

**7TH
EDITION**

PRIMARY COMPUTING & DIGITAL TECHNOLOGIES

KNOWLEDGE, UNDERSTANDING & PRACTICE



 **SAGE**

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Organising digital technologies in your classroom

Chapter objectives

When you have completed work on this chapter, you will have:

- **thought about the organisational issues around teaching with digital technologies in your primary classroom;**
- **considered the practical aspects of locating equipment and how this impacts on planning;**
- **looked at organising the different levels of resources present in schools/settings;**
- **examined how best to meet children's needs and to enable them to benefit from and enjoy using digital technologies in their learning.**

Introduction

First, to look back at the recent past, new entrants to the teaching profession are fortunate to be joining it at a time following continuing, well-funded change in ICT in schools. Since the late 1990s in England, there has been significant spending on ICT infrastructure, hardware and software in schools. However, change on such a large scale is not without its logistical difficulties and much still depends on how the additional spending on ICT in schools has been managed at school level, local authority (LA) level and in the case of academies, the priorities of the academy trusts to which they belong.

The national background

The evidence, from inspections by Ofsted and others, has suggested year on year that the use of computers and other digital technologies in schools, such as interactive whiteboards, is, in some cases, becoming more prevalent and better integrated into subject teaching. However, there is concern at the widening gap between schools that are at the cutting edge and using digital technologies widely and pervasively and those that have not yet fully integrated them into their teaching and learning. Even in areas where there is rich provision of resources, it is possible to find evidence that ICT is not always fully or usefully integrated into the broader curriculum.

Part of the issue lies with the variation in the quality of the development plans at local and at school level as well as with the wide variation in support to schools. In turn, some of the variation can be put down to the 'bid culture' in which the innovation has taken place. In some initiatives, LAs made bids for funding to central government on the basis of a costed development plan. Schools sometimes had to bid to LAs for a share, and so on. No two neighbouring LAs managed this in exactly the same way, so you will notice variations when you move between your placement schools. The recent move to free schools and academies has only added to this complexity and variation.

Allied to the expansion in hardware provision was the connection of every school to the internet and to subsequent opportunities for collaboration and communication, as well as home-school links. This used to be referred to as connecting schools to the National Grid for Learning (NGFL) and you may still see references to this now-defunct initiative in school documentation. To this end, LAs in many parts of the country aligned themselves with the emergent 'Regional Broadband Consortia' (RBCs) which were public-private partnerships providing fast, relatively low-tariff internet access for schools and, in many cases, a virtual learning environment (VLE) of one kind or another through which the learning community interacts. Most also assisted schools in protecting children from unsuitable content through the deployment of firewalls and servers which screen sites and searches.

A further major element of spending early on was an acknowledgement of the need to train teachers in schools. The New Opportunities Fund (NOF) was set up with Heritage (Lottery) money. Again, although NOF funding and training have now ceased, you may well encounter references to it in staffroom documentation or in conversation.

A further intention of government policy under the New Labour Government from 1997 to 2010 was to provide subsidised laptops for teachers. Significant pilot projects, such as the Becta multimedia Portables for Teachers pilots, had found that giving teachers laptops greatly increased their use of digital technologies in the curriculum for teaching and administration. In order to benefit from the scheme teachers had to be part of a school which was registered with the above-mentioned NOF training scheme. Some of the teachers with whom you will be working may well have benefited from this scheme.

Other major initiatives have had differing levels of emphasis in different local authorities. In some LAs, personal ownership of computers was pursued in the form of projects which focus on the use of hand-held equipment such as PDAs (personal digital assistants). In other LAs, the use of laptops was seen as something to be encouraged through bulk purchase schemes alongside trolleys for the storage and charging of the equipment. The aim here was to diversify ICT provision away from the static fixed computer lab and put the technology in the hands of the learners. More recently some schools have moved towards exploring the use of tablet devices such as iPads and other such devices, in order to exploit the mobility and flexibility offered by such devices. Similarly trainees might come across schools which operate what is called a 'bring your own device' strategy (BYOD) in which children may be encouraged to bring their own devices to school (e.g. smartphone, iPod touch) which can be linked to the school network and used for researching on the internet and to support learning. This is more common in secondary schools and does of course bring with it issues of equal opportunity for learners.

