INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) FOR INCLUSION

United Kingdom (Scotland)

1. Policy Frameworks

This information was provided by Dr Stuart Aitken (Senior Research Fellow, CALL Scotland, University of Edinburgh).

1.1 Policies that impact on ICT for inclusion in the compulsory school sector

There is a broad range of both legislation and policy, ranging from general – e.g. United Nations Convention on the Rights of People with Disabilities (2006); Digital Agenda 2010; European Council's Conclusions on Accessible Information Society; Web Content Accessibility Guidelines (WCAG); Duty of Care; Data Protection (retention of data in accordance with European Union/United Kingdom law); Health and Safety (emissions, appliance safety, etc.) – to more specific, e.g. Equality Act 2010, in particular Section 20 (6) Requirement to provide information in an accessible format and Guidance on reasonable adjustments duty to provide auxiliary aids and services; Education (Additional Support for Learning – ASL) (Scotland) Act 2004/9; Education (Disability Strategies and Pupils' Educational Records) (Scotland) Act 2002. The latter two are directed more at school-age pupils and have the greatest potential relevance. Guidance for both of the latter includes specific examples that address ICT and examples of inclusion good practice. Without these and similar examples of implementation, policy is unlikely to succeed as providers make decisions that fail to address the needs of disabled and other learners.

1.2 Current policy on ICT for inclusion in relation to the main project themes

1.2 (i) ICT as a tool for promoting equity in educational opportunities.

Equality Act 2010: reasonable adjustment duties apply in disability cases and have three parts, each of which is needed for effective policy context. Unless these are carefully drafted in primary and secondary legislation (or country equivalent), the impact of policy intention will not be matched in practice within schools.

The ASL (Scotland) Act provides a broad description of anything that may be a barrier to a child's learning. That barrier may give rise to additional support needs (ASN). ICT can often be an important tool in addressing these ASN.

Education (Disability Strategies and Pupil Educational Records) (Scotland) Act 2002.

Special Educational Needs (SEN) and Disability Act 2001.

1.2 (ii) Access to appropriate ICTs as an entitlement

While the ASL (Scotland) Act provides a framework within which local authorities (who provide most education in Scotland) have duties, the authorities have a lot of scope to decide what is reasonable. Duties to make reasonable adjustments – such as auxiliary aids and services or accessibility strategies – have the potential to address these gaps, as 'reasonable' should relate to European Union case law on this area. However, the impact of duties depends on implementation of the relevant guidance rather than secondary legislation, which would have given statutory force to the measures introduced.

1.2 (iii) Training of educational staff in the use of general and specialist ICTs

Policy in this area is currently being developed further. As part of a major survey of teacher education and training, a recent report found that the area in which newly qualified teachers felt least prepared was in ICT (followed by ASN and by child protection). Given that these teachers were not specifically involved in supporting children with ASN, this finding is even more striking. If they felt inadequately prepared in the use of ICT generally, and in ASN generally, they would be even less prepared in the area that combines ASN and ICT – or SEN and inclusion.

1.2 (iv) The promotion of ICT research and development requiring a multi-stakeholder approach

There are excellent examples that take an integrated approach to research, development and implementation in the model of knowledge exchange. For this to work effectively, there needs to be a smooth exchange between suppliers, developers and user communities. Research needs to be targeted and driven by the development needs of the user community.

1.2 (v) Data collection and monitoring in the use of ICT in inclusion

There are examples, but results tend to be either too broad to be useful to practitioners or too narrow (e.g. one user group) to be applied to policy. The area would benefit from carefully established comparisons to answer questions that would address particular concerns, clearly setting out what applies generally across ICT inclusive contexts and/or specifically to interest groups.

