

ICT and the Development of a Cross-national Curriculum

Don Passey and Petra Hobrecht

*Department of Educational Research, Lancaster University, Lancaster LA1 4YL, UK
d.passey@lancaster.ac.uk*

Landesinstitut für Schule und Weiterbildung, Paradieserweg 64, 59494 Soest, North-Rhine Westphalia, Germany

Keywords: communication, culture, distance learning, literacy, primary education

Abstract The width of uses of ICT in education, society and in the workplace means that the development of basic skills needs to be considered within a multimedia as well as in a paper-based environment. ICT use is being considered a basic core skill. ICT provides opportunities for teachers and pupils to develop on-line projects, across national boundaries, raising issues about skills such as literacy and numeracy. This paper explores this, considers the implications of on-line cross-national project work, and concludes that overarching policies may be needed to shape and support such practices if pupils are to gain effectively in learning terms.

1. INTRODUCTION

In the past teaching and learning for life has always been based upon a range of knowledge areas in a set of curriculum guidelines or perhaps a national curriculum. However different the knowledge that was deemed necessary for life in different societies, curriculum guidelines or national curricula have always focused universally on basic skills such as literacy and numeracy. Education for all has meant teaching every child to read and write as well as using basic mental arithmetic techniques. At the same time education has long been associated with periods of attendance at certain institutions at certain times in a lifetime, or events at various stages of an

educational or training period. Attendance has often been seen as statutory school attendance or attendance of specific courses at irregular times.

Both of these patterns are shifting because of the influence of communication technologies. Basic skills need to be reconsidered in terms of what constitutes such skills within a multimedia environment just as much as in a paper-based environment. Attendance needs to be reconsidered in terms of on-line access as much as that based in a particular institution, and also in terms of growing needs for lifelong learning strategies. This paper focuses mainly on shifts over basic skills, which are brought about by the advent of ICT, but also looks at lifelong learning needs where useful and appropriate.

2. SHIFTS IN TEACHING AND LEARNING

On the one hand education has always been strongly associated with the mastery of the three R's – reading, writing, arithmetic. On the other hand, it has always had much to do with the acquisition and memorisation of factual knowledge. However, it often seemed that the two things had little to do with one another. Children were taught to read, but not necessarily, it seemed, to enable them to read in order to take in more factual knowledge. Knowledge was delivered by a teacher to an individual or a group of learners.

The rapid expansion of world knowledge and the advent of ICT, which has led to an equally rapid dissemination and easy accessibility of this knowledge, makes it necessary to reconsider curriculum guidelines and national curricula. This has in some countries brought about a shift from a syllabus of knowledge to a syllabus focusing on basic skills. ICT is now placed in some countries as a core curriculum subject or skill (see the National Curriculum 2000 in the UK (Department for Education and Employment 2000), for example, or the subject curricula for upper-secondary education in Germany (Ministerium für Schule und Weiterbildung, Wissenschaft und Forschung des Landes Nordrhein-Westfalen (1999)). The need for pupils to be able to handle ICT from a very early age is seen more and more strongly, but what does that mean with regard to the basic skills they need? What exactly are the effects on skills such as literacy and numeracy that have traditionally been seen as vital and therefore basic? What does literacy, for example, mean in ICT terms?

ICT provides a medium where literacy is perhaps involved in a wider range of ways than might be the case with a paper medium. From a literacy viewpoint ICT as a medium can

- enable the development of traditional forms of reading and writing, and support the development of reading and writing in enhanced ways, and in a variety of locations,

- provide a range of sources of literacy materials,
- support a range of new forms of literacy techniques,
- help to assess certain achievements in writing.

But new forms of literacy abilities are demanded in order to access and use the medium fully and adequately in the variety of ways and locations possible. These abilities must be understood if on-line projects, particularly cross-national projects, are to be successful.