You may well also encounter local projects and initiatives based in the realm of digital media, recording and presenting video and audio resources, digital movie-making, podcasting and so on. There is a fuller discussion of this in future sections.

The local background

There has been a perceived lack of confidence with the integration of ICT on the part of some teachers. Occasionally, this is characterised as 'reluctance'. It is certainly true that some teachers find it enormously threatening to be delivering a subject or using technological tools which employ skills which they do not feel that they themselves have but which the children may possess.

There may also be no support structure for teachers in their school situation. At school level, there may be no ICT or computing co-ordinator. Good ICT and computing subject leaders who attend training and pass it on to colleagues and who give generously of their time and knowledge are not always readily available. At LA level, it may be that there is no active advisory team encouraging good practice and recommending hardware and software. In both these cases there has been a failure of management to see the necessity of putting money into human resources. Too much time and money can sometimes be spent on hardware and software and not enough on the human resources needed to develop and promote excellence in ICT and computing in the classroom. You may well see evidence of this in your placement school. The recent emphasis on computer science and programming in the National Curriculum has also exacerbated this issue.

One other issue to note is the perceived 'skills gap' between teachers and children at home. Year on year, home ownership of computers and digital devices is increasing. It would be wrong to assume that it was all going into the study bedrooms of middle-class students. It is possible to find levels of computer ownership in deprived areas of Inner London, for example, where six-year-old children are experienced users of the latest software. As alluded to above, it would be wrong for teachers to allow the feeling to grow that children know more than they do. What children do not know, and the reason why they need the teacher to be using digital technologies with them, is how to apply it critically in their developing subject knowledge. Marc Prensky (2001) popularised the term 'digital natives' to refer to the apparent ease with which children and young people who have grown up in technology-rich contexts relate to digital technologies and appropriate them. However, this term is often used far too loosely and naively in relation to children and young people's use of digital technologies and their safe, critical and effective use of digital technologies cannot be assumed. Bennett et al. (2008) offer a more critical view on the debate about so-called 'digital natives' and the implications for education.

Resource levels in schools: a rough guide

This section attempts to categorise schools according to the resource settings at different levels. Three types of resource setting are described on a continuum from high resource to medium resource to low resource (see Table 1.1). It is useful to characterise resource settings in this way because you will be able to make a judgement about particular organisational strategies if you can learn to observe and sum up the situation in a placement school quickly.

Table 1.1 Resource-level definitions

<p>High-resource setting</p> <p>Portable computers such as laptops or tablets and handheld devices are used around the school and throughout the curriculum. There is a network room used by groups and the wider community (sometimes) as a hub for ICT development activities.</p> <p>Printing – in colour when necessary – is available at every station.</p> <p>There is a fast broadband connection and wireless connectivity throughout the school.</p>
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There is a technician who regularly attends to maintain equipment in good working order. Digital cameras and digital video cameras are available for use by teachers and children. There are interactive whiteboards or visualisers in most teaching spaces and their use is informed by good pedagogical decisions, not always teacher-led; children often have control of the resource.

A range of appropriate software is available for every age phase.

There are also stations connected to the network available in the classroom to carry on with work begun in the network room or computer suite. These may be in the form of rechargeable laptops or tablet devices such as iPads.

Programmable toys and other robotics or electronics equipment are available for exploring programming and aspects of computer science.

The school is implementing a cohesive strategy for the use of ICT and the teaching of computing, including an ongoing development plan.

There is a policy for acceptable internet use and comprehensive safeguarding procedures.

There is a fully implemented scheme of work that is regularly reviewed and updated.

Teachers, children and the wider community make use of the VLE where the school has a vibrant and well-used web presence.

Suitability for placement as a trainee:

This is an excellent setting for learning how to integrate digital technologies fully into the curriculum and develop your ICT capability at the same time.

Medium-resource setting

There is a working computer and printer in every classroom.

There is a network room with computers connected to the Internet that is partially timetabled for each year group.

Some programmable toys are available.

A digital camera is available to borrow and some short video clips are sometimes used.

Repairs to equipment are dealt with fairly promptly.

Interactive whiteboards (IWBs) are present in some classrooms and are sometimes used by children.

A scheme of work for computing is being implemented.

