



**Subject:**

**USE OF INFORMATION AND COMMUNICATIONS  
TECHNOLOGY IN SCHOOLS**

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**Target Audience:**

- Principals and Boards of Governors of all grant-aided schools;
- Education and Library Boards;
- Regional Training Unit;
- Northern Ireland Council for the Curriculum, Examinations and Assessment;
- C2k;
- Council for Catholic Maintained Schools;
- Northern Ireland Council for Integrated Education; and
- Comhairle na Gaelscolaíochta.

**Summary of Contents:**

This circular sets out the actions which DE and other education partners are taking to further the development of ICT as a teaching and learning tool, including a forthcoming review of the emPowering Schools Strategy. It also outlines the steps which need to be taken to ensure that the significant investment being made in ICT is harnessed effectively.

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Guidance and implementation

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## USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY IN SCHOOLS

1. The purpose of this circular is to set out the action which is being taken by the Department and the managing authorities and other education partners to further the development of ICT as a teaching and learning tool for pupils and teachers, to support management and leadership in schools and to outline the actions that the Department expects schools to be taking to ensure that the significant investment made in ICT is harnessed effectively in teaching and learning. Annex A gives more information on the rationale for, and benefits of, the use of ICT. The circular also outlines (at Annex B) the support which will be available to schools from the CASS services and RTU.
2. As new digital technologies impinge on more aspects of education, business and leisure, and their pace of change accelerates, it is important that our pupils acquire the necessary skills and competences to use ICT effectively and confidently, as well as responsibly and safely. These skills are critical, not least to ensure that Northern Ireland's economy is better placed to meet the competing demands in the global market.
3. This in turn, means that all teachers, support staff and school leaders need to have the understanding, skills and competence to use new technologies effectively for worthwhile educational purposes. Our aim is that the use of ICT should become the norm, not just to enhance learning and teaching, but also to transform aspects of education across the whole school. It can, for example, play a key role in helping teachers identify and begin to address issues of literacy and numeracy (themselves heightened in a digital world) with pupils and can provide access to both summative and formative assessment, record-keeping and reporting tools.

### Action by the Department

4. The **emPowering Schools Strategy (2003)** provides a broad vision and action plan for embedding ICT into the pedagogy of teaching and learning. It also outlines a framework up to 2008, within a vision of educational transformation by 2020. The Strategy sets out milestones related to many aspects of the life and work of the school. It can be found at [www.empoweringschools.com](http://www.empoweringschools.com).
5. An initial progress report on the Strategy was prepared in June 2006 and a second report is in preparation. These reports review and report the progress made by many of the stakeholder organisations in helping schools to enhance and enrich learning and teaching with ICT. They acknowledge that, while steady progress is being made, change has been slower than hoped and much more remains to be done to ensure that technology-enhanced practice across all aspects of the school becomes commonplace rather than exceptional. These conclusions are reflected in the ETI reports summarised at Annex C.
6. The Department will, with the support of a small group of key partners, carry out a review of the Strategy to ensure that it remains appropriate to emerging educational needs' reflects adequately the central role of ICT in the revised curriculum and can adapt quickly to the latest technological and educational developments.

7. The review will also ensure that targets are set in a way that allows us to assess how value for money is being obtained from the very considerable investment that we are making, and will continue to make, in ICT. Since 2000, some £280m has been spent on ICT, and ongoing expenditure to support and enhance the managed service provided to schools through C2k and LNI now amounts to almost £50m per year. This investment includes:

- the refresh in the primary sector - some 13,000 new computers and updated software to be made available in schools by the end of the year;
- LearningNI, which is currently deployed to all teachers and pupils in post-primary schools, is being rolled out to primary schools as part of the refresh;
- the provision of over 20,000 additional laptops across nursery, primary, post-primary, and special schools;
- the provision of over 5,000 additional portable assessment devices to primary schools to support them in running InCAS in the first term of the 2007/08 school year.

### **Action by schools**

8. Given these significant investments, and ahead of that review, we expect that schools will take some short term actions on a number of specific aspects and will increase the pace at which ICT is being embedded to enhance current educational practice by:

- i) uplifting the ICT competence of all teachers (and of the staff who support teaching and learning) established initially as a result of the training provided through NOF and by CASS and C2k;
- ii) establishing a whole-school improvement approach through the use of the Northern Ireland version of the Becta Self-Review Framework (<http://matrix.becta.org.uk/niselfreview>);
- iii) where appropriate, attaining the ICT Mark; and
- iv) exploring opportunities for teachers and leaders to undertake some elements of their continued professional learning online.

