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Research Associate Report

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Changing times, changing roles:

How primary schools have remodelled for the leadership
and management of ICT

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Introduction

Well, those of you who managed to hang in for most of that, well done...

(Chair of LA Headteacher conference, following explanation by ICT Advisor of future city-wide development of ADSL and broadband provision)

These words, spoken in 2001, highlighted the position in which many headteachers found themselves, possibly for the first time. They were being asked to lead the biggest single spend other than staffing, from a position of very limited knowledge.

It caused me to reflect upon the systems that I was setting up in order to manage a subject, which, it was becoming increasingly clear, would impact on the entire curriculum, as well as administration. It started a process of reorganising ICT, which, in my own school, would lead to a whole-school change of strategic leadership. For other headteachers, similarly, there will be a need to consider how best this area can be led both strategically and operationally. This paper explores the issues and how some schools have set out to achieve this.

Rationale for the research

As I drew up a job description for the appointment of ICT manager, I became aware that school needs and expectations would form a highly demanding remit for a teacher, and began reflecting on alternative systems in order to develop a model suitable for my own organisation. At the same time, the national remodelling process was underway and, as I undertook training as a remodelling consultant, a pattern for the development of ICT as a model for change began to emerge.

Although the change details are tailored to individual needs, the issues involved are relevant to all schools, and this premise formed the basis of this study. It examines the impact of the remodelling agenda on the leadership and management of ICT

Review of relevant literature

A full research of the literature would encompass too wide a field for the purposes of this study; therefore this section will focus on current government and national papers and initiatives, with reference to relevant research and management theory.

In 2003, the National Agreement between the Government, employers, and the workforce was drawn up, designed to:

...enhance the status and work/life balance of all who work in our schools. It enables teachers to focus more effectively on their teaching, and provides every pupil with a chance of greater success.

National Remodelling Team (2005)

Schools were to be advised to set up Change Teams, whose remit was to prioritise and implement change initiatives. Statutory changes to teachers' contracts were to take place over three phases, with the first in 2003 promoting reduction in "overall excessive hours", "leadership and management time" and "routine delegation of administrative and clerical tasks". The third in 2005 introduced "guaranteed professional time for planning, preparation and assessment" (NRT 2005).

In *Fulfilling the Potential* (DfES, 2003, p1), Charles Clarke set out his vision for the strategic direction of ICT in schools. Although acknowledging many of the issues that had been already tackled successfully, he stated, "the potential for real transformation still remains largely untapped". This publication challenged schools to develop ICT in the context of broader strategies, including workforce reform:

ICT needs to be seen as a key, integral element of the school reform agenda: freeing up time and energy to help remodel the school team; enabling efficient knowledge management within schools; supporting knowledge transfer between schools and outreach to parents and the community; as well as being a hugely powerful medium for transforming teaching and learning. (DfES, 2003, p3)

The National Remodelling agenda, linked to ICT, identified both opportunities for schools as well as challenges.

Opportunities

Stewart McEwan from the NRT, identified the following key benefits for ICT in his executive briefing (2004):

- the freeing-up of non-contact time
- the greater involvement of support staff allowing teachers to perform administrative tasks more quickly and thoroughly
- quicker and easier communication and networking
- the use of performance databases to track progress and spot trends
- the use of ICT systems to assist with class/curriculum planning to support collaborative working within the school

PricewaterhouseCoopers (2004) found ICT could address workload, particularly in terms of refocusing on more productive tasks, and identified improved quality of planning, delivery, and reporting. However, this successful addressing of barriers and challenges was dependent upon the confidence and basic skills of the teachers.

Challenges

However, schools were, according to the DfES (2003, p8):

...significantly behind most other organisations in their use of ICT to support leadership and management. The freeing up of teachers' time and the whole school approach to improvement which are essential to create capacity for reform.

PricewaterhouseCoopers (2004, p115) also identified the changing nature of ICT and the challenges that this brought to schools' leadership:

Planning and managing ICT deployment is becoming an increasingly challenging task for the senior management team. It is unclear whether all schools have the capacity or expertise to put in place strategic plans that meet the demands of increasingly complex ICT needs.

They found that there was a focus for schools on how ICT could be used to improve the quality of teaching and learning rather than how it could reduce workload.

Scrimshaw (2004), writing for Becta, identified further challenges at teacher level with associated implications for leadership. Firstly, school-based, where effective needs assessments and planning promote innovative practice, appropriate shared resources, needs-led professional development and reliable technical support. Secondly, there are 'external enabling strategies', which feature 'real life' contextualised learning where students work with other schools in the wider community and on national developments, a strategy which also benefits the teachers by increasing confidence and motivation, sharing good practice, and offering wider resources.

Andrews (2005) identifies further barriers including "staff cynicism at another new initiative, stretched budgetary resources and the conflicting demands of different groups of staff".

Whilst Becta (2004, p4) states that:

ICT is unlikely to support real workforce reform unless roles, relationships and responsibilities are redefined to address the new ways of working that ICT allows. This goes significantly beyond ensuring that staff have the right technical skills to use the technology. While ICT can offer incremental efficiency gains, real benefit will require new planning, management (at classroom and institutional levels) and team working skills.

These changes were recognised by Evans (2002, p18) who observed that whilst in most schools e-learning was led by a member of the leadership team, a traditional leadership pattern was not always followed:

Some schools have moved to a model of distributed leadership, in which leadership has been given to those who showed enthusiasm, skill and knowledge in the area of development... They recognise that within the body of the staff, leaders can emerge through their drive, vision and knowledge.

More distributed, collaborative or shared approaches are similarly identified by Southworth in *Learning-centred leadership* (2004) NCSL, Scrimshaw (2004) and Yee (2000) respectively. These sources identify issues around leaders 'letting go', innovation and decision-making and "protective enabling [that] allowed for the creation of energised and committed staff members" (Yee, 2000, p.295).