The school has a development plan in operation and is considering how to integrate digital technologies more fully through the use of flexible and mobile technologies such as laptop trolleys or class sets of tablet devices.

ICT and computing are valued and within the next two or three years the school will move forward and become a high resource setting.

A policy on safe and acceptable internet use is being developed and there are plans to upgrade the school website soon.

Suitability for placement as a trainee:

Although not at the very cutting edge, this is a good situation in which to develop skills of organising for the use of digital technologies and a trainee may still learn and even contribute something to the placement school.

Low-resource setting:

There is an older, frequently broken computer in the classroom or one between two. There are a few interactive whiteboards that are used infrequently or ineffectively.

Overhead projectors are used on the whiteboard surface.

There may be low staff morale, low spending on digital technologies, no ICT co-ordinator, no technician.

There is no scheme of work in place for computing.

Printers are shared and are not always properly serviced.

Poor software results in children from Year 1 to Year 6 doing the same thing on the computer (copy typing, doodling in a Paint package, playing a number or spelling game, possibly the same one each time).

The school website is rarely updated.

In Ofsted terms, the school is not providing the full entitlement to computing and ICT for its children and staff are not receiving their entitlement to professional development.

Suitability for placement as a trainee:

Hopefully, there are very few settings like this left as this is a very difficult placement in which to gain the required standard in computing or the effective use of digital technologies in teaching and learning. You would be heavily dependent on your institution for support.

The school in which you are placed will be somewhere along the line of development and will not necessarily have all elements of the different resource settings represented. Furthermore, schools develop and change year on year.

A further issue – which is partly included below – is the human resource levels in the school. A school with very low levels of ICT equipment may still be doing well in ICT and computing due to excellence in the organisation and involvement of all staff. Similarly a school which looks good with a network room full of computers and trolleys of iPads may in fact be keeping the door locked and doing nothing with them. The situation is complex.

PRACTICAL TASK PRACTICAL TASK PRACTICAL TASK PRACTICAL TASK

Observing the ICT setting 1: The computers and other hardware

Schools have a degree of choice over how they organise their resources for computing and ICT and this early observation task is designed to raise awareness about the organisation and use of digital technologies in teaching and learning. The sections which follow will take up issues around school organisation and discuss how they may have come to certain pedagogical decisions.

Although in itself computing is a foundation subject, ICT or digital technologies can be integrated into every subject area across the curriculum and you will see it being used in a range of settings, including in areas of learning in the Early Years Foundation Stage. Make notes on what is being used and on where it is being used. Use these questions as prompts for your note-taking. Have a look at all of the places in the school where digital technologies may be in operation.

- **What do you see?**
- **Is there a computer in the classroom?**
- **Or are all the computers grouped in an ICT/computer suite?**
- **Is there a mixed provision of some in the classroom and some in an ICT suite?**
- **Are there any portable computers available, either laptops or tablets?**
- **Is there an interactive whiteboard in the classroom or the EYFS setting?**
- **How is it being used?**

- Who is using it?
- Are there scanners or digital cameras or digital video cameras?
- Can children and teachers access the internet easily?
- Is the internet available in the classroom or ICT suite or both?
- Does this appear to be a quick connection?
- Is there wireless connectivity throughout the school?
- Is the internet filtered in any way to protect the children?
- Does it go straight onto the internet or special local authority network?
- Does the school use a virtual learning environment (VLE)?
- Does there appear to be interesting primary school software around in the school?
- How does it appear to be organised?
- Has the school subscribed to appropriate web-based software for learning? Find out what is available and, if you can, list six to eight titles with their subject area and age range.

The notes which you make should be brief and comprise up to two sides of A4. They should be written with enough detail to give you a snapshot of digital technologies in use across the curriculum in your school. Read them again in the context of the opening sections of this chapter. What do your observations and reflections tell you about the kind of ICT setting in which you will be operating?

Observing the ICT setting 2: Human resources for ICT

Observe how the class teachers organise the digital technologies for their children.