School leaders and managers have a key role in defining a vision for learning and teaching with ICT and ensuring that that vision is put into practice.

### **Action by support agencies**

9. The schools' educational partners including CASS, RTU and CCEA (and, from April 2009, the new Education and Skills Authority) are expected to give an equally high priority to developing further the capacity of their own staff so that they can continue to provide support to teachers, leaders and learning support staff to develop the understanding, skills, competence, confidence and the opportunities to use ICT in areas where good practice is lacking.

10. These agencies will be able to provide schools with support and resources in the following areas: the Becta Self Review Framework/ICT Mark, LearningNI, computer-based assessment, use of technology, training/support for teachers and support for

school leaders / management. In addition, the following are identified as important short-term actions in support of schools:

- i) the identification and dissemination by organisations supporting schools of a wide range of examples of good innovative practice, including, for example, the use of digital video as a learning tool and support for citizenship education, from lessons learnt in the Dissolving Boundaries Project; and
- ii) the development and dissemination of practices to support the more effective use of data from management information systems as part of school self-evaluation.

11. Schools should contact their Board or one of the other agencies as appropriate to see what support is available.

### **Conclusion**

12. This circular is provided as guidance to explain the work that the Department is undertaking in relation to ICT and to clarify its expectations of the actions that schools should take to ensure that the capacity and capability of C2k, LearningNI and other services are fully exploited in the drive to raise standards. The Department will keep schools and education partners advised of progress.

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## USE OF ICT IN NORTHERN IRELAND SCHOOLS - RATIONALE, BENEFITS AND PROGRESS

### Rationale for maximising the use of ICT

1. It is important that the education system maximises the use of ICT to ensure that real added value is provided in terms of improvements in teaching and learning and in supporting the drive to raise standards for all pupils. ETI has emphasised the need to ensure that ICT is embedded across all aspects of teaching and learning in schools.
2. This will be particularly important in light of these continuing developments.
  - i. Developing pupils' skills in the use of ICT is a compulsory cross-curricular element of the revised curriculum from September 2007.
  - ii. The ongoing development of website material as a source of information, curriculum and CPD resource materials for teachers e.g., LearningNI and the revised curriculum website at <http://www.nicurriculum.org.uk>.
  - iii. The introduction of statutory annual assessment, based on the principles of assessment for learning, rather than assessment at the end of each key stage.
  - iv. Diagnostic Assessment in primary schools will involve the use of the InCAS tool – over 5,000 assessment laptops have been installed to support this.
  - v. The provision of an electronic report writer for teachers to use, if they wish, to complete an annual Pupil Profile report for each pupil.
  - vi. The implementation of the Entitlement Framework in post-primary schools will require greater collaboration between schools and ICT has a significant part to play in helping to provide access to a wider range of general and applied courses.
  - vii. Planned developments will increase the functionality for schools to monitor pupil and school performance, including the ability to benchmark their performance against schools with similar characteristics, and will reduce the burden on schools in responding to requests for data from the Department, Boards etc.
  - viii. The Department already uses ICT as the preferred means of communicating with schools, the annual school census is now conducted electronically and virtually all consultations with schools are now carried out electronically.

### Benefits from the use of ICT

3. In national terms, Becta has identified the benefits of managed services and consortia procurement. It has commissioned extensive research, including longitudinal studies, which shows the beneficial impact of ICT when used to best

effect. This includes research which looked at the evidence of the impact of ICT across all areas of school life, including teaching and learning, attainment, personalisation, home-school links, administration and management. The evidence of impact may be inconsistent across schools, subjects and technologies, but the introduction of ICT is seen as a positive development by the majority of both teachers and learners. Key findings from the research are in Annex C.