Passey (2002, p13) comments further on the roles associated with the leadership of ICT:

How current and likely shifts in ICT uses and practices will affect the need for personnel management in the future. It is clear that new roles are emerging in education as a result of

new technologies being introduced – the need for web-surfers, for example, to inform teachers across the school about potentially useful resources.

Williams and Coles (2001, p19) identify challenges related to subject co-ordinator roles:

It is often found to be impossible to give teachers in this valuable role of ICT co-ordinator time away from teaching to devote to their second role. While advice and support from peers is highly valued by teachers, they are also very wary of increasing the burden and relying too much on the goodwill of overstretched colleagues.

An exhaustive list of ICT co-ordinators' tasks, including 'favours often requested' is provided by Freedman (1999).

Research methodology

In order to gain as broad a picture as possible, the research included:

- Semi-structured interviews with 12 Key Stage 1/2 schools' headteachers and/or ICT managers in four LAs, most by telephone, but some geographically close schools were visited
- In-depth interviews and visits with three of the 12 schools
- Teacher questionnaire for one school
- Headteacher questionnaire to 50 schools in one LA (response 72%)
- Diary of ICT manager in one school
- Discussion with two workforce remodelling consultants
- Informal discussion with one local authority ICT adviser
- Telephone conversation with Stewart McEwan (National Remodelling Team)

Following the initial data collation, it emerged that three of the schools had distinctive approaches to the Leadership and Management of ICT. This led to lengthier interviews with heads and ICT managers of the schools, and the findings were eventually fed into the three case studies in this research.

In 2004 I had trained as a workforce remodelling consultant, and some of the initial schools selected were recommended by colleagues from other LAs with whom I took part in training. I asked them for examples of ordinary schools with interesting leadership and management of ICT, where the head teacher was keenly involved in the development of ICT; however, the schools were not necessarily to be high achieving schools in terms of data, practice or resources. They made first contact with the schools, and I followed up with an informal call and booked a telephone time. Some schools I had found via my remodelling experiences, and others from articles or reports on the web.

At the outset of the telephone interview I reassured them that the conversation would not take more than 20 minutes. Other ground rules I set in advance were:

- I would not be recording the conversations electronically but would take notes.
- Schools would not be identified specifically.
- I would e-mail them my notes within one day for them to check for accuracy.
- I would send them a copy of the report as soon as completed.

Although the conversation was free-ranging, I had a list in front of me of areas for discussion, and made sure these points were covered.

I focused on three schools because they all had distinctive but different systems in place. This took the research into unanticipated areas, as it began to emerge that the reorganisation of ICT had contributed towards the development of new management systems.

The interviews, which took place between April and July 2005 (ie *before* statutory PPA time), included ICT's contribution towards:

- covering the 24 tasks
- administration
- organisation and record keeping
- planning, preparation and assessment
- re-thinking leadership and management systems
- work-life balance

I only decided on the teacher questionnaires some way into the study. Several comments by heads during the interviews made me wonder how much ICT was managed by people on a purely voluntary basis by enthusiasts who enjoyed working with computers. For example, website design and upkeep is time-consuming and yet one teacher voluntarily spent hours in the evening maintaining the school website, as did several husbands and other family members. It also highlighted widely differing approaches to non-contact and support.

A questionnaire would give a useful broad-brush picture, but as a head I knew how unlikely I was to complete them, especially as it was by now the end of June and schools were at their busiest.

A fellow research associate suggested the 'chocolate biscuit incentive'. I sent out brief questionnaires with self-addressed return envelopes to 50 infant, junior and primary schools in my LA and included a Kit Kat in the envelope. A covering letter promised it should take less time to complete the sheet than eat the biscuit. I was pleased with the 72% response, especially given the time of year, and even had feedback on the methodology, along the lines that the biscuit made them laugh and persuaded them to complete the questionnaire.

As the purpose of the study was to reflect on schools' perception of ICT in the context of the remodelling agenda, I decided to examine their perceptions in terms of the six areas that came out of the literature review.

Perceptions of ICT

1. 24 administrative tasks

These are now embedded in school practice, although the research highlighted issues with which some heads are grappling in the current restructuring process. Many tasks had been taken up by administrative staff well in advance of the NRT process, eg inputting data and transferring it to the LA, and using budget spreadsheets.

Several heads reported that governors had increased office hours to cover this, and this had resulted in changes to the traditional roles of administrative staff. In terms of the restructuring agenda, there are undoubtedly implications, as administrative jobs have increased expectations of the professional skills required to fulfil them. There is also a blurring of the line between administration and assessment processes: SIMs managers now liaise directly with teaching assessment managers; more information is stored on spreadsheets; clerical staff whose remit had once been hands-on pastoral pupil care of children may increasingly be expected to use ICT in their role. One school gave the example of a clerical assistant who overcame her initial nervousness to be trained on using Excel to record lunch money. Not all existing staff are comfortable with the changes:

If I'd wanted to be an accountant I'd have trained as one.

(Administrative officer, medium primary school)

Two of the 24 tasks refer to setting and maintaining software and troubleshooting minor difficulties. It was in these areas that staff roles have changed most radically, and this will be covered in part 4 of this section, Extending roles and staffing.

2. Knowledge management in schools

This phrase, used by Charles Clarke, is not defined, but for the purposes of this research, I am considering it as the overall management of curriculum planning and ICT resources. There was agreement among heads and teachers that laptops were the single most important contribution towards convenience. Resources, as well as planning, could be kept on file, for future modification and enhancement.

Two schools were in Dudley, a computer-rich authority following a massive injection of funding into hardware and administrative training. Both heads spoke with great assurance of the benefits of this level of investment, based on the powerful Dudleynet. The same phrase was used by heads of two schools to describe the improvement in staff expertise:

Training needs are administered in school – it's second nature!