Observe the children themselves as they work with digital technologies in the school. They are the best source of information about what is going on with ICT in the classroom. They know about the equipment. If it is old, they know which keys stick. They tend to know how to get round the deficiencies of the equipment, such as the printer which jams regularly. The games-playing children, those who have computer game consoles at home of one kind or another, often have a robust attitude towards computers of all sorts. They are aware of 'cheating' to get to different levels. Sometimes they will indulge in various key presses which may cause havoc with onscreen displays; sometimes they may discover for the class, newer, more efficient ways of doing things. Whatever the situation, it is always worth listening to what children say about computers and considering and valuing their contributions to the whole class body of knowledge about computing and ICT.

Observe the classroom and learning support assistants wherever possible. Where available, they are a valuable source of knowledge and support about digital technologies in the classroom. Listen to what they say and involve them in your planning. Mutual respect and good communication are the keys to working well with teaching assistants in all areas of the curriculum.

How do the children and adults use the interactive whiteboard? Is the teacher always in control? Which curriculum areas predominate? Do they use the software that comes with the board or do they sometimes show web pages, images and DVDs through the projector?

Find out about the parents and governors and ICT. Parents, like children, have a wide range of ability and experience and an even wider range of concerns with computing and ICT. Some parental concerns will be around the use of the internet in your school, how it is organised and so on. They may ask whether

or not the school has an acceptable use policy and adequate protection for their children from unsuitable material. Governors may raise many of the same issues with you as the school will be held responsible for the materials which the children may, in all innocence, be accessing if the school is not providing access through an education provider or through a filter which it is maintaining itself.

Make notes about your findings, including who the computing and ICT subject leader is, how to report faults/maintenance issues, for example to a technician or via the school office, and who you can talk to if you have queries on policies that relate to digital technologies.

RESEARCH SUMMARY RESEARCH SUMMARY RESEARCH SUMMARY RESEARCH SUMMARY

Bridget Somekh (Somekh and Davis, 2007) characterises three ways in which teachers approach the use of ICT. In the first two of these, teachers use ICT either as a tutorial tool, delivering content to pupils, or as a tool for carrying out tasks in 'content-free' software that does not necessarily depend on fully exploiting the features of ICT (she calls the computer a neutral tool in this mode). Finally, the third way of using the computer is as a cognitive tool to support active learning on the part of the children concerned (see Somekh and Davis, 2007). These provide a useful framework for examining practice, either your own or observed in school.

Organisational strategies for different resource settings

Computing as a subject and the appropriate use of digital technologies in teaching and learning is an entitlement no matter which situation you are working in. In all settings there are organisational issues which need to be addressed. This section looks at organising digital technologies in low-resource and high-resource settings. As mentioned in the Introduction we use the terms ICT and digital technologies interchangeably throughout this book except when referring to the previous National Curriculum.

Organising digital technologies in high-resource settings

In a high-resource setting, it is quite likely that you will be able to share the experience of the lesson with the children by means of a large display. This will be in the form of a large monitor, projector and screen or an interactive whiteboard (IWB). There could be software installed on the system that enables the teacher to take control of the screens at the individual stations, temporarily replacing them with the teacher's or another child's screen, in order to model something to the rest of the class. In any school where there is no such display facility, you will have to gather the children together in a space in front of one of the monitors. Teaching in network rooms without a large display is very difficult and you will need to learn strategies for overcoming this from observing the other teachers and/or teaching assistants.

Remind the children that they do not have to sit at the same machine each week and about the importance of their password. Here are some different models of practice.

- Whole-class logon with the same username and password into a general area on the network for that class.
- Children with a unique username and password.
- Children with group logon names and passwords.

Before teaching the children on a network, make sure that you understand the process of logging on yourself. Ask the computing and ICT subject leader or technician before starting. Remember to ask for your own username and password as a guest on placement at the school. Children are often given their own area on the network in which to save their work. It is important that you follow the same protocols that they are used to. Every school network is slightly differently organised and you will need to take time to learn this for yourself so as not to make potentially serious mistakes such as losing work. Also, when working as a whole class in a computer suite children should be encouraged to develop independent problem-solving skills. Strategies such as 'ask three and then me' are useful in managing the learning environment so that the teacher is not seen as the only source for support and learning. For example, a child who is stuck with a task or technical issue considers first if they can solve the problem themselves, secondly if another child can help them and thirdly perhaps another child or teaching assistant can help, before asking the teacher.