### **Progress in the use of ICT for teaching and learning**

4. Many teachers have already realised significant benefits from increased use of ICT in terms of course development, lesson planning, producing their own teaching materials or in delivering lessons using ICT (including the use of digital projectors or interactive whiteboards and in collaborating with other schools and FE colleges). The 2006 GTCNI survey found that 85% of teachers state that they use ICT to plan and prepare lessons, and 74% use ICT to actually deliver lessons. The potential to deliver first class ICT in Northern Ireland is evidenced by, for example, Ballyclare High School, which has won, among other awards, a Becta award as the best ICT school in the UK. The school has since achieved the ICT Mark, as has St Columb's College, Derry (a case study from which is attached as Annex D).
5. The Chief Inspector's Report 2004 – 2006 (see Annex C) makes it clear that the ICT competence and capabilities of most young people are developing year on year and that the effective use of ICT allows them to access up-to-date research and information in a way which can overcome social and geographical disadvantage. The quality of teaching and learning using ICT is improving gradually, the effective use of presentational technologies such as digital projectors and interactive whiteboards is becoming more widespread and a majority of leaders and senior managers are committed to developing further the use of new technologies to improve the teaching and learning process and the management of their organisations.
6. However, the Report also points to the need for increased use of ICT for teaching and learning, particularly in post-primary schools, and better strategic planning and delivery of professional development opportunities for teachers. Further findings from the ETI primary and post-primary reports are in Annex C.

### **Investment of Public Funds**

7. To support schools in realising the benefits of ICT, significant funds have been invested by the Government, and ETI reports that the positive impact of the continued investment is most noticeable in the good quality ICT infrastructure across the schools.
8. The investment in ICT over the last 7 years through C2k has made Northern Ireland unique in the UK in having a single managed service across all schools. It provides significant benefits for schools by removing from them the responsibility for the maintenance of the service and the equipment and lets them concentrate on the use of the technology for teaching and learning and administration.

**RESOURCES AND SUPPORT AVAILABLE TO SCHOOLS****CLASSROOM 2000 AND CASS****LearningNI (LNI)**

1. LNI is a flexible Virtual Learning Environment developed for teachers and pupils which can support a range of pedagogical models and teaching and learning styles. It links all individual school networks to an online data centre, providing Broadband access to a library of digital resources licensed from educational publishers and customised to the revised Northern Ireland Curriculum. Teachers, advisers, librarians, professional officers can submit content for publication in the LNI library which will provide locally derived content.
2. The core of LNI is a courseroom which provides an environment for learning and teaching as well as for professional development. Courses can be created within and across schools and organisations allowing collaboration through on-line discussions, video-conferencing and application sharing.
3. Video conferencing will be added to the core functionality of LNI from September 2007, facilitating local, national and international collaboration.
4. C2k will continue to support and promote the classroom use of LNI through training courses for teachers that highlight how it can support the implementation of the revised curriculum. It will also offer e-learning consultancy to schools so that they can implement an e-learning dimension to their classroom practice, work with TTIs to ensure that LNI training is part of initial teacher development, and develop both online and paper-based self-help support materials within the LNI environment that facilitate its use by teachers as a powerful teaching tool.
5. CASS directly support and develop teachers in the use of LNI within classroom practice. They also have officers within each ELB who are accredited trainers in on-line learning and Teaching for Educators.

**Software**

6. The range of material available to schools on the C2k network is growing. A software advisory panel comprising representatives of key stakeholders considers proposals for additional software whether available through existing commercial products or through bespoke development.
7. Additional applications may be developed, with supplier support, to complement and enhance the Managed Network within individual schools. These services will be offered through the managed service catalogue for schools to license and install locally.

**Administration**

8. The majority of schools' administrative tasks are now dependent on ICT, e.g. for financial monitoring, pupil records, attendance records, timetabling, requisitions, and the range of administrative tasks that are part of the daily routine in schools.

Increasingly, ICT as a management tool is providing a rich source of information on pupil progress, enabling areas for development to be identified and addressed early. Work is proceeding to procure additional systems to improve the way in which statistical information is handled in schools and between schools and other education partners. Within schools it will provide a rich source of data at individual pupil level and at overall school level.

### **InCAS Diagnostic Assessment Tool**

9. On behalf of CCEA, C2k will also support the deployment of the InCAS diagnostic assessment tool, to be rolled out for use in carrying out statutory diagnostic assessment in Years 4 to 7.

### **Pupil Profile – Report Writing Tool**

10. C2k will, in collaboration with CCEA, train and support teachers in the use of the report writing tool, which will be made available to teachers for use, if they so wish, in completing the annual Pupil Profile.

