

Communications in an era of networks

Projects, models and visions challenged by a complex reality

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1. INTRODUCTION

For those who have been involved for several decades in efforts to integrate new information and communication technologies into education, or to re-think the purposes and forms of education in ways that harness of the power of new technologies, there is much still that reminds us of a dual track we tread. Each new wave of technologies, both more powerful and different from those before, lures politicians and educators into thinking that ‘this time’ the new technologies promise education a liberation, a definite advance towards change. And yet our understanding and evidence also suggests that the relationship between education, new technologies and change is far from simple. Indeed we are often still attempting to unravel the complex issues and problems that have emerged with using technologies in education, while at the same time welcome and prepare for the new.

This book reflects this complexity. The conference had a responsibility of developing further the vision of how these new technologies, and in particular the facility to network and communicate in ways not achievable hitherto, could indeed improve and transform aspects of education. Yet in parallel it was equally charged to ask serious questions about the realities of an interface between the social, cultural and pedagogical contexts of education and the actual affordances that these new information and communication technologies offer. The chapters in this book provide a heady mix of foreseeing and practical reporting, of planning for the future

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but at the same time respecting the problems education already has with current technologies.

The richness of the points presented here in this book stems in part from the range of experience of the international authors – from academics and administrators, to teachers and curriculum designers. This mix ensures that the central questions which are addressed are considered not simply from a variety of personal perspectives, but also from different cultural and environmental experiences. And yet interest also lies in the commonality of reporting and discussion based on activity in the field. All the contributions draw heavily on research and experience in devising and running projects and experimental activities in a range of schools and teacher training institutions and environments. The opinions expressed are thus grounded in knowledge gained from work embedded in the reality of today's educational settings. This must be the only sound base upon which to consider the issues of the future.

2. QUESTIONS TO BE ASKED

There is a strong perception that information and communication technologies (ICT) have already had an impact on education in many countries around the world; often at issue is the substance and nature of this impact. There is little doubt that during the course of the introduction of information technologies into schools a number of interesting questions have emerged with respect to the style and nature of learning, the complex relationship with teaching, pedagogy and the curriculum, appropriate resourcing and support, and the training and professional development of existing and future teachers with a technological environment in mind. In most schools during this debate, the dominant supporting technology has been either the stand-alone personal computer or a modest local area network.

The situation however is changing rapidly as a rising number of schools provide access to the Internet for their staff and students. The growth of communications technologies and the networks they can open mean that a further range of questions need to be addressed. The issues related to this change can be grouped into six themes: learning processes and IT; supporting autonomous learners; the changing role of the teacher; the school of the future; school systems in a networked society; and the social context of learning. It is these themes, broken into a range of subordinate questions, that the papers in this book address.

2.1 Learning processes and IT

The availability of ICT provides us with a new dimension to the challenge to understand the process of learning. Historically many models of the learning process have been offered but are they robust enough for the ways in which students learn about and with ICT? More specifically:

- How do students learn with and about ICT?
- What is knowledge in an ICT dominated world?
- Can ICT be used to support any pedagogy?
- Do traditional models of cognition adequately account for learning in an ICT rich environment?
- What are the consequences for the learning environment of our understanding of how learning occurs when ICT are available?

2.2 Supporting autonomous learners

Many have claimed that in future an individual's ability to manage their own learning will be seen as a key skill. The ability of an individual to manage their own learning is also seen as a critical attribute for effective lifelong learning. It has also been claimed that ICT can make a distinctive and effective contribution to the development and support of autonomous learners. Consequently:

- What are the key attributes of an autonomous learner?
- How can ICT be used to support the development of these attributes?
- How can ICT be used to enable groups of autonomous learners to collaborate and support one another?

2.3 The changing role of the teacher

Individual teachers play the most significant role in shaping the learning environment for students. ICT are often associated with changes in both learning activities and learning objectives for students and this has an inevitable impact on the role that the teacher is asked to play. However new teaching strategies are far from self-evident and so teachers themselves need the opportunity to develop new classroom skills whilst receiving support. Thus against this background:

- What is the role of the teacher in an ICT rich environment?
- What is the impact on pedagogy?
- How can we motivate and support teachers as they develop new skills?
- Can ICT be used to support teacher communities and hence facilitate change?

2.4 Creating the school of the future

Schools are still organised in very traditional ways. The subject structure of the curriculum would largely be recognisable to students from past generations, and teaching generally proceeds with the assumption that all relevant information can be provided by the teacher together with the few books that can be made available in school. ICT present a challenge to these assumptions by creating the possibility of alternative, or at least modified, patterns of activity. But what exactly are these challenges? For instance:

- What should we be aiming for when creating 21st century schools?
- What are the consequences of ICT for curriculum organisation?
- How can we manage change associated with the introduction of ICT in school?

