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Summary

There is limited research relating to the leadership and management of ICT in academic journals. However, a number of research projects by national organisations provide evidence that ICT can change the way school leaders manage their schools.

Key benefits

- better insight into how a school functions
- improved evaluation of school performance
- better use of school resources
- better information for curriculum planning

How head teachers can embed ICT within teaching, learning, management and planning

- develop a vision for the development and integration of ICT across the curriculum and promote this vision within and beyond the school
- provide appropriate, sustained ICT professional development for all levels of staff
- become an ICT learner along with staff and students
- use management information for school improvement
- provide staff with personal access to ICT.

What the research says about strategic leadership and management of ICT in schools

This report is based on an analysis of available research about school leadership and the effective integration of ICT in schools. It summarises the key findings and suggests resources for further reading.

What is strategic leadership of ICT?

The National College for School Leadership has identified that school leaders of the future will need knowledge, skills and understanding in:

- how ICT can support, enhance and improve teaching and learning
- motivating and developing staff to achieve effective teaching with ICT
- developing and sustaining ICT resources
- how management information systems (MISs) can improve school effectiveness.

There is evidence that the role of school leaders is crucial to the success of ICT developments in schools. School leaders need to communicate a clear vision that is shared with the whole school community, to ensure that ICT is integrated into the teaching, learning, management and planning systems of their schools.

Key research evidence about the leadership and management of ICT in schools

On the basis of Becta's analysis, the leadership and management of ICT in schools can have positive effects 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 school leaders, in order to provide an initial idea of the available research evidence for the use of 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).

Benefits for school leaders

- Use of online conferencing can help reduce professional isolation and provide tested management solutions (Crawford 2001).
- Contact lists, diaries and meeting arrangements can be kept up to date and fully synchronised across a management team or the whole school staff when handheld computers are used (Perry 2003; Telem 2001).
- Shared leadership models help cope with the expansion of ICT and manage workloads (Yee 2000).
- Effectively using MISs can reduce time spent on administrative tasks, but compatibility of systems is a key factor (Bushweller 2000; North *et al.* 2000).

Benefits for teachers and non-teaching staff

- All levels of staff can play a greater role in the school due to new and flexible management structures facilitated by ICT (Evans 2002).
- Where school leaders are enthusiastic and visionary about ICT, it can yield significant workload reductions whilst securing undoubted advances, in addition to direct curriculum benefits (PwC 2001).

Benefits for parents

- greater access to more accurate attendance and attainment information (PwC 2001)
- easier communication with and access to head teacher and teachers through using ICT (Becta 2001).

Factors for effective use

- A clear vision of ICT should be communicated to all levels of staff and the wider school community.
- Head teachers should personally use ICT to raise the profile of ICT in school.
- Participate in online communities to help reduce professional isolation.
- Access is needed to professional development for strategic leadership of ICT.
- Effective use of MISs to reduce the time spent on administrative tasks and provide useful data.

Leadership and management of ICT in practice

ICT has a central role at Baldwin's Hill Primary School in West Sussex. Stephen Snowball, as head teacher and ICT co-ordinator, has devoted a considerable amount of time and money to ensuring that ICT plays a key role in his school development planning. There is a clear focus on ICT to raise standards across the school, with continuing professional development valued by all members of staff. Mr Snowball ensures that his own enthusiasm and high expectations are shared. The school focuses on research. This research includes an ongoing project to look at the impact of technology on boys' writing. Mr Snowball has set up a transition project with a local secondary school.

Other initiatives include a modern foreign languages strand in the school that uses email to link with a partner school in Hong Kong. The importance of digital video and creativity in

teaching and learning is recognised by all the staff. The availability of laptops to use at home and at school strengthens the links between parents and the school. Additionally, all staff have laptops with medium- and short-term planning pro formas loaded so that all planning is now submitted electronically and all reports to parents are done on the computers. Admissions, transfer and attendance data are generated by ICT.

Stephen Snowball was a 2003 joint winner in the primary leadership category of the ICT in Practice Awards. The publication 'Showcasing excellence in the 2003 ICT in Practice Awards' includes case studies of other leadership winners and runners-up: http://www.becta.org.uk/corporate/awards/practice_awards/

Explanation of findings

There are a number of key characteristics shared by school leaders who manage ICT effectively in their schools. These research findings are grouped under five headings: vision, personal use, continuing professional development, management of change, and management information systems.