### **BOARDS, RTU, CCEA and C2k**

#### **Becta Self-Review Framework (Northern Ireland version) and school development planning**

11. Becta has produced materials to enable schools to audit their own provision, to plan for improvement, and to work towards a nationally accredited ICT Mark. These materials have been adapted for use in Northern Ireland. Some schools have already used these materials, and the Department would encourage all schools to do so. Boards will support schools which undertake this work.
12. The Becta Self-Review Framework allows schools, by making use of on-line matrices, to evaluate and improve their use of ICT in learning and teaching by assessing their strengths and weaknesses across eight elements and making realistic plans for improvement. Schools which consider themselves to have reached the threshold levels in the self-review framework may apply for ICT Mark accreditation through endorsement by trained, independent assessors. The award recognises those schools which maximise the use of ICT in delivering the curriculum. Two Northern Ireland post-primary schools (Ballyclare High School and St Columb's College, Londonderry) and a special school (Fleming Fulton) have already achieved this accreditation.
13. The Department is considering an amendment to the Education (School Development Plans) Regulations (Northern Ireland) 2005 to require schools to include in their development plans explicit references to how ICT is being applied to enhance teaching and learning, administration and management and continuing professional learning, including the skills of staff in the use of ICT. The Self Review Framework (SRF), provides a valuable tool to take this forward.
14. Beyond the SRF, the Boards and RTU are offering support in a range of areas. Examples from Boards include LearningNI, interactive whiteboards and CPD via new technologies. RTU continues to offer a number of courses using an on-line approach for dealing with aspects of ICT use. Examples include On-Line Teacher

Education (OLTE), the Technological Leadership Programme and a Making Effective Use of Data conference for primary school principals.

15. Schools are reminded that these are examples only of a wide range of provision, and that they should discuss their individual training and support needs with their Board or RTU.

### **Other Support Areas**

16. The Department has published Circular 2007/01 “Acceptable Use of the Internet and Digital Technologies in Schools” (18 June 2007). This contains a link to online guidance resources which are kept updated by the Department.
17. A teacher e-portfolio is currently being developed to support teachers, at any point in their teaching career, to reflect on how the teaching competences relate to their work, to demonstrate their growing competence whether as a student-teacher, a teacher or a teacher leader, and to share their professional learning with colleagues.

## Key findings from the ETI evaluations of ICT in primary and post-primary schools in 2006 and primary schools in 2005: and findings from Becta research

### A. ETI Evaluations

1. ETI has found that almost all schools recognise the importance of ICT as an essential tool for learning, and its potential to enhance and enrich the way young people learn.

#### Primary schools

2. Since the last inspection survey report in 2002, improvements are evident in relation to overall school provision for ICT through the implementation of C2k. Moreover, there has been a sharp rise in levels of teacher confidence in terms of both general competence and in their use of ICT to support learning and teaching. There are, however, some important issues which need to be addressed in order that ICT is embedded effectively and consistently in primary schools. The 2005 ETI review of ICT in primary schools concluded that strategic thinking and planning was lacking in 1/3 of schools in NI and that monitoring and evaluation is lacking in the majority of primary schools.

#### Post primary schools

3. There is clear evidence that the ICT competence of young people is increasing and that effective embedding of ICT can and does lead to higher levels of participation in lessons and improved quality of work. The quality of teaching using ICT continues to improve gradually in post-primary schools but is embedded across a sufficiently wide range of curricular areas in only a minority of schools.
4. The 2006 ETI review of ICT in post-primary schools reveal emphatically that only a minority of post-primary schools have embedded ICT effectively to enhance and extend pupils' learning across a sufficiently wide range of curriculum areas, and the potential of the new technologies remains under-exploited.
5. In most schools, ICT is not yet integrated routinely into teaching and learning and its impact as a driver for school improvement and raised standards is not adequately exploited.

#### LearningNI

6. During the course of the inspection survey, there was a growing awareness among teachers of the potential of LearningNI as a flexible, feature-rich on-line environment, to encourage and facilitate access to, and sharing of, resources within and across educational communities. It is important that school management and staff are fully aware of, and trained in, how to maximise the benefits for learning and teaching of this important development.