As confidence in ICT has been promoted, its usage has become second nature.

In terms of the remodelling agenda, particularly the expectations set out by Charles Clarke and Stewart McEwan from the NRT, findings for Knowledge Management are:

- Improved teaching: once resources are prepared, teachers are freed up to teach more effectively. Most schools mentioned whiteboards as an effective means of promoting learning.
- Time saving: there was general agreement among teachers that ICT saves time, particularly in planning and preparation. However, whilst many teachers enjoy searching for web-based learning, if work-life balance is to be a part of the remodelling agenda, then this will need to be acknowledged.

I do not think using ICT necessarily saves time, but it does make the use of time more effective.

(Reception teacher, medium primary school)

3. Communication

The research indicated a belief that ICT does speed communication, but several heads were concerned that time saved did not contribute to work-life balance, as PricewaterhouseCoopers reported. Those interviewed perceived the time to be filled in by the “ever increasing” demands on teachers’ time, as “paperwork doesn’t seem to decrease proportionately”.

Those schools that had developed school intranets spoke of the great benefits in whole school communication, but that they did require updating.

We keep minutes of meetings, timetables e-documents on the network. We try to be mindful of work-life balance - there is a general awareness of the potential of ‘paper for paper’s sake’ and we try to keep this to a minimum.

(Headteacher, very large primary school)

One LA had a very fast, effective intranet with:

...very strong school to school communications, good assessment tools, data collected and analysed easily. The downside to all this communication is the number of e mails, but if there is an issue at local or national issue information is passed around the authority.

(Headteacher, large primary school)

Schools of all sizes found school websites to be an effective tool. The head of a small primary school found it “great for marketing, and parents use it”. Websites engendered great enthusiasm, and several schools’ senior teachers were instrumental in setting up and maintaining the sites. Three heads said their husbands kept these up to date as a hobby and another’s daughter voluntarily designed the site.

Several heads found it convenient to access mail at home; initially, this does not seem compatible with work-life balance initiatives; however, a small but increasing number of headteachers take dedicated headship time by working at home. One stated: “It’s the only way I can get things done without being interrupted.”

4. Extending roles and staffing

This formed the central part of the interviews and discussions.

Heads agreed that training was vital. ICT in one school, which had been in the forefront of purchasing hardware, was led by the head, who made a conscious decision not to push the new technology:

We went slowly and thoroughly, bringing everyone on board at their own rate. There was no pressure, skills were built steadily.

but there was general agreement that although there may be some uphill progress initially, once the tipping point was reached, (and that tended to be more quickly than expected) teachers were quickly brought up to speed:

The staff are much happier about using technology now – they used to think it was just for boffins, but the more they use it the happier they are. It's all about confidence.

(IT manager, large junior school)

Giving time to show this is not just another initiative reaps dividends.

(Headteacher, medium-sized infant school)

One senior teacher, in a medium-sized primary, who stated very candidly, "No one could have been worse than me!" when ICT was first introduced, felt that after peer support: "I definitely think it saves me time for planning, reports, and admin."

The main means of minimising stress and supporting staff was the contribution of the computer technician, and this was identified by nearly all headteachers and teachers. The decision to appoint a technician has huge budgetary implications, especially as ICT is already a high-spend area, but in order to optimise this expenditure, heads felt that some investment in support mechanisms was essential. There was a wide range of hours and job descriptions for the technician, from shared part-time to two full-time technicians/dedicated ICT support staff.

There was also an interesting overlap between ICT managers and technicians, and in separating these roles, there were two emerging issues:

1. Expectations of the ICT manager

- What are the expectations in terms of technical and curricular knowledge?
- How much input does he/she have at the strategic level?
- What are reasonable expectations of workload and release time?
- How far does the role overlap with those of subject managers, as ICT is increasingly embedded in other curriculum areas?

2. Knowledge required of the technician

- What is reasonable to include in the job description?
- What are the lines of communication with leadership team?
- At which point does decision-making click in from technician to manager?

It is here that the potential contribution of ICT towards the wider remodelling agenda began to emerge.

Role of the technician

Teachers felt the single most powerful contribution towards timesaving and general support was made by the technician. Chief benefits listed by teachers tended to fall into three main categories:

Technical support

- troubleshooting minor faults
- loading software
- backing up
- setting up hardware, eg projectors and screens, where these were not permanently installed, peripherals such as microscopes, scanners, and control equipment
- time-saving by taking responsibility for signing out and returning shared equipment such as digital cameras

Researching resources

- introducing teachers to new programs
- researching appropriate programs on the web

Delivery and training

- modelling delivery at class level
- training teaching assistants on pupil programs

The schools that shared technician time emphasised the importance of minor troubleshooting and software management; however, teachers in schools who had their own full or part-time technicians pointed out the additional benefits, which were embedded in a high degree of commitment and ownership. This was highly valued by the teachers:

It's just knowing she is there if I have a problem or forget what to do. It gives me confidence to have a go with something different.

(Teacher 1, medium infant school)

Tim's strength is if something "grass roots" happens, he'll drop what he is doing and come and sort it out.

(Subject manager)

I wouldn't like to work in a school where they didn't have a Tim!

(Teacher 2)

Several technicians and ICT managers found that there is an impatience associated with ICT, which does not seem to occur in other subject areas. One subject manager had previously managed science and observed that teachers had been far more willing to wait for help: "As soon as you put technology in the equation, people want it now."

In several schools, teaching assistants were trained by the technician. In one school TAs are offered European Computer Driving Licence training, and they have taken this up, several in their own time. This is appreciated as continuing professional development as well as feeling that they were highly valued:

I think it helps me do my job better if I know what I am doing and can help set up the projector. It saves the teacher bothering about it and she can get on with the class.