As a rule, unless the children are very young, they should be taught how to log on and log off by themselves. This is part of learning about network literacy. One strategy is to have all the passwords and usernames on index cards, used at the beginning of the session and collected at the end.

Whole-class demonstrations can, and should, still take place, but they need to be a sensible length, enabling the children to make the best use of the time available.

In a school where there is access to distributed technology, such as laptops or tablet devices, many of these issues do not arise at all. In their place, other factors need to be taken into account, such as battery life, ownership, sharing, storing and so on. At any rate, it is important that you follow the protocols of the school in this area as in others. Many teachers remark on how much simpler it is to integrate the use of technology when mass access to portable or hand-held computers is available, rather than having to take everyone down to a computer suite. It becomes as much a part of the provision as the use of traditional items in the classroom.

Later chapters will look in detail at how to manage ICT resources to approach knowledge and skills across the curriculum as well as when teaching computing as a subject. It is important to remember that children can contribute to the whole-class understanding and skills development with digital technologies and that there should be an opportunity for them to do so at times during, or at the close of, the session. The plenary, for example, can really come alive in a networked environment if the children are encouraged to use software for the presentation of their projects for all to see. Schools in high-resource settings which are capable of publishing on the internet or their own intranet will be able to further enrich the motivational opportunities for children writing or creating multimedia work for a wider audience.

Organising digital technologies in low-resource settings

Low-resource settings are far less common. However, they still exist and can also pertain in a school when a network room or set of laptops is out of use or block-booked by another teacher. In a setting in which a single computer is shared by a class of 30 children, first bring the computer to the carpet area where it can be seen by everybody. There may, of course, be physical reasons why you cannot do this. If there are, do what you can to overcome them or borrow areas big enough to do it somewhere else in the school. Just getting started with a piece of software should involve the whole class. When beginning with software that children have not encountered before and the screens look very unfamiliar to the class, it would be worth spending time on them.

The aim is still to allow the computer to be more fully a part of the general resource provision of the classroom. A question-and-answer style lends itself to this situation. Allow the children to contribute, even to provide tips for other users. Discuss with them the difficulties that they have overcome in familiarising themselves with the onscreen layout of the particular piece of software. Whole-class sessions can be enhanced by the following examples and principles.

- Ask the children to discover during the session, and then report back on, different ways of doing the same thing. In a writing program for example, how can they make text appear in a different font size or colour?
- Stress regular, practical instructions. One such regularly repeated instruction should be 'Save before you print' in order to avoid the inevitable heartache which arises when a document gets lost.
- As is the case with all good primary practice, question children who don't always jump up and down with the answer (don't favour the loud over the quiet). Your school may even operate a no hands up policy where children are chosen randomly to respond to questions (e.g. named lolly sticks).
- Do not allow one gender or group of children to dominate.
- Stress the team-building aspects of sharing strategies so that they/we can all use the computer efficiently and safely.
- Involve children in a discussion about safety – monitor position, length of time, seating and so on. If they are using the internet for research, monitor their search strategies and approaches.
- Value what children contribute even when it is patently wrong. Help them to discover a better way constructively (e.g. 'That's a good suggestion but ...').
- Draw on children's experience of digital technologies at home or in other community settings.

The suggestions in the list above are part of good practice for any teaching situation. There is no reason why the use of technology should result in adopting different values around communication and sharing. Technology sometimes challenges assumptions that we have of teaching and learning. Indeed it often stimulates debate about the first principles of education, but it should never be an end in itself. There has to be a sound pedagogical reason for using ICT in a given situation.

Regular whole-class input increases the shared level of knowledge in the classroom about the use of digital technologies and will reduce the number of times that you have to say the same thing over and over again to groups of two to three children.

Becoming independent and increasingly competent in basic ICT skills will engender in the children a sense of responsibility for their work. It may be something that many of the children know from home but there will be others for whom you are providing the only

access to newer technology. From an early age, as children progress through the school, they are expected to take on more responsibility for knowing where their equipment is, where their possessions are, where they're going next and so on. It should be the same for ICT. Children can be shown the importance of looking after digital forms of their work, just as they learn the importance of looking after their books. They will often need to be shown how to save and retrieve their work and the importance of backing up work.

