Contents

Summary

ICT can enable pupils to access a range of texts, write for real audiences and support them in their choice of genre for audience and purpose. Research suggests that using ICT in the English curriculum can:

- improve writing and reading skills
- develop speaking and listening skills
- support collaboration, creativity, independent learning and reflection.

English teachers can maximise the impact of ICT by ensuring that both they and pupils:

- use ICT as an integral part of lessons
- present ideas dynamically and in a range of media
- understand visual literacy.

What the research says about using ICT in English

This report is based on an analysis of current research about how primary and secondary teachers are using ICT in the English curriculum. It summarises the key findings and suggests resources for further reading.

ICT in the English curriculum

There are a number of aspects of the English curriculum where ICT has been claimed to enhance teaching and learning (Becta, 2003a; Becta, 2003b; VTC, 2003). It is suggested that the technology can enable pupils to:

- manipulate and transform their own and others' writing using a word processor and other publishing packages
- develop an understanding of language and their own critical literacy skills
- engage with key characteristics and features of texts
- discuss the merits and limitations of particular text types
- compare a range of ways that information is presented
- locate information quickly, confidently and accurately
- gain access to a wider range of texts online such as non-linear texts
- talk, read and write for a range of purposes and communicate with a wider group of people. thereby encouraging different types of interaction and promoting collaborative learning
- work in dynamic and interactive media
- transform different media into one text
- extend their range of information sources and texts to investigate how reading strategies are adapted to suit different texts.

Despite the potential benefits of ICT in English listed above, there is a need for a clearer identification of how these factors may be incorporated into classroom practice, at what stage, and using which particular hardware and software.

This report focuses on the enhancement of teaching and learning in the English curriculum through the use of ICT and its benefits to teachers and pupils in primary and secondary schools.

Becta
ICT Research

Key research evidence about ICT in the English curriculum

On the basis of Becta's analysis, ICT can have positive effects on English teaching and learning in the areas outlined below. There are references for further reading supplied alongside most of the findings.

Benefits for teachers

- ICT makes it easier for teachers to give instant feedback to pupils as they are working (Moseley *et al.,* 1999)
- Presentation software enables teachers to show ideas dynamically – for example, when showing suffixes joining with root words (Moseley *et al.,* 1999)
- Teacher direction is reduced and pupils' control and self-regulation increased (Hennessy *et al.,* 2003)
- ICT can act as a catalyst to bring about change in teachers' thinking and practice (Higgins and Moseley, 2002; Leach, 1997)

Benefits for pupils

Speaking and listening

- The computer can be an effective catalyst of talk both at the screen and away from it
- Talking books help pupils with emergent language or literacy skills interact with the story and enhance both their vocabulary and text comprehension (Underwood and Underwood, 1997)
- Digital video production can help develop a range of social learning skills, including communication, negotiation, decision-making and problem-solving (Reid *et al.,* 2002)
- Pupils use more abstract and sophisticated language when talking about films they have created using digital video (Reid *et al.,* 2002)

Reading

- Reading interactive storybooks can help primary pupils expand their vocabulary and gain insight into the structure of narrative texts (Segers and Verhoeven, 2002)
- Using ICT can enable pupils to understand, visualise and interpret difficult texts (Birmingham and Davies, 2001)
- There are learning gains in areas of phonological awareness, vocabulary development, reading comprehension and spelling (Software Information Industry Association, 2000; Van Daal and Reitsma, 2000).
- Computer-assisted reading support systems can be effective in supporting secondary pupils with reading failure (Lynch, 2000)

Writing

- Writing development can be accelerated and enhanced by access to word processing (Breeze *et al.,* 1996; Lewin, 2000; Moseley *et al.,* 1999)
- ICT supports reflective writing and improvements in pupils' reasoning ability (Deadman, 1997)
- Editing digital video films can improve pupils' literacy skills, especially their understanding of narrative when developing their writing skills (Parker, 1999)
- Pupils who use word processing in combination with teacher guidance significantly improve their writing, as do pupils who write for a real audience using the internet or email (Karchmer, 2001; Software Information Industry Association, 2000).