(Teaching assistant)

This was recognised by the technicians themselves:

The teachers will try something a bit more risky if they know I'm on site and will sort it out!

It's really easy to push these things too hard. We have to give everyone time to get used to programs.

We try to support the teachers, our challenge is to keep it running trouble free.

This ownership extended to purchasing resources:

We chase our own resources. I do the research and track down the best prices.

(Technician, large primary)

She spends ages looking at catalogues and negotiates prices. I can't believe what a hard bargain she drives!

(Headteacher, medium primary)

In some schools, support staff who show a flair for ICT spend some time working with the technician, in effect producing their own 'home-grown' technical support. Tasks include the most basic of maintenance, such as replacing cartridges, booting up PCs, writing 'crib sheets' (instruction lists) for teachers and production of resources linked with ICT. By working side by side with the technician, they gradually accumulate specialised knowledge.

Role of the ICT manager

Again, the high degree of enthusiasm and ownership was a feature in all schools that took part in the study:

I work three days, but I have a family, so on the other days I can write programs and do my planning. Mad!

(ICT manager, large junior school)

One school's suite was run by an enthusiastic husband and wife team who had previously worked in the school and now came in voluntarily three days per week. Most of the schools had voluntary computer clubs, run by teachers or teaching assistants.

Where schools have an ICT manager and technician, an effective collegiate relationship often results:

I couldn't do this job without Hilary. I'd need two days off a week. My job description says I shouldn't be doing technical jobs, but if Hilary's not there I will.

(ICT manager, large primary)

Another head said that when her ICT manager was doing the work of computer technician, the ICT manager expressed dissatisfaction with her role (large primary). This is unsurprising considering the requirements listed by Freedman (1999). Certainly, the traditional responsibilities of subject manager do not cover the current expectations of the ICT manager, and Freedman's list was drawn up in 1999, before the cross-curricular impact of ICT and the development of the strategic aspect of the role.

Headteachers and ICT managers described their roles, and several provided job descriptions. It was significant that technical troubleshooting was not included in job expectations; however, demarcation between roles is blurred and, with the notable ownership and collegiality throughout the study, the managers all stated that in practice they would attempt to sort hardware or software difficulties.

Current moves towards integration of ICT across all subjects were high on the list of those schools that were visited. Several were involved with production of planning grids, co-ordinating with other subject managers and cross-curricular project support. Another area was the setting up of systems; one ICT manager, who works alongside a full time technician, is working on whole school processes:

I am trying to make everything systematic and consistent through the school. When a teacher logs on anywhere in the school it should show the same environment, even links to the last used file on any other computer on the network.

Another ICT manager is working on co-ordinating staff on moderation processes, and setting up whole-school assessment processes: the children complete commercial worksheets, which include 'I can' statements. These are collated by the manager on behalf of the teachers, as she feels that teachers already spend a considerable amount of time collecting evidence for assessment, and that their time is better spent collegially reflecting on the findings, rather than the process of collection:

All teachers in the school work together to moderate best Y6 work – it increases involvement and teacher expertise throughout the school. I collect end of unit assessments and self – evaluations, and the teachers appreciate not having to collect the evidence themselves. I'm working on saving this electronically now.

(ICT manager, large primary)

Three heads felt that other curricular managers' improved grasp of ICT skills meant that they did not require the support of teacher ICT managers, and one reported that from January 2006 her school would not have a named ICT manager. She felt that the literacy and numeracy managers were increasingly confident to be able to embed ICT into their subjects. This school was in an LA that had a pre-designed software infrastructure accessed via an intranet, which took away much of the time consuming software and licence management process.

Other roles were distributed in wider directions: the transfer of data, the analysis of data, and the role of the assessment co-ordinator would all be the responsibility of named administrative staff.

Terms used by heads to describe ICT managers were those once associated with senior members of staff, eg "someone who sees potential, an enabler" (large primary).

Here the ICT co-ordinator's principle responsibility areas on her job description were:

- A. Strategic direction of ICT
- B. Teaching learning and the curriculum
- C. Leading and supporting staff
- D. Managing resources

14 key tasks for this person included:

- to establish a vision for the subject
- to set a development plan
- to monitor and evaluate the effects of policy and plans, establishing clear targets for improving pupil achievement
- to monitor and evaluate progress and achievement in ICT by all pupils
- to participate in the deployment of staff involved in the teaching of ICT

Terminology of this sort was once traditionally used in the context of higher-level strategic decision-making, and is an indicator of the potential for extending and broadening the platform of leadership within a school.

What infrastructure is set in place in order to allow ICT managers to carry out their responsibilities?

Questionnaires on leadership and management of ICT were sent to 50 headteachers in one LA, and 36 responded. Only three schools did not have a teacher manager, two of which were led by the head. In response to the question:

- If you have a teaching ICT manager, how much non-contact does he or she receive?

The results were as follows:

None	19%
1 day per term or less	16%
1 hour per week	6%
2 hours per week	3%
3 hours per week	6%
5 hours per week	13%
Needs-led, or when bid for	35%

(figures rounded)

Heads consistently referred to the need for greater or more consistent non-contact time, but the implications for the budget prohibited this, especially in smaller schools with less potential for flexibility. Many had bought into a shared technician, either LA-based, or with their linked secondary school, for one or two days per week in order to troubleshoot. There was a strong feeling that it was essential that some kind of technical support, preferably full time, should be in place, as “teachers complain loud and long if anything is malfunctioning” (Headteacher).

Roles and responsibilities, in particular those of technicians and managers, form a vital part of the remodelling agenda, and three examples of the potential for change are given in the case studies at the end of this report. The potential benefits cited by the DfES (2003) and NRT (McEwan 2004) are undoubted, and recognised by all heads that took part in this research. But these benefits have to be accompanied by carefully thought-out staffing structures if they are not to add to teacher workload, becoming self-defeating in terms of remodelling.

