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Summary

Much has been written on the benefits of using ICT to develop pupils' skills in history, and numerous suggestions are made in the literature about how specific ICT applications can be used to develop specific history skills. Although robust academic research into this area is limited, the following benefits have been identified:

- ICT can provide pupils and teachers with access to a wide range of historical source material which can be analysed in detail using readily available ICT tools
- ICT can help pupils develop historical enquiry skills, and help pupils realise the importance of these skills in the study of history
- ICT promotes collaboration between pupils, which in turn can help to develop historical thinking
- ICT can enable teachers to present historical materials in ways most suited to individual and personal needs.

Teachers can maximise the impact of using ICT in history by:

- supporting pupils using ICT with effective teacher intervention
- ensuring the focus of any history activity involving ICT is on developing history skills, and that the mechanics of the ICT do not obstruct this development
- teaching pupils to critically evaluate electronic sources of information and make judgements about their reliability.

What the research says about using ICT in history

This report is based on an analysis of available research about the use of ICT in the teaching and learning of history. It summarises the key findings and suggests resources for further reading.

History is seen by many who work in this field as a distinct form of knowledge. It is not only concerned with collecting and memorising discrete facts about historical events or people, but it requires those studying it to understand a number of complex processes which are specific to the subject. Historians must reconstruct historical events using a range of evidence, which can be incomplete, inconsistent and difficult to interpret (Masterman and Sharples, 2002).

To develop an understanding of historical events and sources of evidence adult historians rely on a range of previous experience and knowledge, so pupils who have less extensive knowledge and experience can find it difficult to develop the skills they need (Masterman and Sharples, 2002; Britt and Aglinskas, 2002).

How ICT contributes to learning and teaching in history

ICT can be used to help pupils of all ages to develop the knowledge and skills that history demands. It provides them with opportunities to:

- select and reproduce sources in a range of media
- contextualise and interpret sources
- reconstruct and simulate historical events
- construct narratives
- identify patterns in large quantities of data
- develop, organise and communicate historical thinking.

To establish an understanding of the extent to which ICT has the potential to enhance the teaching and learning of history it is necessary to examine the available research evidence.

Key research evidence about ICT in the teaching and learning of history

On the basis of Becta's analysis, ICT can have positive effects on the teaching and learning of history in the areas outlined below (there are references for further reading supplied alongside some of the findings).

General benefits

- ICT provides opportunities for the teaching of historical enquiry, including the generation and testing of historical hypotheses and problems, as opposed to only learning historical facts.
- ICT and multimedia fit well with the multi-source nature of history – they can give a 'total picture' and can allow pupils to integrate evidence into their work (Hennessey *et al.*, 2003; Brown and Purvis, 2001).
- The use of ICT promotes collaboration between pupils and can contribute to the development of historical thinking (Brown and Purvis, 2001).

Benefits for pupils

- ICT helps to alleviate the constraints of writing and allows pupils to concentrate on the specific topic or discussion – this encourages reflection, analysis and understanding (Hennessey *et al.*, 2003).

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).

- Using databases to work with large volumes of data can help pupils to look for patterns, frame hypotheses, question accepted theories and place events into wider contexts (Martin, 2003; TTA, 1999a).
- The use of computer-mediated communications (CMC), including online discussion groups, enables students to better develop and communicate historical arguments, thinking and understanding, and these skills can be transferred to essay writing (Thompson and Cole, 2003; Wellman and Flores, 2002).
- The use of hypertexts (documents embedded with hyperlinks) to investigate sets of historical documents and sources can help develop pupils' understanding and interpretation skills (Nichol *et al.*, 2003; Brown, 2001), and allows pupils to see connections between historical issues.
- Computer simulations allow complex historical processes to be represented in a more dynamic way, and allow students to gain a better understanding of how key decisions in history were affected by the environment and the pressure of time (Taylor, 2003).
- Digital video can provide students with a model for gathering oral history before they conduct their own oral history interviews, allowing them to develop and retain the required skills more effectively (Wolfrum *et al.*, 2001).

Benefits for teachers

- ICT (particularly the internet), gives teachers access to a wide range of information, historical sources and media types, which would otherwise not be readily available (TTA, 1999a; Brown, 2001; Brown and Purvis, 2001).

