

Information technology and education: Some thoughts from the UK on the implications of technological change

We have witnessed a remarkable series of developments in the area of tele-media technologies in the last ten years. In the world of computers this has led to two intimately linked, but separate, developments: multimedia, particularly manifested in CD-ROM and DVD,¹ and the Internet. In reality, the differences between these media have more to do with the means of delivery than with their content as rapid convergence between the two is now taking place.² The term “digital multimedia” is often used to embrace both these technologies as well as digital television.

The World Wide Web (WWW), perhaps the most talked about area of the Internet, consists of pages of information that may contain text, audio (speech and music), animation, diagrams, video, and perhaps most importantly, hyperlinks.³ Akin to footnotes, hyperlinks allow the user to navigate around the Web, literally hopping from one site to another, while often being unaware that she is visiting sites thousands of kilometres apart. At the heart of the Web’s power, hyperlinks represent a fundamental shift away from traditional linear models of thought.

The most common manifestation of traditional linear models of thought is, of course, the book. Most people read books—certainly works of fiction—by starting at the beginning and continuing to the end. Some years ago, a type of book that allowed the child to navigate a route through the book by making choices became popular with children. This enabled children to come to different endings. Hyperlinks are little more than the computerised equivalent of these choices. They allow web (and CD-ROM) users to navigate a path through the web that reflects their own interests. The user might ask an initial question and find an answer but, in turn, by following various hyperlinks this may lead the user to another topic. If this continues for a period of time, the user may end up at a very different location from her starting point, having followed and explored, at least superficially, a very long series of hyperlinks. This journey resembles the behaviour of a butterfly that, by flying from tree to tree in an apparently random route, ends up covering a very wide area.

Hyperlinks permit extraordinarily sophisticated learning experiences. They can also, however, change how we think. (We will explore this in more detail in the second instalment of this article.)

¹ CD-ROM stands for “Computer-Disc-Read only Memory” (CD disks that can house vast quantities of data in various forms—text, videos and audio clips, photos—that can be read

² It is interesting to note that in recent weeks, Dorling Kindersley, one of the leading producers of educational CD-ROMs have announced that they have ceased production of new CD-ROMs and are diverting resources towards web-based delivery of content.

³ Sometimes referred to as hypertext.

Digital multimedia permits a number of activities to occur. Audio and video conferencing is possible: special interest newsgroups and or members of mailing lists may engage in discussion across the globe. Asynchronous conferencing using email in a closed environment has become a powerful medium.⁴ The creation of virtual communities,⁵ such as those that focus on the Dungeons and Dragons game, are common.⁶

Before considering some of the implications of these technological changes for education, it is important to note some of the major, general trends⁷ that are impacting education in many industrialised nations:

1. **Globalisation.** While it is true that regional, cultural differences continue to be important, the globalisation of education is a growing reality, particularly with regard to a core curriculum and standards within that core. Globalisation is often driven by multinational companies as much as by governments.⁸
2. **Electronification:** refers to the increasing use of digital media to meet educational objectives.
3. **Commodification:** In a world where virtually everything is commercialised and turned into something for sale, education will be unable to escape this process. Although it may be difficult to price the end product of education, schools will move towards a world dominated by knowledge products, services and added value. Globalisation will push in this direction, and electronification is likely to be the medium of delivery. Already, there is clear evidence that governments are looking to large multinational companies such as Microsoft, Disney and Time Warner to achieve these objectives.
4. **Domination:** Some cultures dominate other cultures. The WWW is already dominated by English (or at least in its American form!) and American culture. Minority cultures⁹ are likely to struggle in this brave new world of globalised, electronic, commodified education.

These trends represent the backdrop to any discussion regarding education and new information technology.

⁴ For an introduction to computer mediated conferencing (CMC) see A.R. Kaye (ed.) (1991), *Collaborative learning through computer conferencing: The Najaden papers* (London: Springer-Verlang) and Robin Mason (ed.) (1992), *Computer conferencing: The last word* (Victoria, BC: Beach Holme).

⁵ I have great difficulty with the term "virtual" when used to describe "community" or "reality". The terms seem to invite idolatrous comparisons with real communities and real reality. Would we describe the golden calf as a virtual god, for example? For a thoughtful exploration of this area see M. Slouka (1995), *War of the worlds: The assault on reality* (London: Abacus).

⁶ Known as MUDs (Multi-User Dungeons and Dragon) or MOOs (Multi-User Dungeons, Object-Orientated).

⁷ See D. Hamkrige (1991), The Next Educational Technology in Higher Education, in *Innovations in education and training international*, vol 33, No 1 (Feb.).

⁸ Granada Media, a multinational, UK-based media company, recently purchased a leading UK educational testing and assessment company, claiming that the global testing market is worth US\$6 billion annually. Their objective is to produce testing strategies than can be internationally transferred.

⁹ The term "minority" is here used to describe major non-American cultures.

Our world is dominated by the gods of scientism, technicism and economism,¹⁰ and in a very real sense the Internet is the off-spring of these gods. While this should not lead us to reject the medium, it should prompt us to question the nature of the trade-off. There is always a trade-off between the anticipated benefits of technological advance and the unforeseen consequences that follow. One has only to consider the monks who invented the mechanical clock to better regulate their prayer times.¹¹ There is always a real danger that information will become the new currency and, even worse, that it will be detached information without any basis for evaluation. There is a danger that knowing about something will replace “deep learning.”¹² This false epistemology must be challenged not simply by educationists in institutes of education but by all Christian teachers working in every school.

Does this mean that as Christians we should disengage from, and have nothing to do with, the ‘evils’ of digital media? Far from it! Our education system needs reforming,¹³ and, as Christians, we have a responsibility to be calling out for such reformation. Digital media, even with all their imperfections and dangers, may well be a means of delivering part of this reformation, as the printing press was during the 16th century.

Both the role of the school and that of the teacher will change as digital media increases its impact on education. This potential should excite Christians, especially since conventional schools do not in any way represent a Biblical model for learning. An incredible opportunity exists for Christians influence the new structures that will develop in the coming years. Governments will be forced to look for new structural models for learning. They will be looking for models that have been demonstrably successfully. If, as Christians, we act now, we may not only be in the vanguard of change but we may be the educational light set up on a hill that governments come to see, in their desperate search for new de-schooled models of learning.

We must begin to build an epistemology that is based upon humankind’s desire to know and be known, upon the Hebrew concept of knowing rather than the Hellenistic concepts that have dominated Western thought in general. Education and even, dare I say it, much of Christian education has also been dominated by ancient Greek concepts of knowing.

Whether you are a parent, teacher, educational administrator, principal, or board member, we all have a part to play in taking the opportunities that digital media provides and reforming education. We do not all have to understand the technology, but we do all have to grasp prayerfully the depth of the problem and the size of the opportunity that faces us. The need is for

¹⁰ Brian Walsh and Richard Middleton’s (1984), *The transforming vision: Shaping a Christian world view* (Downers Grove, Ill.: InterVarsity Press) provides a helpful introductory discussion of these three idolatrous world views.

¹¹ See Neil Postman (1993) *Technology: The surrender of culture to technology* (New York: Vintage) for a further exploration of the relationship between culture and technology.

¹² I am grateful to Dr Paco Gonzales for introducing me to this term.

¹³ I am not, here, talking about secular schooling. Christian schools need to undergo a major reformation if they are to truly produce young people who are will have a gospel impact on their society.

Christians at all levels to develop a Biblically-based vision and understanding to engage with the world at this strategic moment.

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