An alternative model of instruction, a version of the cascade model or peer teaching, whereby one or two children learn it and teach others, can allow the more negative messages about digital technologies to be disseminated and should be used cautiously. Among these more negative messages are:

1. There are ICT experts who know everything and must always be consulted before you do anything.
2. ICT is something that happens in a corner of the room away from the mainstream and is never discussed and nothing to do with the rest of the school day.

Show children that you are also a learner. Using digital technologies in your own practice will be less threatening to you as a teacher if you enter into the situation as a learner alongside them. It is wrong to give children the impression that you or anyone else knows all they need to know about computers. Frustrating as it may be, the truth of the matter is that we are all always learning about digital technologies. Once one thing is learned you can be sure another parameter will enter the equation. It is OK to make mistakes. If the basic care of the equipment is known and respected, there is not much harm that can be done by trying different solutions to problems.

At the same time it is important in the low-resource setting to establish and maintain a rota. Rotas ensure that there is equality of access and of opportunity in the classroom. However, they should not be set in stone. The acquisition of ICT skills is a dynamic process, always changing. After whole-class input when beginning to work with a new piece of software or hardware, children need time to practise. Longer rota periods can be gradually shortened as children gain more skills and independence.

Organising digital technologies for children with special educational needs

Children who have special educational needs have the right of access to the whole curriculum including computing and the use of digital technologies. Often, the use of ICT as a tool has been identified as being of particular benefit to a given learner in a given situation. Sometimes, if the child is on the SEN register, they will have ICT hardware and software use identified as part of their Individual Education Plan (IEP) and you will need to incorporate this in your planning and organisation. Some examples might include:

- software which addresses the needs of a dyslexic child;
- hardware which allows access to the computer for a child with motor impairment;
- browser windows which open up in larger fonts for visually impaired children;
- portables or laptops with specialist software loaded for very particular needs (this might include one specialist device or laptop assigned to one child in particular);
- specialist hardware for those who are wheelchair users, e.g. specialist keyboard mounts or switching devices.

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Some companies are dedicated to finding solutions for access for children with SEN and they will welcome enquiries about their software and suggestions for future development. They are usually smaller companies who depend on a close relationship with the schools and children with whom they work. The annual British Educational Technology and Training exhibition (known as the BETT show and held in January in London each year) includes a Special Needs Village for you to examine at first hand such solutions.

For children with SEN in your class, it is important to discover if they require any additional access to the computer in the form of hardware that makes it easier to point and click at menu items or enter text. Some examples include:

- *A concept keyboard* – a device which allows touch-sensitive areas to be created on a flat A4 or A3 board which can be set up to input particular items of text or commands. Teachers can tailor the concept keyboard to the particular needs of an individual child using authoring software provided. The software also includes printing facilities.
- *A touch window* – a device which attaches to the front of a monitor allowing the user to touch areas of the screen as a replacement mouse click to gain access to the menus in given software.
- *Big keys* – a larger-format keyboard for children with fine motor control difficulties.
- *Switches* – on/off rack-mounted switches for wheelchair users and others which equate to left and right mouse clicks.
- *Trackballs* – large inverted mouse systems where the user is able to move a larger ball over a bigger area to point and click.
- *Small mice* – smaller point-and-click devices for those children with motor control difficulties, for example children with muscular dystrophy.
- *Dictation/speech-to-text software* – the accuracy of such software has increased significantly over recent years.

In terms of software for special educational needs, there is a very wide range available. There is also a case for appropriate tutorial software for some children with dyslexia or language delay because it will address very specifically the multi-sensory approach needed to allow such children to acquire strategies to catch up with language development.

REFLECTIVE TASK

REFLECTIVE TASK

When organising ICT for children who have special educational needs

- **Find out about children in your class with SEN.**
- **Does their IEP require that they use particular digital technologies?**
- **Is there dedicated equipment for use by one child?**
- **Would this be hardware, software or both?**
- **Does the child have a special needs assistant who will work with them on their skills in using the digital technologies?**
- **How does their need for specialist ICT input impact on your organisation of the class?**

- Is there a programme of review for determining success levels of the digital technologies with their special educational need?
- Is there someone you can discuss the situation with, for example the ICT/Computing subject leader or the special needs co-ordinator (SENCO)?
- What are the feelings of the parent on the use of digital technologies by their child during the week? Do they have materials or equipment at home which they are using to support their child? Does it complement what you are doing or do you need to make adjustments?