- The use of computer-mediated communications (CMC), including online discussion groups, allows teachers to identify misconceptions in pupils' historical thinking, which might not otherwise have been apparent in more structured classroom discussions (Thompson and Cole, 2003; Wellman and Flores, 2002).
- ICT can enable teachers to present historical materials in ways most suited to individual and personal needs
- ICT can be used to help teachers support, or scaffold, the development of historical thinking and understanding at all levels (Wellman and Flores, 2002; Masterman and Rogers, 2002).

Factors for effective use

- Preparation in advance is critical when using the internet for historical research (Hennessey *et al.*, 2003).
- ICT use in history teaching is most beneficial when coupled with effective teacher intervention, to ensure pupils learn at a good pace and can concentrate on the history rather than aspects of the ICT (Ofsted, 2002; Munro, 2000).
- Pupils need to be taught how to interpret information and make judgements and inferences about it, in order to make historical research using electronic sources more effective (Moore, 2000; Hennessey *et al.*, 2003).
- When using a word processor to investigate a text, teachers must ensure the activity encourages effective comprehension of the content, and that it is not only a mechanical reading or cutting and pasting activity (Prior and John, 2000).

Using ICT to develop skills in history – a case study

In this case study, Year 9 pupils made use of specific aspects of a word processor to carry out an in-depth analysis of a historical source.

This work was part of a topic on the development of rail transport in the 19th century, and the source to be investigated was an extract from the prospectus of the Liverpool and Manchester Railway Company.

The pupils worked with the extract on their screens, editing the text to make it more clear, by adding in their own headings to identify different sections. Less able pupils were asked to insert appropriate headings from a list they had been given.

Pupils were then asked to use the word processor to create a table, and to list in the table the positive and negative points about the railway that they could find in the prospectus. They then used the formatting tools of the word processor

to identify those points which were supported by evidence in the historical source or from their own knowledge, and those points which they believed to be unreliable.

Finally the pupils were asked to use the work they had done in analysing the historical source to support their arguments in a discussion about whether or not the building of the Liverpool to Manchester Railway was really necessary.

It was felt that using word processors to study the source made the process of historical analysis much more efficient, as pupils were able to easily highlight, manipulate and categorise the text. They were then able to use their analysis to prepare a substantiated case for or against the building of the railway.

The full version of this case study can be found on the Becta ICT Advice website at www.ictadvice.org.uk (search for 'railway').

Explanation of findings

As with ICT more generally, direct causal effects are not always easily identifiable. Drawing clear conclusions on the effects of ICT from the range of research evidence and reports available can be problematic. There are a number of factors that limit effective comparisons, such as differences in sample sizes, methodologies and effects, and the extent and purpose of ICT use involved.

Any positive impacts depend on the ways in which ICT is used in history. Improvements in teaching and learning will inevitably be reliant on the capacity of teachers and students to use ICT as an effective pedagogical tool in the pursuit of particular learning objectives.

Word processing

Many writers with an interest in the use of ICT in history argue that the word processor can be a powerful tool in developing pupils' history skills (Haydn, 2001).

Word processing was found by Ofsted to be the most common form of ICT use in history in schools, and its potential to develop historical thinking was also identified (Ofsted, 2002). The word processor can help pupils to organise their historical thinking, analyse and interrogate sources and structure their writing (NCET, 1997; TTA, 1999a; Wilkinson, 2000).

Prior and John (2000) describe the benefits of using a word processor to facilitate 'revelatory writing'. Here pupils participate in historical writing and interact with its content, enabling them to take control of their own historical writing, and providing opportunities for developing different writing styles.

Hypertexts

Hypertexts are documents which contain links within the text; clicking on these links with a mouse takes the reader to another part of the document, or to a new document, containing related information.

In the context of history this allows pupils to be guided through a 'multiplicity of narratives', enabling them to weave together a variety of sources in order to create their own analyses and interpretations of historical events and decisions. This also has the effect of highlighting to pupils the importance of interpretation as a process in the study of history (Brown, 2001).

Nichol *et al.* (2003) found that using hypertexts to study historical sources offered several advantages, including the fact that pupils could very quickly and easily move from one source to another, and that they were not restricted to a limited number of sources to investigate. In their study pupils were found to be impressed with the logic of the hyperlinked structure.

