualized programmes of study for students, little use is made as yet of computer-managed learning. A programme of training in educational technology for FE staff called the Quilt initiative was launched in February 1997 as a joint initiative between NCET, the Further Education Development Agency, the DfEE, and FE colleges.

A high-speed broadband version of this network, Super JANET, is being developed. It currently links 60 universities and enables high-quality moving video to be networked for remote teaching and research purposes. In 1993, through the Teaching and Learning Technology Programme, the Higher Education Funding Council provided over software materials to support the university curriculum. Use of such materials is encouraged by 20 university set up under the Computers in Teaching Initiative. The use of the Internet and CD-ROM to access information continues to grow. In 2000 the Higher Education Funding Council for England (HEFCE) announced a new project, the "e-University", to develop web-based learning for higher education institutions.

As part of the IT curriculum, learners are encouraged to regard computers as tools to be used in all aspects of their studies. In particular, they need to make use of the new multimedia technologies to communicate ideas, describe projects, and order information in their work. This requires them to select the medium best suited to conveying their message, to structure information in a hierarchical manner, and to link together information to produce a multidimensional document.

In addition to being a subject in its own right, IT has an impact on most other curriculum areas, since the National Curriculum requires all school pupils from 5 to 16 years to use IT in every compulsory subject.Science uses computers with sensors for logging and handling data;mathematics uses IT in

modeling, geometry, and algebra; in design andtechnology, computers contribute to the pre-manufacture stages; formodem languages, electronic communications give access to foreignbroadcasts and other materials; and in music, computers enable pupils tocompose and perform without having to learn to play traditionalinstruments. For those with special educational needs, IT provides accessto mainstream materials and enables students to express their thoughts inwords, designs, and activities despite their disabilities.

Communication Technologies in Education and Training

The use of communication tools such as e-mail, fax, computer, andvideoconferencing overcomes barriers of space and time, and opens newpossibilities for learning. The use of such technology is increasing, and itis now possible to deliver training to a widely dispersed audience bymeans of on-demand two-way video over terrestrial broadband networks.Many schools have gained experience of communications through e-mailand electronic conferencing systems that run over the telephone network.

Schools and colleges are making increasing use of the Internet. In1997 all FE colleges, most secondary schools, and some primary schoolshad access to the Inter let but it was expected that all schools would beonline by 2002. Schools use the Internet both to access materials, people,and resources, and to display their own Web pages created by teachersand students. The use of videoconferencing is growing slowly and hashelped some students learn foreign languages by talking directly to otherstudents abroad.

Computer Based Management Information Systems

Following a government initiative with LEAs in 1987, schools have made increasing use of computers for administration. The 1988 EducationAct gave schools the responsibility for budgets, teacher and pupil records, and many other day-to-day administrative tasks. Many LEAs integrated their schools' administrative systems with their own financial systems and provided extensive training and support for this. This has led to increasingly sophisticated uses of computer-based management information systems, and the trend continues as communication technologies offer the opportunity for schools, LEAs, and government to exchange and compare data easily.

Radical technological developments in miniaturization, electronic communications, and multimedia hold the promise of affordable, truly personal, mobile computing. The move to digital data is blurring the boundary between broadcasting, publishing, and telephony by making all these media available through computer networks and computerized televisions. These developments are not only giving learners access to vast libraries and multimedia resources, but also live access to tutors and natural phenomena throughout the world.

As technology provides easier access for students to material previously supplied by the teacher, it enhances the role of the teacher as manager of the learning process rather than source of the content. Easier access for students to information, tutorials, and assessment, together with the use of IT tools such as word processors and spreadsheets, will help them learn more productively. There will be a clear split in the way schools and colleges organize learning. In areas of the curriculum that are structured and transferable to electronic format, students will work at different levels and on different content. By

removing the burden of individualized learning from schools and colleges, time will be freed for teachers to concentrate on the many other learning activities requiring a teacher as catalyst.

Developments in communications technology and the increase in personal ownership of technology will allow learning in schools and colleges to integrate with learning elsewhere. The boundaries between one institution and another and between institutions and the outside world will become less important. Crucially, technology will remove the barrier between school and home.

The momentum of the technological revolution creates rapid and disruptive changes in the way in which people live, work, and play. As the pace of technological advance shows no sign of slowing, the challenge is in learning to adapt to changes with the minimum of physical and mentalstress. To make this possible, the learning systems and those who manage them must prepare people to work with new technologies competently and confidently. They need to expect and embrace constant change to skill requirements and work patterns, making learning a natural lifelongprocess.

However disturbing this challenge may at first seem, the nature of technology is that it not only poses problems but also offers solutions— constantly creating opportunities and providing new and creative solutions to the process of living and learning.

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Page | 243