A further consideration is that the ICT medium itself should provide for enhanced learning outcomes. Traditional literacy arenas such as writing a letter, a story, or a poem can be developed on the ICT medium, just as it is possible to read a story from the ICT medium. Authors such as Scrimshaw (1993), Jessel (1997), Passey et al. (1999), Passey and Hobrecht (2001) argue that the use of ICT can be used to enhance traditional approaches. However, a range of emergent literacy abilities are developing through the use of the ICT. Writing emails can mean the same as writing letters, but writers of email are also enabled to 'talk' to each other as replies can be interspersed with originating text. The use of the internet certainly demands an understanding of iconography that goes beyond the realms of traditional texts, and an understanding of the relationship between images and text in a more profound way than that associated with traditional paper media. The fact that ICT now enables learners to develop traditional literacy in places other than classrooms adds a further dimension for redefinition.

3. IMPLICATIONS IN TERMS OF LITERACY

So what are the implications of using the communication potential of the ICT medium in on-line projects with young learners in terms of literacy and the teaching of basic skills?

Communication through email, searching the WWW for information, publishing one's own ideas and work outcomes all require basic skills such as reading and writing. However, with regard to ICT, literacy no longer only means reading and writing in terms of putting letters together to form words and from there sentences to convey meaning. In terms of multimedia literacy, aspects such as the understanding and use of iconography, integration of imagery in still and animated form, presentational techniques, use of sounds and music, and a fine focus upon audience and purpose are all brought forward in terms of their importance. No longer is the written text the prominent or dominant feature of the medium. The other aspects of sounds, imagery and presentation are as important – indeed, some multimedia authors would say that they are more important. So the teaching of literacy abilities needs to address these aspects, too.

When on-line projects are developed, the range of issues that arise and are concerned with the direct use of the on-line environment fall into three different types – accessing ideas or information, handling information or data, and presenting outcomes or information. In terms of access, one of the issues arising is the vast amount of information in many different languages accessible through the WWW. Pupils and teachers need to develop efficient search strategies to find the information they are looking for. Once they have found possible sources, they have to separate the ‘wheat from the chaff’. Traditionally, pupils would read through all the documents word by word. The internet, however, forces them to develop scanning and skimming techniques at an early stage in their literacy development. Furthermore, handbooks about what is good web authoring generally emphasise the fact that on-line readers do not have much time and want to gather all the important facts at one glance. So many on-line documents use very short and precise language, add graphics or sounds to convey parts of the meaning, and spread information across a number of web pages. On-line readers, have to take in all the different elements of a web document, decode the ‘shorthand’ used, and gather all the different parts that constitute the whole set of information. So pupils need abilities including having and using visual understanding to abstract information.

In terms of handling information or data, the collecting of information demands that pupils have both effective search skills and selection skills, alongside literacy skills, and other skills. For example, pupils may be asked to gather data about shopping habits in order to have a perspective on a local, regional or national basis, which can then be compared to the findings of other pupils. Here the need for and nature of data gathering techniques include issues of statistics and probability, and a consideration of the reliability of the data gathered. Since resources can now be created in multimedia forms, the synthesising of information gathered from different types of multimedia also demands a greater understanding of how these multimedia forms can be used and interpreted. The use of the medium to question and to gather information by questioning, requires a consideration of how email can be used to elicit pertinent information. Another question illustrating the wider range of skills is when considering comparisons such as local or national traditions such as Christmas, in different countries. In such a case, pupils need to discuss whether a particular form of statistical data gathering is needed and how much statistical data is needed in order to make any general assumption at a local, regional or national level. Pupils need information handling skills such as those needed to reorder information for particular purposes, or relating to short term experiences for wide publication.

In terms of presenting information or outcomes, ICT provides the opportunity and possibility for pupils to create outcomes in suitable presentational forms for web publication. This means, however, that pupils need to be aware of their audience and the fact that this audience may be found far beyond the classroom. So pupils need to consider the message and the style of their documents much more carefully, and they also need to think about ways of enhancing the effect of their writing, for instance by integrating images and sound. This then means that they must analyse the way in which text and images and sound work together and the implications of that for the document's effect on the audience.