5. Planning, Preparation and Assessment (PPA) time

This is central to the remodelling agenda and aims to provide 10% consistent non-contact time for all teachers. It was not to become statutory until September 2005, but most schools had trial systems in place already, often up and running. ICT was seen by five schools as an integral part of the provision of non-contact time for teachers, with

rotating carousels of group activities led by teaching assistants, outside sports organisations, music peripatetics or other providers.

Some schools have gone along the route of separating ICT skills from their cross-curricular applications to enable teaching assistants or supply teachers to deliver discrete ICT skills, sometimes textbook-based, which could then be applied in context. The technician meets with class teachers and plans lessons to demonstrate skills, which, once understood by the children, can then be integrated naturally into lessons. Examples included introducing databases for later use in science or maths, word processing, and art programs that develop mouse control.

A large KS2 school, which has a non-class-based ICT manager, has PPA time covered by the technician and manager on a subject rotation basis. Again, this is skills-based, and is built on the back of previous practice where the ICT manager modelled class activities while the teachers observed. However, the teachers are now sufficiently confident of their own knowledge base for the process to form the basis of the PPA programme.

Another large junior school has a similar strategy with a TA competent in class management skills, and an interest in ICT, delivering some of the ICT curriculum on a whole-class basis. This work is planned with a teaching shadow ICT manager, with the additional benefit of contributing to her own continuing professional development.

Not all schools integrate ICT into PPA but, in at least one medium primary, it plays a valuable part in work-life balance philosophy. Occasionally, a teacher needs to take short times out of school, eg dentist, childcare, personal business and there the non-teaching technician/ICT manager may then work alongside the class TA on an ICT activity pre-arranged with the class teacher. This is felt by staff and the head to be a valuable means of reducing the stress that can be engendered by the inflexible nature of school term times.

On a general level, the questionnaire to heads asked if ICT was to be factored into PPA time; 79% said no, but 21% had ICT built into lesson planning. These included:

- skills-based lessons delivered with class teaching assistants – freeing up class teachers for PPA time
- teacher-led four-week rolling programme of weekly PPA time cover for colleagues
- use of networked laptops for team planning
- carousel-style arrangements whereby specialist teachers or teaching assistants taught art, PE and ICT
- enrichment activities and consolidation of ICT skills

Case study 1: changing roles - remodelling the role of teaching assistant

This case study looks at the four-year development of the role of one member of staff, from computer technician/teaching assistant, to ICT manager, leader of ICT, and eventually to leader of strategic management team reporting directly to head and governors.

Three years ago, one medium-sized, inner city primary school made, what was at the time, an innovative appointment of a teaching assistant in the place of an ICT manager.

The decision was in part brought about by circumstances – there was interest in the post of ICT manager, but none of the candidates had what were felt were the skills necessary to carry out the role. A major ICT build was on the horizon, NOF training had only limited success, and there was a wide spectrum of ICT capability on the part of the teachers. In addition, the appointment was likely to be an experienced (therefore expensive) teacher, and costly in terms of non-contact time. Therefore, in common with three other schools in this study, it was decided that the head was to be named ICT manager, and a teaching assistant with ICT experience was appointed full time, to be responsible for disc management and technical support.

At the time, remodelling was still on the far horizon, but the issues that it aimed to address were in evidence.

There was no definitive job description – this was to be negotiated with the successful candidate – and a list of priorities was drawn up. These were issues that were subsequently shown to be the most time-consuming and troublesome to teacher managers, as well as the most demanding in terms of expertise. They were also the kinds of administrative task listed in phase one of the remodelling initiative:

1. Ensure that all licences were up to date – this could later become the province of administrative and office staff, but initially a knowledge of machines, programmes and software in place was essential.
2. Load software onto machines to ensure consistency.
3. Ensure printers were correctly linked and in working order.
4. Troubleshoot minor faults.

It was at this point that Yees' (2000, p298) 'energised commitment' took hold. Enthusiasm by its nature is self-propagating and, once the stress of using ICT at its most basic level was removed, teachers began to relax and try out new ideas to integrate ICT into their teaching. This relaxation, and willingness to take a risk, was cited by several schools in the study as a benefit of the appointment of a computer technician.

Role of the computer technician

Despite being named manager of ICT, the workload on the headteacher was now lightened, as she had a member of the school with sufficient technical knowledge to advise her, and enabled her to make informed decisions on hardware and systems. The teaching assistant became computer technician, identified her own training needs during appraisals, networked with other technicians and ICT managers, and built up her own knowledge base.

As the available software on the web and on disc increased, along with the management of e-credits, the strain was eased on teachers as she began to research suitable programs to support lesson plans, although the chief difficulty initially was that teachers tended to ask at the last minute. The line of differentiation between technical and curriculum was becoming blurred. There was some degree of continuing staff resistance to including ICT in subject planning; The Ofsted framework highlighted that, even if ICT

is not used for every lesson observed, it should be referred to in evidence forms. This was an indicator of the emphasis that the government is placing on effective integration of ICT in everyday practice. It was felt that her knowledge of available software would encourage teachers to think imaginatively and promote use of ICT for both teaching and learning as 'second nature' as described by some heads that took part in the study.

She became part of planning teams and directly involved in selecting activities alongside the teachers throughout the whole school.

The school now felt ready to use the NAACE (National Association of Advisors for Computers in Education) criteria as a guide for good practice in developing ICT, and there was sufficient confidence in the technician's personal, as well as technical, skills to re-designate her role.

ICT manager

With workload considerations and the remodelling agenda in mind, it was decided that one area of responsibility that could be removed from the head was that of ICT management, and it was transferred to the computer technician, who now became ICT manager. The technician had now developed her role to the point where governors asked her to take responsibility for pursuing the NAACE Quality Mark.

