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Summary

Research suggests that ICT has a major role to play in achieving the Government's aim of cutting the bureaucratic burden on teachers and creating more time for teaching. This report focuses on how ICT can be used to reduce the amount of time teachers spend on administrative tasks.

Key benefits of using ICT

- Using templates, pro formas and shared teaching resources reduces duplication of effort
- ICT facilitates quicker and easier communication and networking
- ICT can free up non-contact time by promoting self-directed learning, peer support and greater involvement of teaching assistants
- Using ICT allows teachers to perform administrative tasks more quickly and more thoroughly.

Teachers can maximise workload reduction by:

- being willing to share resources, knowledge and advice
- using ICT-based administration systems to replace (rather than duplicate) paper-based systems
- considering the potential of ICT alongside other workload-reducing strategies.

What the research says about ICT and reducing teachers' workloads

This report is based on an analysis of current research about the use of ICT to reduce teachers' workloads. It summarises the key findings and suggests resources for further reading.

The 'workload' under consideration in this report consists primarily of the administrative tasks teachers are required to perform in support of both school management and their teaching.

The administrative tasks covered here include:

- preparing lesson plans and worksheets
- writing student reports and Individual Education Plans
- collating and analysing student attainment information for target-setting
- recording and analysing attendance and disciplinary information.

This report considers a wide range of ICT, including:

- portable ICT devices
- school networks
- web-based resources
- video conferencing
- common office applications such as spreadsheets, word processing and databases.

The Teacher Workload Study conducted by PricewaterhouseCoopers (PwC, 2001) estimated that ICT could save between 3.25 hours and 4.55 hours per teacher per week. The issue of reducing workload is, however, much wider than whether ICT can help. Technology may be able to save time in the delivery of certain tasks but whether the task is necessary in the first place also needs careful consideration.

Key research evidence about using ICT to reduce teachers' workloads

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

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

This series of briefing papers is designed in particular for teachers, ICT co-ordinators and greater 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).

General benefits

- Greater efficiency throughout the school (Greene *et al.*, 2002)
- Better communication
- Quicker and easier reporting to LEAs (Mayo, 2000)
- Less paperwork, with associated reductions in tasks such as filing and photocopying
- Improved home-school links through greater access to information for parents (Becta, 2001)
- Better quality and accuracy of records (PwC, 2002).

Benefits for teachers

- ICT facilitates sharing of resources, expertise and advice
- Less duplication of effort when preparing lesson plans, worksheets and reports (DfES, 2001)
- Greater flexibility in when and where tasks are carried out
- Potential for more non-contact time (PwC, 2001)
- Better networking opportunities, including greater social contact and support
- Better management of student transfer and transition through electronic data transfer (Irving, 1998).

Benefits for students

- Higher quality lessons through greater collaboration between teachers in planning and preparing resources (Ofsted, 2002)
- More focused teaching, tailored to students' strengths and weaknesses, through better analysis of attainment data.

- Improved pastoral care and behaviour management through better tracking of students (PwC, 2002)
- Greater clarity over assessment through improved collaboration between departments (PwC 2002).

Benefits for parents

- Easier communication with teachers (Becta, 2001)
- Higher quality student reports – more legible, more detailed, better presented (Accounts Commission for Scotland, 1999)
- Greater access to more accurate attendance and attainment information (PwC, 2002).

Factors for effective use

ICT helps to reduce teachers' workloads, if:

- there is coherent planning and deployment of ICT resources, ideally on a school-wide basis (PwC, 2001)
- hardware and software are of high quality and compatible, allowing efficient electronic transfer of data school-to-school and school-to-LEA (Whelan, 2000)
- there is access to hardware, software and school networks for all teaching staff, when and where it is needed
- the quality of software and web-based teaching resources is high (PwC, 2001)
- technical support is available (PwC, 2002)
- training is available, of high quality, and taken up by teachers (PwC, 2001)
- ICT is used in combination with non-ICT strategies for reducing workload, such as increasing the numbers of teaching assistants.

Reducing teachers' workloads in practice

Michael Moore, a primary school headteacher, sees ICT as integral to his aim of devising methods to cut down on administration and paperwork. He has successfully reduced workloads through the following uses of ICT:

- Word-processing templates, stored centrally, have made composing planning documents quicker and easier
- Web-based assessments have reduced time spent on marking, as well as providing target-setting and monitoring information
- Recording pupils' test data on centrally stored spreadsheets has made producing reports and setting attainment targets much easier
- Synchronising diaries through the use of palmtops has made communication more efficient
- Connecting to the National Grid for Learning has enabled teachers to download teaching materials and share their experiences
- Circulating draft documentation by email has dramatically reduced the amount of paper-based communication
- Using North Somerset LEA's online system for managing finance has made financial administration more efficient.

Michael's plans for the future include linking the school's curriculum and administration networks so staff have secure access to school data from any machine. He believes the school's success is due to its strategy of ensuring 'the bulk of our developments have been focused on doing things better rather than just for the sake of innovation or change'.