4. ON-LINE PROJECTS AND CROSS-NATIONAL COLLABORATION

Communication facilities now enable teachers and learners to share and express their ideas at a distance, sometimes within the same nation country, but also across national boundaries. On a European level particularly, the need to do this is widely recognised. In 'Learning in the Information Society: Action Plan for a European Education Initiative (1996-98)', the European Commission (1995) states that

"Europeans will have to learn to use the new information and communication tools from an early age if they are to find a place for themselves in an increasingly knowledge-based society. Upon this will depend their employment prospects and their future as indicated in the *European confidence pact for employment*".

However, there are certain considerations in terms of the effects that communication technologies have on basic skills when pupils and teachers are linked across school boundaries, or even across national boundaries. The most obvious implication, of course, is that teachers and pupils may be faced with the challenge of having to read material in another language. The European Commission (1995) puts forward the view that

"Difficulties arising from communication in different languages should neither be ignored nor overestimated: indeed, schools benefit from a privileged environment for the learning of languages, and multimedia provides a versatile means of communication using sound and image which can greatly facilitate mutual understanding."

The difficulties that arise from cross-national projects, in particular at primary level, were addressed at the EUROPRIM 2000 conference held in Soest, Germany, in October 2000 (see <http://www.europrim.de>). More than

60 teachers from 14 European countries had been invited to this conference to discuss criteria for the success of on-line projects and to develop and put into practice cross-national on-line projects for primary school pupils.

The outcomes of this conference showed that most projects that were suggested strongly relied on the communication potential of sound and image. Only in some cases was the use of language or languages seriously considered as a vital part of the project, which is not difficult to explain. Although in many European countries education policies today emphasise the need for early foreign language learning, the reality is often quite different. Most pupils still do not really start learning a foreign language until they are ten years of age or older. So without a common language to use, communication in a traditional way is very difficult. However, the ICT medium offers new possibilities for sharing thoughts and ideas through sound and image. And it also enables distance communication at a rapid speed. It does not take a great deal of time to send a sound file or even a video file attached to an email, given sufficient bandwidth access.

Children who are just learning to read and write their own language can use the ICT medium and share their thoughts and ideas in multimedia form. In projects from Denmark, which were presented at the EUROPRIM 2000 conference, primary pupils were involved in expressing their ideas without using words. They were able to use a multimedia environment, creating moving images as well as using sounds. In one of the projects the pupils needed to describe in visual forms 'The Story of the Creation'. Pupils in another class wrote their own 'Scary Story' using similar activities. In a collaborative project, within or across national boundaries, one could imagine, for example, pupils showing their understanding of a written story by turning it into a multimedia presentation using sound and image only, while another group would show their understanding of this presentation by writing down in text form the story it tells them. And if pupils at a very young age are already able to express their ideas in picture form, why should they not be able to communicate with children of their age in another country in the same way?

5. NEED FOR A CROSS-NATIONAL CURRICULUM

It became apparent during EUROPRIM 2000 how much the uses of ICT within schools at a national level differ across Europe. The focus of uses of ICT and their prominence in curriculum guidelines or in the national curricula differs considerably in terms of ICT as an individual subject or ICT skills embedded in other subject areas. If schools in different countries are to develop cross-national on-line projects, then the issues concerned with how

these projects can be enabled and supported through the curricular guidelines or the national curricula should be addressed and explored at a cross-national level in both general terms and with a particular focus on the demands for literacy abilities.

