Towards a New Literacy

Equipping students for twenty-first century society

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The rapid growth of, and importance placed upon, the use of information and communication technology (ICT) in educational institutions around the world has inevitably led some to question their value, and the extent to which they really do improve teaching and learning. Teachers of 'traditional' subjects have seen ICT take a large proportion of their school's resource budgets and staff training time as everyone gears up for the 'digital revolution' – the 'wireless school' where e-learning replaces the tried and tested pedagogical methods which have been used successfully since the advent of formal education.

While we fail to distinguish between the use of new technologies for teaching and learning across the whole curriculum and ICT as a subject (or IT or Computing or Computer Studies, since they are often used interchangeably), it is easy to be critical about the emphasis being put on this one area, or indeed entirely miss its relevance for all disciplines. ICT, along with the study of the native or dominant language in a school, are in the unusual position of not only existing as school subjects in their own right but also being vital tools which are required for the study of all other subjects as well. In this way, ICT is now being regarded as a new literacy, as important for the future of our students as reading and writing have been previously.

This recognition of the importance of equipping students for our twenty-first century society with both the confidence and the ability to use new technologies effectively and creatively in every aspect of their lives, is taking place alongside a growing acceptance that the same tools offer the potential to revolutionise teaching and learning. For example, teaching students how to research a topic on the internet can give them an important skill which they may use time and again in the future in both their professional and personal lives. At the same time, a teacher using the internet effectively in a lesson can impact positively on the motivation of students, teacher–student interaction, classroom dynamics and so on, compared with traditional methods. We therefore do need to teach and assess the basic skills of word processing, using spreadsheets, internet browsing and so on, but at the same time there are also many other interesting ways in which the very use of these new technologies for learning can have a positive impact on students' attainment.

Ministries of education around the world are largely dealing with the same key questions in creating schools where true ICT literacy can develop:

- Teacher training – giving staff the confidence to use ICT confidently and effectively
- Curriculum integration – ensuring that teachers of all subjects know when are the most appropriate times to use (and not to use) technology in their lessons
- Independent learning – how quickly to move away from the traditional 'chalk and talk' approach of the classroom to a self-paced, student-centred model where creative thinking and independent research are valued
- E-learning – making learning accessible anytime, anywhere
- Evaluating the impact of ICT on student motivation and attainment.

Most countries have a number of initiatives under way to tackle these issues. UNESCO[1] is coordinating programmes that will enhance the use of ICT in education for Asia-Pacific countries. These include Malaysia's 'Smart School' project and Singapore's second 'IT Masterplan'. The objectives of

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the latter are similar to those outlined by governments all over the world:

- 'Pupils use ICT effectively for active learning
- Connections between curriculum, instruction and assessment are enhanced using ICT
- Teachers use ICT effectively for professional and personal growth
- Schools have the capacity and capability in using ICT for school improvement
- There is active research in ICT in education
- There is an infrastructure that supports widespread and effective use of IT.'

(Ministry of Education, Singapore, 2002)[2]

In July this year the UK government launched a consultation document[3] in advance of a comprehensive e-learning strategy to impact on all sectors of education. The Education Secretary, Charles Clarke, recognised that there was much innovation already in schools, colleges and universities in this area but

'…e-learning must now touch the life of every single learner… All learners, from pre-school to lifelong learning, can benefit from mixing these new technologies with other forms of study…

Online services are an increasing part of everyday life, and education and training must mirror these changes to revolutionise all learning.' (DfES, 2003)

In the same month in Cape Town, former president Nelson Mandela launched Mindset,[4] an educational satellite television network with supporting internet content, for use in South Africa's schools. Education Minister Kader Asmal, introducing the initiative, stressed the country's commitment to using ICTs in education.

'We should be reminded that ICT connectivity is not about how many computers are in schools, but how teachers and learners use various technologies to achieve educational goals and improve their teaching and learning experiences.' (Ministry of Education, South Africa, 2003)

Similar rhetoric can be found all over the world. Governments have been quick to recognise the voter potential of photo opportunities with children using newly arrived technology in their school and gaining experiences their parents would never have dreamt about! The hardest task so far for ministries, though, has been to assess the actual impact of using ICTs for teaching and learning. However, a number of recent studies do provide some idea of this. Becta[5] is engaged in a variety of ongoing research projects which have evaluated the effect of ICTs on student attainment, motivation and the workload of teachers, student access to hardware and software, potential of wireless internet connections and portable devices, best use of electronic whiteboards in the classroom and so on. On the whole, their findings have been extremely positive

'…ICT can stimulate, motivate and spark students' appetites for learning and helps to create a culture of success. This can be demonstrated in their increased commitment to the learning task, their enhanced enjoyment, interest and sense of achievement in learning when using ICT, and their enhanced self esteem.' (Becta, 2003)

A more comprehensive study[6] by Becta into the impact of ICT on GCSE examination results demonstrated overall only a small improvement by those students who had been regularly exposed to ICT as part of their lessons. However, it concluded that performance was likely to rise 'as ICT becomes firmly embedded in all aspects of school life rather than as an "optional extra"'.

The International ICT Literacy Panel[7] was set up in 2001, comprising experts from education, government, non-governmental organisations and the private sector drawn from Australia, Brazil, Canada, France and the United States. The Panel came up with a useful definition of ICT literacy as:

'using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate and create information in order to function in a knowledge society.'

This demonstrates that ICT literacy is about much more than learning how to use a software package. The Panel stressed that cognitive or 'higher order' skills are an integral part of using ICT effectively. This is also stressed in the UK national school curriculum for ICT. For example, it is relatively easy to create a word-processed document with text and images, but much more complex to evaluate and amend fonts, layout, language, etc., to address a particular audience.