Databases

The ability to store large amounts of data, together with the sophisticated manipulation features of databases, allow history pupils to look for patterns in data, frame hypotheses, and place smaller narratives about specific events, people and decisions, within wider historical contexts (Martin, 2003; TTA, 1999a). Using the database to perform low-level tasks such as sorting and ordering data, allows the pupils to concentrate on higher-order thinking, about the patterns they wish to look for and the information they want to extract (NCET, 1998).

Computer Mediated Communications (CMC)

Encouraging discussion and debate between pupils is seen as an important technique for developing pupils' historical thinking and understanding (Wellman and Flores, 2002).

Computer-mediated communications (CMC) can bring added value to such discussions. Thompson and Cole (2003) found that when asked to discuss historical issues via an online message board, pupils quickly realised that in order to win their argument it was necessary to carefully select evidence to support their views, which in turn required them to be specific and analytical. Pupils were also found to have improved their writing skills, along with their ability to express ideas, use historical thinking and compare historical sources (Wellman and Flores, 2002; Thompson and Cole, 2003).

Teachers have also been found to benefit from online discussions, through the ability to identify pupils' misconceptions and evidence of poor historical thinking, which might not necessarily have been noticed in the classroom (Thompson and Cole, 2003).

About the research literature

The majority of articles used for this briefing were published between 1999 and 2003. Some 14 of the sources are from the UK, while the remaining 5 were published in the United States. However, many of the sources are based on small-scale research, usually in the form of case studies, where the authors are writing about specific uses of ICT with their own pupils and the apparent benefits they have seen as a result.

Only a very limited number of robust academic research studies into this area have been carried out in recent years, and more research is therefore needed to obtain a clearer picture of how ICT can benefit the teaching and learning of history.

Key areas for further research

Large scale, robust academic studies are needed in order to investigate the uses of ICT in history, including in particular:

- the extent to which ICT can contribute to the development of higher order historical thinking and skills of historical enquiry
- the specific uses of word-processing tools in history, and how these can directly contribute to developing pupils' skills in analysing historical sources.

Further advice and resources for using ICT in history

Primary National Strategy

A range of example material CD-Roms are currently being developed by the Primary National Strategy as part of their 'Embedding ICT in Primary Schools' strategy. These resources are intended to support primary teachers in using ICT to enhance their teaching and learning, including that in history. More information on the Embedding ICT strategy and the Example Material CD-Roms can be found at

http://www.standards.dfes.gov.uk/primary/features/embedding_ict/943641/

Key Stage 3 National Strategy

As part of the Key Stage 3 'ICT across the curriculum' support, learning materials are being produced in collaboration with the Historical Association to show how ICT can support teaching and learning in history. The materials will feature a series of lesson plans and resources to be used in the classroom, and will be available from Autumn 2004 from DfES. See <http://www.standards.dfes.gov.uk/keystage3/respub/ictac> for further details.

Becta ICT Advice

Becta is working in partnership with the subject associations to provide support for the use of ICT in certain subjects. A growing number of publications are available, including a series which showcases a selection of quality web-based resources to support primary and secondary subject teachers. To view the range of advice available on using ICT in history, visit the Becta ICT Advice website at www.ictadvice.org.uk.

Enhancing subject teaching using ICT (ESTUIC) (Online CPD)

Following a successful pilot, trialled in some 80 schools in 2002, the original ESTUIC project was extended to cover a greatly expanded range of subjects. Work is now under way on the development of further online materials for Key Stage 3 history. http://www.dfes.gov.uk/ictschools/ict_teaching/document.cfm?articleid=276

Key questions for schools and teachers

- To what extent does the use of ICT in history lessons help to develop history skills, rather than focusing on the mechanics of the ICT?
- How skilled are pupils in critically assessing the reliability of historical information found on the internet and through other electronic sources?
- Are there any data analysis tasks performed by pupils which could be done by ICT instead, allowing pupils to concentrate on higher order historical thinking?
- Are your LEA link inspectors, governors, teachers and parents aware of the potential of ICT to enhance the teaching of history?

Bibliography and further reading

The research referred to in this briefing represents a selection from the field of ICT research related to ICT in history, and should not be regarded as a definitive list of the 'most important' research in this area.

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

This briefing and others in the 'What the Research Says' series can be found on the Becta Research website at www.becta.org.uk/research.

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 directly 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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