2.5 School systems in a networked society

Schools are generally seen as discrete institutions where students and teachers meet at fixed times. ICT create the possibility for greater community involvement in education, for students to work and learn at times and places that are unconstrained by timetables and geography, and for widespread co-operation in education. The challenge therefore presented to school systems can be explored by asking:

- Is the virtual school, possible? If so, is it desirable?
- Does schooling have to take place at fixed times with all students present?
- How can we use ICT to involve the wider community in school education?
- What are the implications of ICT for an organisation of school education at global, national and regional levels?

2.6 The social context of learning

ICT provide unconstrained access to vast collections of information but that access has costs and dangers associated with it. Cultural and language domination is a serious possibility and there are significant equity issues associated with access to the technology. It is essential that all in the community consider:

- Can ICT be used to help students to respect and value cultural and linguistic diversity?
- What can schools do to ensure that all students have the opportunity to become capable users of ICT?

- What value systems are we implicitly promoting through our use of ICT in schools?

3. ADDRESSING THESE QUESTIONS

It is inevitable that these questions cannot be asked in isolation. Not only are they inter-related, but the very nature of educational environments, with their multi-layered webs of activity and focus ensure that work reported here covered a range of concerns when considering these issues. For the same reason, issues cannot necessarily be addressed within the neat category of themes.

Thus the papers that make up the bulk of this book have been linked not by the themes, but rather the focus within which some answers are located. We have considered these as Sections. And it is important to understand the dynamic nature of the conference is also represented in this book. Firstly, the keynote address by Margaret Riel was actually a real-time video-conference presentation followed by a live discussion between the presenter in the United States and the participants in Finland. And secondly, the conference included active discussion panels. The debates considered in some detail issues that had been raised, and a synopsis of these discussions are presented here as two further chapters.

The first section, Global Issues, is made up of our first two keynote addresses. This is followed by a section called Networked Learning in Action. Here are grouped papers that cover a range of examples of networking from a range of perspectives, but each nevertheless focuses on the questions and issues, as well as results, of such networking. The third section, Models and Issues in Networked Learning, groups together those papers which probe a model – such as that of learning or teacher education. The papers in this section do collide, or rather lead into, those in the next section where the title speaks for itself, Cognition and Learning. The fourth section, Nation-wide and System-Wide Programmes, collects together those chapters which address whole institutions, cities or countries and their use of networks. The final section consists of only one chapter, that of the closing keynote paper from Erno Lehtinen. It does reflect the development of our current understanding on the area – indeed his subtitle, ‘Desires, promises and obstacles’, encapsulates the fundamental writing in this book.

The book concludes where we started, by re-iterating the notion of a dual track – or exploring the new while reminding ourselves of the issues and understandings learnt, sometimes painfully from the present. We cannot leap uncritically into the future. We must be aware that many of the questions we ask are still unresolved. While education has been coping for some time

with the notion of the role of new technologies, we are moving into an era where this must be seen within the broader social and cultural perspective. All segments of our social and cultural lives are being influenced by the new communication technologies, and the influence they have on the information available to us and how we handle it. Thus the relationship with our wide communities, not simply those of education, has moved into the spotlight. And this raises questions of equity and cultural imperialism in ways not perceived hitherto. The reality of schools and their work must now be re-considered within this more panoptic sense. The next timely debate of this IFIP education community is on 'The School of the Future'.

BIOGRAPHIES

Deryn Watson is Professor of Information Technologies and Education at the School of Education, King's College, London University. During the 1970s and 1980s she was actively engaged in the research and development of computer assisted learning materials in the humanities and languages, with concerns for both models of software development and the potential for interactive learning to stimulate the exercise and development of process skills amongst learners in the classroom. Her research interests lie in the impact of IT on children's achievements, the issues embedded in understanding teachers' use of IT, training and professional development in an arena of innovation and change, and the reality behind the policy rhetoric for ICT.

Toni Downes is the Associate Dean of the Faculty of Education and Languages at the University of Western Sydney, Macarthur. Her teaching responsibilities include educational computing, leadership and technology. Her two broad areas of research interests are on the use of new information and communication technologies for teaching and learning, administration and leadership; and paradigms for researching children's lives. Her current research projects and consultancies span from early childhood education to university education. They include the development of an online course in quality leadership and technology, the investigation of the educational use of the Internet with young children, the changing nature of literacy, and the use of computers for teaching and learning in educational settings.