Factors for effective use

- Teachers need to understand what visual literacy is and rethink what learning to read and write means in the 21st century (Goodwyn *et al.,* 1997; Reid *et al.,* 2002)
- Professional development needs to take account of teachers' thinking about teaching and learning generally as well as their skills with, attitude to and use of, ICT (Higgins and Moseley, 2002)
- Teachers should identify how ICT can be used to meet specific objectives within the English curriculum to improve pupils' attainment (Moseley *et al.,* 1999)
- Teachers need to have adequate ICT skills, regular use of ICT equipment, and access to reliable technical support (Moseley *et al.,* 1999)
- Teachers need to understand that successful use of ICT depends on other factors such as pupils' work in the classroom away from the computer, discussions between pupils and between pupils and their teacher, and the ways in which pupils interact with each other at the computer (McCormick and Scrimshaw, 2001)

About Becta's 'What the Research Says…' series

This series of briefing papers is designed in particular for teachers, ICT co-ordinators and school managers, in order to provide an initial idea of the available research evidence for the use of Information and Communications Technology (ICT) in schools and colleges. We welcome feedback and suggestions for further titles in the series (contact details can be found at the end of this briefing).

Promoting Effective Practice of ICT in English – a primary school case study

Year 2 pupils were encouraged to develop an extended piece of writing about a story which was presented using presentation software. The talking word processor 'read' a passage and the pupils identified words which the computer 'could not read properly'. They also decided where they thought punctuation should be placed in a prepared passage from the text. In the writing session that followed, the pupils used the speech facility on the computer to listen to their stories as they re-read what they had written.

After two months' work, the pupils' reading ages had improved by an average of almost seven months. The writing task also showed significant gains in the amount that the pupils wrote (on paper), and an improvement in punctuation and elements of the story structure, such as the use of connectives.

The teacher was able to use ICT effectively to help them to develop redrafting skills using speech feedback and in using presentation software to read a text to the whole class. However, she ensured that pupils had opportunities to develop their ICT skills and using ICT enabled her to develop other resources for groups of pupils to use away from the computer. Her ICT skills enabled her to make decisions about how she could use ICT effectively in her preparation and in her teaching. She successfully used the ICT activities as part of her broader literacy teaching.

This case study was taken from *Ways forward with ICT* (Moseley et al., 1999). Further case studies of effective pedagogy using ICT for literacy from this research project are available at: http://www.tta.gov.uk/php/read.php?sectionid=47&articleid=696

Explanation of findings

ICT has fundamentally altered the way we communicate with each other and how we think about reading and writing. However, use of ICT across the English curriculum is varied and, as with ICT more generally, its impact depends on the ways in which it is used (Ofsted, 2002a; Ofsted 2002b).

However, although new technologies such as the internet are redefining literacy, in practice this is not always the reality for all teachers. The Survey of ICT in Schools (DfES, 2003) found that although 60% of primary teachers and 59% of special school teachers made substantial use of ICT in English, only 19% of secondary English teachers were using ICT as a central part of their practice.

Some of the areas where ICT has been found to have positive effects on teaching and learning in English are described below.

Speaking and listening

Research on emergent literacy (Segers and Verhoeven, 2002) indicates that interactive activities like storybook reading, communicative writing and language games can have considerable impact on pupils' oral and written language development. Young children with emergent language or literacy skills can use talking books to interact with the story and enhance both their vocabulary and text comprehension (Underwood and Underwood, 1997).

However, although computer-assisted reading systems can be effective in supporting secondary pupils with reading failure, speakers of English as an additional language found the poor quality of speech outputs made it difficult to distinguish the English phonemes (Lynch, 2000).

Reading

Using ICT texts such as word processors with speech facilities can motivate pupils to read more and help older pupils or more fluent readers understand a text by reading it more rapidly than by listening to it. Speech support can help with unfamiliar words by providing spoken definitions to extend pupils' vocabulary. (Moseley, 1999)

Electronic texts are redefining literacy by introducing new ways of reading and writing and pupils need a totally different range of reading skills to navigate ICT texts. ICT has created another genre where texts are layered, and can contain internet hyperlinks and moving images which include sound and video. Research suggests that animated graphics, video, digitised pronunciations and hyperlinks necessitate the development of new literacy skills (Karchmer, 2001).

Writing

The most predominant use of ICT across the research projects has been word processing, which has been shown to improve pupils' reading and writing. But in practice many teachers reported in the literature are only using word processing for pupils to present their work even though the greatest potential is for pupils to compose, draft, revise and organise their thinking and writing (Mumtaz and Hammond, 2002).

Digital and visual literacy

The impact of digital video in the teaching of literacy skills centres on the link between visual or cine-literacy and the more traditional skills of print literacy. Research by the British Film Institute (Parker, 1999) suggests that planning and editing digital video films can foster both these types of literacy simultaneously. In producing digital video, pupils address concepts which are common to both print and film – character, setting, genre and narrative structure – drawing on their wider cultural knowledge.