#### Recommendations

7. Schools need to develop effective strategic thinking and planning for the integration of ICT in schools' provision at senior management level. They need to:

- i. plan for the systematic development of ICT throughout the school;
  - ii. ensure that its potential to support and enhance learning and teaching is realised fully; and
  - iii. ensure that the range of ICT experiences for all of the children is sufficiently broad and coherent.
8. There is also a need for systematic monitoring and evaluation of the provision for ICT throughout the school. Schools need to:
- i. develop further the effectiveness of their assessment strategies in order to evaluate the contribution that the use of ICT makes to the children's learning; and
  - ii. consider how best to implement an effective framework for the assessment of all aspects of ICT (i.e. the range and quality of experiences, ICT capabilities and the contribution ICT has made to learning and teaching across the curriculum).

### **Training and CPD**

9. The pace of the impact on teaching and learning of the large scale investment in the technological infrastructure has been too slow, and there has been a strategic deficit in providing the necessary continuing professional development of staff in the effective use of ICT in the classroom.
10. Significant investment to date in teachers' professional development and training through major initiatives, including NOF and 'Connecting Teachers', needs to be sustained and extended at a strategic level in order to strengthen teachers' confidence and provide them with the necessary resources and skills to embed ICT into their practice.
11. There is an onus on the DE, in collaboration with the range of key stakeholders, to revisit the various strands of the strategy for the development of ICT, and to refocus on a more consistent and effective approach across the schools in ensuring that pupils access and use ICT as an important aspect of their learning. It is also essential that the learning needs of teachers in this regard are given a much higher priority.
12. Continuing staff development in ICT is necessary to increase the teachers' awareness and understanding of the potential of ICT to support learning and teaching. In a significant minority of schools, the staff are committed to the development of their ICT competence through a combination of appropriate school-based and centre-based training. Despite this, many teachers still need further professional development to enable them to use the wide range of available software tools and ICT equipment more effectively to support and enhance learning and teaching.

### **B. Becta research: Key findings**

13. The greatest impact on teaching and learning is found where the use of ICT has clear educational goals and is seen as purposeful by pupils, and where a number of different technologies are integrated in everyday classroom experience.

14. A whole-school strategy that addresses the development and sustainability of ICT is a critical factor in the effective use of technology.
15. Teachers' ICT skills have developed significantly over the years, as has the range of both hardware and software available in the classroom – there is evidence that these developments have led to a reduction in teachers' workloads.
16. ICT can help personalise learning by putting greater control in the hands of the learner, but this can present other challenges to the traditional teacher-pupil relationship.

**St Columb's College, Londonderry**  
**Case-study: key characteristics of an *ICT Mark* school**

**Leadership and Management**

- The school has a clear vision for learning, which encompasses clearly the contribution of ICT.
- The vision for using ICT is shared throughout the school community: governors, staff, pupils and parents.
- Whole school planning for the development of ICT ensures a coherent and strategic implementation, as well as effective budgetary management.
- There is regular evaluation of the ICT strategy at all levels across the school. The leadership team base future planning upon evidence-based monitoring and evaluation of progress; departments assess the benefits of ICT resources; teachers monitor and evaluate classroom practice.
- The school continues to invest in a wide range of ICT resources and effectively monitors and reviews the impact of the resources on the curriculum and achievement of pupils.

**ICT Capability**

- Pupils' ICT capability is baselined using an in-house online test and schemes of work are modified to take account of the outcomes.
- ICT experiences are mapped across the curriculum and shared with teachers to keep them informed of the skills that pupils are developing.
- Teachers are encouraged to allow peer to peer teaching and showcasing of skills and other learning outcomes.
- All pupils complete the KS3 CCEA ICT assessments.

**Learning and Teaching**

- Staff are supported and encouraged to develop more innovative approaches to using ICT. Teachers share their ideas at departmental meetings and during whole school INSET.
- Teachers' planning is flexible with regard to ICT so that pupils have opportunities to decide when and how they use ICT to support their learning.
- Pupils are able to highlight the benefits of using ICT and are confident in identifying what best supports their learning.
- Teachers and pupils have opportunities to work alongside one another when developing new skills, for example in using multimedia applications.

**Professional Development**

- Needs are identified through audits and PRSD feedback and addressed through an effective model for professional development. Teachers work in groups with an "expert" from within the staff, to develop the identified skill. Then, through a process of support and collaboration with others in the group, they implement the skill in the classroom. Pupil outcomes are shared and celebrated with the rest of the staff.
- Staff are encouraged and funded to take externally assessed courses.