Schools and teachers involved will need support in a range of areas. Teachers, and also pupils, need appropriate on-line literacy skills to understand the contents of diverse web-sites, which may also be in other languages. They must be aware of social and cultural aspects when considering the information and its possible uses. Certainly teachers and pupils need to understand the importance of focusing on the audience even more strongly than that required at a national level. Schools involved in cross-national projects need to consider audience with regard to social and cultural issues, and the differences that audiences make at a local, national, or cross-national level. Schools also need to consider the literacy skills required by this form of project within a wider social and cultural understanding. Part of this requirement might be the need for relating native literacy skills to imagery arising in one or more country. Developing projects where common imagery can form a cross-national basis for agreed working certainly appears to be a positive way forward, but ways need to be sought also for creating resources accessible in other languages. Schools should be encouraged to think about different forms of strategy to address the issues arising, including the consideration of how access through other languages might be accommodated by pupils themselves.

Curricular guidelines or national curricula should embrace an agreed cross-national curriculum which offers a set of guidelines to facilitate teachers setting up on-line cross-national projects. So the possible content or features that should be contained in that cross-national curriculum or set of guidelines need to be discussed at a European level, and, furthermore, the implications for curriculum and policy for age ranges beyond the primary phase must be addressed.

Setting up on-line cross-national projects places high demands upon teachers, and these demands are likely to need to be supported at a national level, but further support is required at a cross-national level if teachers are both to value and to be able to create effective on-line projects. A cross-national curriculum or set of guidelines should consider:

- issues of language, both from an access and a creation viewpoint,
- the ways in which information is handled when collected from diverse sources,
- the information handling skills required by pupils,
- the literacy abilities required in terms of other areas of cultural, social or statistical understanding,

- the ways in which resources are created and designed from a presentational and audience viewpoint,
- the uses of ICT facilities to support and enhance learning effectiveness,
- the equipment and facilities needed and available in different countries,
- the relationship of thinking skills to literacy skills and ICT,
- the planning and pedagogical issues involved when establishing on-line cross-national projects.

Whilst the development of such curriculum policy or guidelines would help to highlight issues and enable primary schools to address these issues, there are consequences also for schools that take pupils on beyond this phase of education. The question of how secondary schools will face this emerging dilemma remains to be considered in future work.

REFERENCES

- Department for Education and Employment (2000) *The National Curriculum*. DfEE, London.
- European Commission (1995) *Learning in the Information Society: Action Plan for a European Educational Initiative (1996-98)*. EC, Brussels.
- Jessel, J. (1997) Children writing words and building thoughts: does the word processor really help? In *Using Information Technology Effectively in Teaching and Learning*, Routledge, London.
- Ministerium für Schule und Weiterbildung, Wissenschaft und Forschung des Landes Nordrhein-Westfalen (1999). *Richtlinien und Lehrpläne für die Sekundarstufe II – Gymnasium/Gesamtschule in Nordrhein-Westfalen*. Ritterbach Verlag GmbH, Frechen.
- Passey, D., Forsyth, K., Hutchison, D., Lever, R., Scott, A. (1999). *Anytime, Anywhere Learning Pilot Programme: A Microsoft UK Supported Programme in 28 Pilot Schools End of First Year Implementation Summary Report*. Microsoft, UK.
- Passey, D. and Hobrecht, P. (2001) On-line resources and effective teaching and learning. *Education*, 3-13, 29, 1, pp. 3-8.
- Scrimshaw, P. (1993) Teachers, learners and computers. In *Language, classrooms and computers*, P. Scrimshaw (ed.), Routledge, London. [<http://www.europrim.de>].

BIOGRAPHY

Don Passey is a Senior Research Fellow in the Department of Educational Research at Lancaster University. He has wide experience with evaluation of technological innovation and research as policy and practice.

Petra Hobrecht has taught English and mathematics at secondary schools in Germany, and has been seconded to work in the Advisory Centre for New Technologies at the State Institute for School and Adult Education (Landesinstitut für Schule und Weiterbildung) in Soest, Germany for the Ministry of Education in the State of North-Rhine Westphalia.