Attainment and assessment

The ImpaCT2 project found mixed results for the effects of ICT on pupils' attainment in English. At the primary level there was a statistically significant impact of ICT on the Key Stage 2 English tests but not at Key Stages 3 or 4 (Harrison *et al.*, 2002). However, the attainment was measured through the national Key Stage tests which at Key Stages 3 and 4 do not focus on creative writing or composition. In practice there is often a tension between more imaginative use of ICT and the nature of the assessment system.

In conclusion then, it appears that the key advantage of using ICT effectively in the English curriculum is that it promotes greater engagement with the subject, both by allowing opportunities for reflection and analysis and by developing the higher-level thinking skills necessary to communicate ideas.

Key questions for schools

- How confident are your English teachers about using ICT and can this confidence be maximised?
- Are your LEA link inspectors, governors, teachers and parents aware of the potential of ICT to enhance the teaching of English?
- Do you provide opportunities for pupils to work collaboratively at the computer to develop their speaking and listening skills?
- What strategies do your teachers use to support bilingual and multilingual speakers in their work with computers?

Key areas for further research

Although there is a growing body of research related to the use of ICT in English, certain aspects require further research, in particular:

- the role of ICT in promoting speaking and listening
- effective ICT-based teaching and learning strategies
- the effective integration of ICT in the English classroom
- the effectiveness of ICT on spelling ability
- how the internet environment contributes to the development of higher reading skills
- use of ICT in drama.

About the research literature

There is a growing body of literature dealing with many aspects of the use of ICT in the English curriculum, and evidence of good practice and positive outcomes in a number of areas. However, the pedagogy associated with using ICT to support English teaching and learning is still evolving. For example, the use of the word processor is still not fully embedded or used effectively in many classrooms in the UK.

Within the literature certain technologies and age phases are better represented than others. The use of ICT in English in primary schools is better represented than ICT in secondary English. Findings on the impact of ICT in English are still largely tentative and there is a need for a clearer identification of how the positive benefits can be incorporated into classroom practice, at what stage, and using which particular hardware and software.

Current research

Writers for the Future [http://www.writersforthefuture.com] is a two-year action research project managed by the trAce Online Writing Centre at Nottingham Trent University and funded by the UK's National Endowment for Science, Technology and the Arts (NESTA). It aims to explore innovative ways of writing using the internet and provide criteria for best practice in the emerging genre of new media writing.

Becta advice for integrating ICT

Becta is working in partnership with the subject associations to provide support for the use of ICT in specific subjects. A series of termly, subject focused, online newsletters is available, along with a growing number of publications in a series which showcases a selection of quality web-based resources to support primary and secondary subject teachers. A wide range of face-to-face and online training events, focusing on integrating ICT into specific subjects, is also taking place. For more information on all of these activities visit the Becta ICT Advice website [http://www.ictadvice.org.uk/].

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Becta's ICT Research Network

If you're interested in research on the use of ICT in education, you can join Becta's ICT Research Network.

The ICT Research Network seeks to encourage the exchange of information in order to inform the national agenda and professional practice.

Membership is free and is open to:

- teachers
- ICT co-ordinators
- ICT advisors
- school managers
- researchers
- policy makers
- research sponsors
- industry.

The Network provides them with an opportunity to:

- exchange information on current research
- develop partnerships
- discuss priorities for further investigation
- focus research on issues of importance to practitioners and policy makers.

They can do this via:

- an email discussion list
- publications
- conferences and events.

More information on Becta's ICT Research Network can be found at:
www.becta.org.uk/research/ictrn

Alternatively, email: ictrn@becta.org.uk or write to: Michael Harris, ICT Research Network, Becta, Millburn Hill Road, Science Park, Coventry CV4 7JJ.

www.becta.org.uk/research

About Becta

Becta is the Government's lead agency for information and communications technology (ICT) in education and supports UK Government, national organisations, schools and colleges in the use and development of ICT in education to raise standards, widen access, improve skills and encourage effective management.

About the ICT in Schools Programme

The ICT in Schools Programme is the Government's key initiative to stimulate and support the use of information and communications technology (ICT) to improve standards and to encourage new ways of teaching and learning. The enormous potential of ICT means that for the first time it is becoming possible for each child to be educated in a way and at a pace which suits them, recognising that each is different, with different abilities, interests and needs. The challenge over the next four years will be to successfully embed ICT in every facet of teaching and learning where it can have a direct impact on raising standards of attainment. A vision for the future of ICT in schools can be found in the paper *Fulfilling the Potential – Transforming Teaching and Learning through ICT in Schools*, available on the DfES ICT in Schools website **http://www.dfes.gov.uk/ictinschools/publications/**

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