Vision

Senior leaders need to communicate and share a clear vision of ICT with all levels of staff.

When they are enthusiastic and visionary about ICT, they can give a positive lead in the use of ICT in the curriculum and in the management of the school. This vision will be constantly developing to accommodate new ideas and evaluate previous actions. Successful leaders will have different leadership styles, but they all need to have a vision of learning transformed by ICT (Evans 2002; Sheppard 2000; Walsh 2002; Yee 2000).

Personal use

Senior leaders personally using the technology in their everyday working lives raise the profile of ICT in their schools. By becoming an ICT learner along with staff and students and leading by example, they can begin to change the culture of their school. They do not need detailed knowledge about the technology, but need to know enough to talk with suppliers and staff (DfES 2001; Yee 2000). Senior leaders have also reported efficiency benefits from the use of handheld computers (PDAs) to synchronise meetings and timetable arrangements across the whole school. However, more research is needed to determine whether using this technology will result in a significant reduction in the workloads of staff (Perry 2003).

Continuing professional development and online support

Senior leaders need training and advice in advanced uses of MISs (Visscher 1996; Walsh 2002). Online support can help to reduce the professional isolation of school leaders through access to a wider professional community with solutions to everyday management problems.

The ability to network with and learn from the experiences of others who are strategically implementing ICT is among the many benefits of being part of an online community (Crawford 2001).

Management of change

Innovative school leaders are using new and flexible management structures to create learning environments that put students in control of their learning. The change processes provide senior and middle managers with opportunities to innovate and share leadership with a wider range of staff. In order to address educational change effectively, school leaders need to understand and apply approaches to the management of change, and recognise that integrating ICT involves risk at certain levels (Evans 2002; Passey 2002; Sheppard 2000; Walsh 2002).

Management information systems

Using MISs effectively for school improvement can assist senior leaders in planning and evaluating the operation of their schools. Time spent on administrative tasks can be reduced, and extra time spent on other management or teaching activities. However, most schools are using MISs at a basic, data-entry level, and senior leaders will require training to make more advanced use of these systems. Using ICT-based pupil assessment tracking and attendance systems, and the creation of in-house reporting and recording software, will help to take schools beyond the current basic levels of use (North *et al.* 2000; Perry 2003; Telem 2001; Visscher *et al.* 2001).

About the research literature

Whilst research on educational management and the management of change is extensive, there is relatively little which evaluates how school leaders are leading the development of ICT in their schools. Much of the evidence cited in this report comes from research projects that have been undertaken by national organisations such as the National College for School Leadership, and this is supported by case studies and literature reviews. There is relatively little evidence from academic journals.

Current research

The Department for Education and Skills (DfES) is currently funding two national projects on the use of ICT. Both activities will be evaluated and best practice disseminated.

The ICT Test Bed project <http://www.dfes.gov.uk/icttestbed/> is being funded for four years to examine how effective use of ICT can help raise achievement, improve the efficiency of leadership and management, reduce teacher workloads, enable more effective collaboration between schools, colleges and communities, and create wider learning opportunities for pupils, their families and the local community.

The Transforming the School Workforce project <http://www.teachernet.gov.uk/management/remodelling/pathfinders/> is funding 32 schools using ICT extensively, to help investigate the different ways ICT can help with administration, reduce planning and preparation time, and help communications in schools.

Key areas for further research

Further research could include:

- how school leaders personally use ICT, including handheld computers (PDAs)
- the continuing professional development of school leaders implementing ICT in schools
- the total cost of ownership, deployment and sustainability of ICT resources.

Strategic Leadership of ICT (SLICT)

This national training programme helps head teachers focus on their strategic role in leading ICT in their schools. It has been developed jointly by Becta and the National College for School Leadership (<http://www.ncsl.org.uk/slict/>).

Key questions for senior leaders

- Do you and your senior management team lead by example in the use of ICT?
- Is ICT central to curriculum developments in your whole-school improvement plan?
- How well are teachers in your school supported in their use of ICT through continuing professional development, ready access to ICT resources and technical support?

Bibliography and further reading

The research referred to in this briefing represents a selection from the rapidly growing field of ICT research related to ICT, 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 advisers
- 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:

<http://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.

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 is provided in the paper *Transforming the way we learn*, available at: <http://www.dfes.gov.uk/ictfutures>

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