This consisted of ten criteria, including a three-year strategic action plan, a planned approach to using ICT across the curriculum, assessment of pupil progress, whole-staff development and shared development with partners – areas which are highly strategic and require a clear understanding of current school priorities, effective lines of communication with senior management, staff and governors, and the requisite management skills to pull these together.

This was clearly beyond the original phase one remodelling aims of timesaving and administrative reduction, and moves towards PricewaterhouseCoopers' (2004, p84) identification of the need to take a more 'holistic approach to ICT strategic planning, which places ICT at the centre of the workload agenda.'

The NAACE quality mark was achieved within ten months, and the senior management team decided to take this strategy further by transferring it to the entire strategic planning process. Three planning teams were set up, grouping curriculum subjects under umbrella titles of RE and Arts, Science and Humanities, ICT and Maths. The teams consisted of teachers, teaching assistants and governors. The reasons for this were:

- to remove the pressure on teachers to manage a subject area in isolation, especially in primary schools that encompassed Foundation Stage and Key Stages 1 and 2
- to help developing teachers acquire subject management skills in a supportive environment
- to promote curricular links
- to foster a team approach

The first two teams were led by the deputy head and science manager, and it was decided that the third would be led by the ICT manager. The remit included reporting

directly to governors, liaising with the senior management team, and supporting teachers throughout the school.

It was decided that although the ICT manager did not have qualified teacher status, her knowledge base, and her own repertoire of transferable personal and business skills, would enable her to lead the ICT and Maths team.

The head believes that if workforce remodelling is to promote thinking beyond traditional roles and responsibilities, and certainly staff restructuring initiatives required a 'blank page' approach to this, then this is an ideal time to look imaginatively at the skills that all members of the community can bring to the school, and to think beyond the traditional roles and responsibilities.

We chose to expand the role of a member of the support staff, and this would not suit all schools, but they will have different strengths to develop within the context of their own wider strategic aims.

(Headteacher, medium primary school)

The head emphasised that the development of the teaching assistant's role was not planned, but evolved one step at a time, as her own skills became apparent, and the requirements of the school clarified, and fitted the remodelling agenda where heads are encouraged to be imaginative and develop the potential of all members of staff.

Promoting team work

Every school that took part in this research referred to teamwork in one context or another, but several had developed the team management of ICT beyond conventional curriculum/management collegiate working.

If systems of management are to be redefined, and leadership and management tasks to be redistributed, then ICT may be the first area to drive these changes. Certainly, ICT is continually changing, and most staff are on a constant learning curve. This has tended to bring about a general culture of 'all in it together' – no one has all the answers, but there exists collegiality and shared mutual support which transcends traditional school hierarchical barriers.

There were indications that ICT fostered more effective teams, with the need for mutual support

Everyone's got smart – people take a share, they've got sensible.

(Headteacher, large junior school)

The head teacher of a large primary school used to have sole control of ICT decision-making but found that although she had her own vision of where she wanted ICT to be, this vision was not sufficiently grounded in the practicalities of day to day practice. She set up a team of a link governor, bursar, curriculum leader and technician, which meets twice termly. It has the dual benefit of reducing her own workload, whilst optimising others' expertise.

Case study 2: a team approach – sharing roles and responsibilities

This case study describes the team approach to managing ICT, in a school in which distributed leadership is already part of the school culture.

In this large primary school, ICT was led by a team of key players who led and managed the subject:

- an advanced skills teacher (AST), whose skills were originally developed through ICT but was now responsible for science
- a subject leader, who worked closely with the AST
- a teaching assistant, who expressed an interest in developing ICT skills, was appointed ICT technician and was now responsible for troubleshooting and advice on technical specifications
- the bursar
- the deputy head, with overview of continuing professional development
- the head, at the strategic level

The team reflected a wide spectrum of roles and stages of development, and included governors on a needs-led basis. The whole team was valuable when implementing major initiatives, such as the construction of the suite. However, for maintenance and general school improvement and prioritisation, there was a fixed core team of the first four above.

The strength of the team is the spread of the workload... if you distribute work you develop staff and capacity.

(Head, large primary school)

The head is committed to developing management experience within this context:

The subject leader is functioning at management level with budget responsibility... work scrutiny, standards, planning and classroom delivery.

As in another of the large schools that took part in the study, the team structure was not set out, but evolved according to the needs and circumstances of the school. It was impossible for the ICT manager to handle the whole task, and therefore a team was developed in response to current needs. This took place in a pre-existing culture of distribution where the head was already comfortable with extending his staff, and developing teachers in all stages of their career.

It began with the training of a learning support assistant to provide technical support before the ICT manager commenced maternity leave; however, when she returned she found she was increasingly focussing on curriculum issues. Work as a Primary ICT Consultant offered opportunities to forge links outside the school via involvement with a commercial company. Whilst collaboration with organisations outside of education proved beneficial to the school and the manager in terms of personal development, it meant that a third person was needed. A teacher became ICT co-ordinator, who in turn developed her own skills supported by the manager, in promoting greater strategic involvement.

During the next six months, the teacher acquired valuable transferable experience in resource management and budget allocation, while the manager concentrated on the wider overview. By the end of the year, the developing co-ordinator was dealing with day-to-day ICT issues, meeting termly with the manager.

Meanwhile, the technician continued to develop her 'chalk face' role as part of the team. An important aspect of this involved promoting confidence on the part of the staff, but she also dealt with the network and prepared hardware. She additionally kept the website up to date, which initially had been set up by the manager, who now found that with a full teaching responsibility she had no time to keep it going. The technician attended NOF training with the manager, and although she was not as yet trained as a technician, in a reflection of the enthusiasm and ownership that permeates so much of this field, she paid for her own computer maintenance course herself. The AST manager felt that this provided an infrastructure that contributed to the technician's own self confidence:

She wouldn't have pushed forward, she just gets on with the job...