'In effect, because technology makes the simple tasks easier, it places greater burden on the higher-level skills.' (International ICT Literacy Panel, 2002)

Of course, this major shift in the approach to teaching and learning with an emphasis on cognitive skills is a challenge for examination boards such as Cambridge as well, one that we are already embracing as we introduce new methods of assessment rewarding skills (practical and cognitive) as well as learnt knowledge.

So far I have suggested that, with adequate training for teachers and the available finances to resource hardware, software and quality digital content, ICT can have a positive impact on teaching and learning across the curriculum. We have also seen that the use of ICT effectively can equip students with a new literacy which they will use throughout their lives. So what kind of changes can we expect in our schools and colleges?

'ICT literacy is about much more than learning how to use a software package'

Last year, two visions of e-learning and schools of the future were published from very different sources, but they predicted a similar scenario. The Department for Education and Skills in the UK produced their 'Vision for the Future of ICT in Schools'[8] where they described a typical student submitting his homework, getting feedback on work completed and querying points not understood with his tutor all electronically via a personal log-in area on the internet and online community. He worked independently or collaboratively with other students as appropriate, at home or at school depending on the task, and could always access the learning materials he needed from any computer with an internet connection. Microsoft's 'Vision for Life Long Learning'[9] is inevitably a little more 'high-tech', with a 'virtual mentor' able to update a student via an ear-piece on her schedule for the day, her work due to be completed and to explain concepts not understood. This student could plan a presentation with her classmates on the way to school via a two-way 'video tablet' and in her free period did a Chinese course from a school which took her to a virtual Beijing for speaking practice! Although some of this may be further in the future, the key benefits offered by both of the above scenarios are already possible today:

- Flexible learning, not restricted to the school environment
- More opportunities for collaborative work, either face-to-face or via online communities
- Learning tailored to the ability and preferred learning style of the individual student
- More accessible course materials and support content
- A changing role for the teacher, moving away from being an instructor or purveyor of information to an adviser, manager and facilitator.

Of course, there is still much to learn about the future of ICT literacy. We are all only too aware that technology is developing at a fast rate and it will be a challenge for governments to keep pace with that change as they plan their educational objectives for schools in the future. In addition, future research will be able to measure more accurately the impact of whole-school strategies for

e-learning, which will give us a clearer picture of the impact of ICT than we are able to get today, where the introduction of new technologies is still in its infancy.

Needless to say, any vision of ICT in schools of the future is always tempered by the concern that the so-called 'digital divide' will ensure very different levels of ICT literacy around the world, and from one educational institution to another. We cannot expect the inequality of resourcing in schools to be any different for ICT, indeed the difference between schools in this area may be more marked. However, some commentators have noted that, even with limited access to computers and the internet, developing countries can benefit from new technologies as schools in remote areas will be able to access a wide range of information and services which were previously unavailable to them. In addition, as technology moves on, previous generation hardware prices fall drastically, making them more affordable. This has been demonstrated with the value of a simple multimedia PC over the last few years.

So how can you ensure that your Centre becomes an environment where students are best placed to develop ICT literacy? First, research[10] has shown that a whole-school strategy is crucial so that ICTs are used for the management and administration of a school as well as for teaching and learning, by the principal and senior staff as well as by the teachers and administration staff. Teachers and students need to acquire basic skills in office software and using internet and e-mail. These can be offered as short courses leading to a qualification such as the Cambridge International Diploma in IT Skills. Those who wish to specialise in graphics, presentations and web design can develop their skills at their own pace and work towards the Cambridge International Diploma in ICT. For younger students, the Cambridge ICT Starters offer opportunities to assess both ICT skills and the 'higher order' skills discussed previously across the curriculum and the Cambridge International Diploma in Teaching with ICT allows teachers to reflect on their use of ICT in their own subject and how they contribute to teaching and learning. It is also important to remember that this is new territory for everyone and so it is crucial to learn from each other. Already, there are plenty of examples available on the internet of schools and colleges demonstrating best practice in this area – essential e-learning for any school senior management team!

FEATURE REVIEW

- ICT is now being regarded as a new literacy, as important for the future of our students as reading and writing have been previously.
- UNESCO is coordinating programmes that will enhance the use of ICT in education for Asia-Pacific countries.
- According to Becta's research, ICT can stimulate, motivate and spark students' appetites for learning.
- The Department for Education and Skills in the UK and Microsoft have visions of e-learning and schools of the future which are surprisingly similar.
- Schools in remote areas will be able to access a wide range of information and services which were previously unavailable to them.
- Research has shown that a whole-school strategy is crucial so that ICTs are used for the management and administration of a school as well as for teaching and learning.

1 UNESCO – http://www.unesco.org/bangkok/education/ict/

2 http://www.moe.gov.sg/edumall/mp2/mp2_home.htm

3 Department for Education and Skills e-learning strategy (2003) – http://www.dfes.gov.uk/elearningstrategy/

4 Mindset – http://www.mindset.co.za/

5 British Educational Communications and Technology Agency – http://www.becta.org.uk/research

6 ImpaCT2 – Becta, 2002

7 International ICT Literacy Panel, 2002 – http://www.ets.org/research/ictliteracy

8 DfES, 2002

9 Randy Hinrichs, Group Research Manager, Learning Science and Technology, Microsoft Corporation – http://www.microsoft.com/education

10 Becta, 2003 – http://www.becta.org.uk/research