(From *Information management supporting success: making it a reality*, DfES, 2001)

Explanation of findings

As with ICT more generally, positive impacts on teachers' workloads depend on the ways in which the ICT is used. Appropriate, not just increased, use of ICT is crucial: it is important to judge where the introduction of ICT could lead to real benefits, and also to balance these potential benefits against the costs.

Collecting, storing and using data

The literature shows that recording data electronically, storing it centrally, and sharing it with colleagues is vital to reducing workloads through ICT. This strategy can apply to a variety of resources:

- *Templates and pro formas* – having readily available electronic copies of commonly used documents reduces teacher input.
- *Student reports* – teachers can complete them when they choose; use of 'statement banks' can save time, though there is concern over their impersonality (Accounts Commission for Scotland, 1999).
- *Curriculum resources* – teaching materials, produced within schools or downloaded from the Web, can save time and improve pedagogy. A high level of ICT in curriculum planning characterises the most successful primary schools (Ofsted, 2002).
- *Databases and spreadsheets* – reports and statistics (on attainment, attendance and financial data, for example), can be produced more easily and data can be used by other applications, for example to inform parents automatically of unauthorised absences (Accounts Commission for Scotland, 1999).

Communication

While email is already a much-used tool, research shows other forms of electronic communication can help reduce workloads:

- *Handheld ICT* – devices such as Personal Digital Assistants (PDAs) allow records of appointments and disciplinary incidents to be 'beamed' to other PDAs or transferred to desktop computers (Ray and Patterson, 2001).
- *Electronic data transfer* – the amount of data entry needed is reduced when pupils move school (Irving, 1998). However, compatibility of systems is a key factor (Bushweller, 2000).
- *Video conferencing* – saves time spent travelling to meetings (Greene *et al.*, 2002).

Increasing non-contact time

There is evidence that ICT can reduce the amount of time teachers spend supervising classes, answering questions, and administering tests:

- *Dedicated ICT suites with their own technician* – these can provide a supervised learning environment for students when their teacher is absent (PwC, 2002)
- *Computer-mediated discussion groups* – these encourage peer support and reduce repetition in answering questions (Selinger and Yapp, 2001)
- *Automated assessment* – web-based tests (DfES, 2001) and computer-based analysis of written work (Holdich, 2002) save time spent marking.

Issues affecting workload reduction

The evidence points to the following key issues in supporting the use of ICT:

- Technical support
- Training
- Access.

Research shows adequate technical support is vital (PwC, 2001). Efficiency savings can be wiped out if teachers have to spend time troubleshooting. Downtime must be minimised.

Similarly, if teachers are not properly trained, the introduction of ICT can increase workloads. The issue is not simply providing training, but ensuring quality and timing it so it does not add significantly to teachers' working hours (PwC, 2001).

Research suggests that access to ICT when and where needed is crucial to reducing workloads (PwC, 2001). Providing teachers with laptops is an effective means of ensuring access, particularly as this allows greater continuity of work between school and home (Greene *et al.*, 2002). The location of the ICT is key: to make full use of ICT for administration, some equipment must be located outside teaching areas and be accessible during school hours.

With increased access to information comes the issue of security. Where student data is stored electronically, safeguards need to be in place to protect confidentiality (Accounts Commission for Scotland, 1999).

Key areas for further research

All aspects of using ICT to reduce teachers' workloads require further quantitative research, though longitudinal and value-for-money studies in particular are needed. The *Transforming the School Workforce* Pathfinder project, launched by the DfES in January 2002 and running for the 2002–03 academic year, will help to fill this gap. However, the potential uses of ICT in this area are so diverse that smaller studies of particular applications would also be valuable.

Details of the *Transforming the School Workforce* Pathfinder project and the most recent national agreements on teachers' workloads can be found on the Teachernet website [<http://www.teachernet.gov.uk/management/remodelling/>].

About the research literature

While research on the nature and extent of teachers' workloads is extensive, there is relatively little on the role that ICT can play in reducing workloads.

Much of the evidence cited in this report comes from Government research projects, supported by case examples and articles in newspapers and the professional press. There is very little from academic literature and refereed journals. One reason for the lack of academic research in this field may be that measurement of time saving can be problematic, especially when comparing the effects of two or more approaches to a given task. Activities can be interrupted, and the onset of fatigue is often not assessed.

As a result, there is far more advice than evidence on using ICT to reduce teachers' workloads. Examples of good practice are often anecdotal and the benefits ICT is said to have brought in these cases are rarely quantified. In many of the examples it is not clear whether the switch to ICT has reduced workloads or merely changed how and where tasks are undertaken. For this reason, it is important to treat the findings with caution and exercise judgement in assessing their wider applicability.

Key questions for schools

- Is there sufficient access to ICT for administrative purposes?
- Does the quality and compatibility of your equipment allow electronic data transfer?
- Is technical help and training available?
- Are safeguards in place to protect information from unauthorised access or loss?

Bibliography and further reading

The research referred to in this briefing represents a selection from the rapidly growing field of research related to ICT and teachers' workloads, 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, 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 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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