This method of valuing those members of staff who the head feels he can grow and develop has contributed to work-life balance with the sharing of roles. There is also a positive knock-on effect as new subject co-ordinators develop their own roles via embedding ICT in their own subject, which she felt is the future of ICT in schools.

She recognised the value of a whole-school culture of identifying and developing the role of others at all levels:

He [the head teacher] looked to me for expertise – 'you know more about that than I do, talk to me when you need to make decisions.' Initially he spoke over every small detail, but now we have been through the process he was happy to let go.

He trusts us – 'let's see how it works!'

The AST manager feels that her enthusiasm for ICT had much to do with the trust she felt the head placed in her. However, she believes that this was happening in other departments throughout the school – special needs, PE, behaviour and development of pupil voice.

We all evolved together and created a model for distributed leadership.

The head has identified a future challenge to this structure, as the AST manager is now moving on to another school; however, one of the chief advantages of this system of management is its responsive nature, as team leadership reduces focussed dependence on one member, and he is confident that there is sufficient flexibility in the school for future growth and development.

Case study 3: part-time, non-class-based management – raising standards

This study describes the contribution of the part-time, non-class-based specialist ICT manager, who was instrumental in raising standards through the school, following a poor Ofsted inspection, which had specifically identified ICT as a weakness.

In this large junior school, the ICT manager has a specialist degree in computer science, and obtained QTS via the Graduate Teacher Programme. She works 0.6 of the week with no class responsibility. Ofsted had previously identified ICT as one of the serious weaknesses of the school, and therefore her initial remit was to raise standards from a low starting point.

Following her appointment, she led the specialist teaching of ICT; she initially focussed upon standards of teaching, identifying the key requirements. She drew up an implementation plan, managed the purchasing of new equipment, and put together a training package for staff. She drew up lesson plans for teaching ICT, and modelled these lessons to staff, and ran several INSET days for teachers, TAs and trainee teachers, aimed at giving a broad understanding of:

- Microsoft Word for lesson planning and displays
- Excel for recording levels
- Access for database planning
- PowerPoint for class assemblies and presentations

She discusses software needs with the staff, bids for funding from the budget, orders programs and evaluates them.

She quickly saw that her time management could be optimised by identifying and training a TA who became her technician, freeing her up to introduce a whole school scheme of work for ICT. One of the immediate benefits was to remove the minor troubleshooting tasks – she acknowledges that in a changing field, there is to some extent the danger of becoming out of touch:

It used to be me, but she does it now. I don't know so much about it now, but it's the way you've got to go – you can't do everything.

The technician works in the office in the morning and alongside the manager in the afternoon, which makes a useful overlap of roles, as the office has become more involved in ICT; for example diary dates and details are now updated by the office staff. Again, the commitment and enthusiasm, which came to be the hallmark of good ICT teaching observed in the study schools, was in evidence, as the ICT manager designed and maintains the school website in her own time.

She is responsible for the inventory and policies, and has drawn up a list of curriculum websites for reference for teachers. She developed an interest in assessment, networking with other ICT managers, posting assessment ideas on the LA website, and, in common with another similarly-sized school, managing pupil assessment files herself.

Whilst not taking the explicit strategic lead, she nonetheless became involved at a high level, discussing needs with the class teachers, evaluating software, preparing

budgetary bids, and writing the plan for ICT and presenting it to the headteacher, who then took it to governors.

When Ofsted returned, the report noted a rapid improvement in ICT, and felt that this was due to systematic specialist teaching in the suite, described as a 'powerful vehicle' for training other teachers working alongside the specialist teacher.

She believes that teachers have become more proactive and confident:

Two years ago things were done, but it was I who did it. Now they do it for themselves.

She is involved in the provision of PPA time; originally she had modelled programs and teachers came voluntarily to watch, but they now feel sufficiently confident for the head to factor the ICT manager's time into PPA planning.

Conclusion

The headteachers who took part these semi-structured interviews tended to be by nature successful: innovative, high in 'absorptive capacity' and 'managerial wisdom' (Lee 2005) and likely to make a success of any new initiative.

It's my responsibility to set up a culture of ownership.

(Headteacher, large primary school).

Attributes include:

- high expectations of staff potential to take on new initiatives

Most members of staff are competent, four or five very confident ... literacy and numeracy managers have an increasing responsibility for embedding ICT in core subjects, and therefore we are moving away from the role of ICT manager.

(Headteacher, large primary school)

- responsibility given to relatively junior members of staff

The ICT manager fronts the subject – presents to school visitors, Ofsted, etc.

(Headteacher, medium primary school)

- a conscious decision to create opportunities for staff to absorb new ideas

It is a change of thinking – the breaking of old cultures and the development of a different mindset.

(Headteacher, medium primary)

- a willingness to invest time before benefits become apparent

I give time to show this is not just another initiative ... it reaps dividends.

(Headteacher, medium infant school)

- a commitment to a team approach and the benefits of shared expertise – this may be at teacher level

... we've got a team ethic – three classes per year group, planning done together. All staff [teachers] have laptops. The team approach means less searching time...

(Headteacher, large junior school)

or at whole school level, such as case study 2 above, where a wide variety of roles and responsibilities is reflected at management level.

Fullan (2001, p.137) identified five components of effective leadership, but summarised it as “what leadership you produce in others”.

At the outset of the study, I had perceived the impact of leadership and management of ICT as outlined by McEwan and PricewaterhouseCoopers (2004) in terms of time-saving, relieving teachers of administrative tasks, support systems set in place to provide PPA time for teachers, and the work-life balance issues which the current remodelling process was tackling. All the schools which took part in the study evidenced all or most of these.