RESEARCH SUMMARY RESEARCH SUMMARY RESEARCH SUMMARY RESEARCH SUMMARY

Research by Lie et al. (2000) in Scottish schools showed that, although word processing is believed to have a positive effect on the compositional process for children with specific writing difficulties, there are further significant background factors around motivation, cognition, medical factors and the whole learning environment.

The argument throughout this book and this chapter in particular is about seeing the possibilities for ICT use within the context of the whole class, or, in this case, the individual learner with special educational needs. ICT is a tool for the enhancement of the learner's education within the context of the whole child and not simply an intrinsically 'good thing'.

Organising digital technologies for children with English as an additional language

Digital technologies offer many benefits to young learners in the primary classroom who are learning and using English as an additional language (EAL). The internet brings many audio and video resources across the curriculum within reach. Children who are learning English at the earliest stages can access parts of the curriculum by means of such media.

As a child begins to acquire more English, the computer, if properly managed, allows them to experiment with forms of written and spoken English in an unthreatening and motivating environment. Some additional tutorial software may be appropriate but talking word processors can be just as effective, with immediate feedback provided on composition. The biggest benefit is in areas where the child can experiment with open-ended software alongside peers.

Community languages with their own alphabets and letter systems are available through font add-ons in Office software. Among other uses, these can be employed to produce signs and instructions in the appropriate language. In turn, this goes some way to demonstrating that the language of that child is valued in the context of the school.

For younger children in this context, sensitive adult intervention and peer support are crucial. There should be plenty of opportunity to try to move conceptual development along by talk in the home language alongside support for learning English.

The choice of software or web-based resource should include elements which allow for the child to choose menu items by pointing and clicking, to have sections of text spoken, and to allow access to pictures, music and video. Multimedia authoring packages, including some digital video activities, can be useful in this context. There is enormous potential for producing home-grown resources in dual language format. This would be an exciting project for a Year 6 class undertaking a unit on multimedia authoring. Resources could be created for any age in the school by the older children asking parents, siblings and other adults to help to record in the home language.

Organising digital technologies for children with English as an additional language carries the same responsibilities and requirements as for organising any area of the curriculum for them, namely:

- Never assume the level of language-learning – find out.
- Differentiate for levels of English appropriately – do not assume that all EAL learners are the same.
- Make sure that children with EAL understand all of the processes involved in switching on and off, logging on and off and saving work.
- Check and recheck understanding with sensitive questioning.

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Lani Florian writes: 'It has been suggested that technology is a great equalizer, that for many people with disabilities technology can serve as a kind cognitive prosthesis to overcome or compensate for differences among learners' (Florian and Hegarty, 2004, p.10). While she advises caution over fixed and finite approaches to SEN and ICT she also identifies several useful ways in which digital technologies may be exploited for meeting the different needs of children with SEN. She describes these as:

- **Used to tutor**
- **Used to explore**
- **Applied as tools**
- **Used to communicate**
- **Used for assessment**
- **Used as a management tool**

While these should not be seen as mutually exclusive or exhaustive, think about the ways in which ICT can be used to support children with a range of SEN and explore this within your school-based context.

A SUMMARY OF KEY POINTS

- **There has been significant investment in digital technologies nationally.**
- **Progress in this varies from local authority to local authority and school to school.**
- **Teachers differ in their levels of capability and their confidence in using digital technologies to support children's learning and their own teaching.**
- **Schools vary in their levels of resourcing, both in terms of equipment and human resources, and this will impact on your planning.**

- When organising digital technologies for children with SEN, there are ranges of hardware, software and peripherals available to support their access to the curriculum and to enhance their learning.
- When organising digital technologies for children with EAL, there are many resources available that will support their language development and allow them to participate in lessons alongside their peers.

M-LEVEL EXTENSION > > M-LEVEL EXTENSION > > M-LEVEL EXTENSION

Research further the range of ways in which digital technologies can be used to support various Special Educational Needs. Read the introductory chapter of *ICT and Special Educational Needs* by Lani Florian and John Hegarty (2004) or the article 'Special educational needs and technology' by Christina Kuegel (2015).

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