The findings in conclusion were:

- Heads reported that the first phase of remodelling has been embedded smoothly and easily in day-to-day practice. Routine administrative tasks, such as inputting of data, have been transferred to TAs or the office staff. Once the original investment in terms of set-up and training had been made, this saved a considerable amount of teacher time.
- Most schools had training programs for TAs, and these were appreciated by both teachers, who were relieved of many of the burdens of managing hardware, and TAs, who felt their own careers and professional development were being recognised. An additional benefit was that this enabled schools to ‘grow’ their own technical staff.
- There was a recognition that the remit for ICT management in terms of traditional subject management makes impossibly high demands on teacher time, and that there is a real need for on site technical support. This is even more effective when the technician is a member of the staff. There was often a passion and enthusiasm for the subject, which shone through.
- There was a recognition that ICT has the potential to ease the workload on teachers, and, taken alongside PPA time, there are substantial advantages in timesaving, and

work-life balance. Heads and teachers were additionally generally very positive about the benefits of collegiate working.

- The comparatively low number of schools who saw ICT as a teaching, as opposed to solely a learning aid, indicated that this aspect of ICT may well need to be an area of focus in the future as teacher confidence in technology continues to improve.

However, as the research progressed, it became apparent that the involvement of staff at all levels was an increasingly common aspect of management with important implications and potential benefits. The remodelling agenda is undoubtedly an aspect of this, although interviews with the heads indicated that remodelling did not drive changes, rather that it was a reflection of changes which were taking place in an increasing number of schools.

The current job evaluations of support staff has focussed headteachers on changing roles within schools of all sizes, and at the final stages of the production of this study, the evaluation of the ICT test bed project (2006) described a more integrated culture in ICT-rich schools, with the enhanced role of teaching assistants and changing responsibilities of administrative staff.

Certainly, at the time the research took place, heads tended to describe the development of ICT roles in terms of optimising existing staff strengths – more opportunistic than strategic. However, there were indications that schools were now growing their own ICT support staff through identifying potential and training in-house.

It was notable that a few schools were moving towards team management of ICT, and in these schools it contributed to wider staff ownership of strategic initiatives. School improvement planning was felt to be a living document relevant to, and involving, all members of the community:

People said it was helpful for new staff and managers to develop through this forum; a sheltered way to manage; sharing the load; improved communication between colleagues; easier to approach people in these teams.

Investor in People report, medium primary school

For those organisations that already incorporate distributed leadership, this was another manifestation of the general school culture. However, there were indications that, in some schools, team leadership and management were innovations that were being introduced by necessity, brought about by the complex nature of ICT.

Key learning from this study: implications for leadership

- There is evidence that team management of ICT, brought about by the complex, specialist nature of the subject, is leading to distributed leadership throughout the whole school community. Leadership of such an organisation is now becoming what Stacey, in Fink (2005) p29 terms as ‘an organic activity’.
- There is a need to match roles and responsibilities to the school’s own needs and to think creatively about how this might be achieved, including seeking collaborative solutions with other partners.

- School leaders need to consider the extent to which the strategic leadership of ICT can be supported by a range of individuals within the school at a range of levels.
- There is a need to distribute leadership and the challenge of acknowledging, in the case of school leaders, the limits of one's own personal capacity.
- It is important to establish a culture of trust to support such distributed approaches.
- There is a need to establish role structures that enable individuals to focus on what is most important, eg ICT subject leaders on strategy and raising standards.
- Leaders need to consider the extent to which talent spotting and providing development opportunities for professional growth enable roles to be filled more effectively.
- There needs to be willingness to risk new approaches and put arrangements in place that will have a positive impact.

As a remodelling consultant, I heard many heads expressing negativity concerning the setting up of change teams, perceiving it as another level of meetings with outcomes that could just as easily, and more quickly, be actioned by themselves. However, when set in the context of a wider sharing of roles and expertise, the distribution of leadership beyond the traditional hierarchy has never been more relevant, and many heads recognise that they cannot lead in isolation. This is particularly the case with ICT, where there are expectations of a basic understanding in terms of technical understanding, software and hardware. The role has become more complex, specialised and certainly more demanding in terms of personal knowledge and expertise – reference the comment of the headteacher at the beginning of this study.

It may well be that, by its specialised nature, ICT will provide for some schools the first opportunity to distribute leadership amongst those members of the school community who would not, in the past, have been perceived as leaders. It could be argued that most of us simply do not have the knowledge base or technical expertise to lead and develop the subject effectively and single-handedly, and whilst comparatively few heads would be willing to admit they know little about, for example, literacy, there are few such inhibitions about confessing a lack of technological knowledge. A transformational leadership style, with group decision making for organisational improvement, is here being brought about by pragmatism.

Since the autumn term of 2005, headteachers have been required to restructure staffing in their schools based on the priorities of strategic planning and 'starting from a blank sheet'. The phrase 'thinking outside the box' was used extensively during my training as a remodelling consultant: a readiness to take new perspectives to day-to-day work, focusing on the value of finding new ideas, and a willingness to explore innovative systems. Heads are constantly being asked to be creative and imaginative.

Final remarks and a thought for the future

Remodelling for the schools within this study has largely meant placing the right people in the right roles to secure:

- more effective use of individuals' time
- better collective capacity to ensure the potential of ICT is harnessed effectively
- a workforce that extends the professional spectrum of skills beyond the traditional hierarchy of roles and responsibilities

The distribution of leadership is becoming more relevant and prevalent as headteachers in particular recognise that they cannot lead in isolation. In some schools, it might be that considering how best to lead and manage ICT through remodelling has opened eyes and doors to potential solutions in other areas.

As primary schools face in the near future further developments, such as the Every Child Matters agenda, extended-school provision and the provision of a modern foreign language, it might be that lessons learnt from remodelling in one such area might readily transfer to another context. More creative and collaborative approaches that seek to deploy the skills from those within the school, or between schools, will be not so much a leap of faith as a logical step towards seeking effective solutions.

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