1.3 Strategic plans for implementing policy on ICT for inclusion

Some features:

- Revision of Glow (Glow+: intranet for Scottish schools) to address WCAG 3 and to include features such as ePortfolio. There is a number of services through Glow+, although it is not as yet clear how accessible all services will be. (Scottish Government/Education Scotland). Interim will run on RM Unify.
- Involvement of the national centre of excellence (CALL Scotland) in identifying procurement specification that includes accessibility criteria, with case examples provided.
- National stakeholders group on Glow+ includes a representative from the national centre of excellence on assistive technology and augmentative and alternative communication (AAC). It is run by the Scottish Government and Education Scotland, with wide stakeholder representation.
- Annual ICT and Inclusion exhibition/display/seminars bringing together suppliers and expertise, and delivered in 2-3 different locations each year. They are organised by CALL Scotland and boast consistently high satisfaction ratings from teachers and others.
- Email newsletters specifically addressing ICT for inclusion sent to schools across Scotland, by CALL Scotland.
- Books for All Scotland database: 5,000 accessible books available direct to schools via free download (depending on the format, e.g. a Braille hard copy is not downloadable!) It can currently be accessed from within Glow or directly via Scran, both of which are secure passworded areas. It is operated by CALL Scotland. http://www.booksforallscotland.org.uk

- Books for All Scotland website: open-access site on accessible books, covering finding, using and making books. Guides, videos, support materials and links to relevant sources are available from here. It is operated by CALL Scotland. http://www.books4all.org.uk
- Assessing Dyslexia Toolkit: based on a traffic light system, this toolkit directs teachers to a red, amber or green section, depending on their level of knowledge of dyslexia. It includes sections on what dyslexia is, how to ensure the child's needs are met, and explains a staged process of assessment. It is run by Dyslexia Scotland. http://www.dyslexiascotland.org.uk/addressing-dyslexia-toolkit
- Implementation of tablet computers in schools (Education Scotland). Research undertaken by the University of Hull, led by Kevin Burden.

Schools in the publicly-funded sector are not autonomous, as they mostly depend on local authority infrastructure support, in particular for managed networking. Some are run in-house, some are outsourced and different problems on inclusion are associated with each.

The examples above illustrate a commitment to the use of ICT for inclusion. At this stage, however, there is a clear disjunction between what teachers say they need to improve their classroom practice and what the teacher training colleges/universities actually provide. While the former seek in-depth practice examples, the latter seek more academic and abstract knowledge and understanding.

1.4 Monitoring and evaluation of policies or strategic plans relating to ICT for inclusion

These are mostly at the level of case study reporting or case series analysis.

1.5 Main policy developments in ICT for Inclusion that have taken place since 2000

- The ICT New Opportunities Fund delivered ICT infrastructure and training for teachers throughout the United Kingdom (UK) in a planned programme of training. In Scotland, one provider (CALL Scotland) was chosen to deliver training on ICT for SEN/inclusion/assistive technology. Around 5,000 teachers were trained, with personal ePortfolio approaches taken. High satisfaction levels were reported.
- Legislative framework changes: Education (Additional Support for Learning) (Scotland) Act 2004/9; Education (Disability Strategies and Pupils' Educational Records) (Scotland) 2002 – duties on improving the accessibility of the physical environment, information and communication; accessibility to the curriculum; and reporting on an annual basis; Equality Act 2010 with, for example, guidance on the new duty to take reasonable steps to provide auxiliary aids and services in schools.
- Books for All: accessible curriculum materials for pupils with ASN. This sets out the issues and requirements to provide accessible curriculum materials for pupils with a range of print disabilities. http://www.books4all.org.uk/About/Books-for-All-Report
- The Scottish Voice (Heather in 2010, followed by Stuart in 2012) for text-to-speech systems made freely available in publicly-funded schools in Scotland.
- *A Right to Speak* (2012): route map on assessment and delivery of AAC.

1.6 Current issues in relation to ICT for Inclusion

1. funding;
2. low base of expertise with in-depth knowledge available;

3. commercial solutions often sought for problems that can be addressed with off-the-shelf software; and vice-versa where a one-size-fits-all approach is taken, for example in the area of tablet computers;
4. poor teacher training infrastructure on ICT and inclusion;
5. managed network providers not consistently addressing the accessibility requirements of pupils, teachers and others; using corporate solutions to address problems that are of a different nature in schools;
6. incorrect procurement decisions, where contractual terms do not adequately reflect the needs of those with access support needs. The result is that provision for those with ASN can be difficult to obtain, implemented late and costed separately (whereas had contracts been set up differently, it would have reduced costs).

1.7 Important short and long-term developments in ICT for Inclusion

Each of the above will need to be addressed for successful implementation.

2. Country Practice

This information was provided by Dr Stuart Aitken (Senior Research Fellow, CALL Scotland, University of Edinburgh).

2.1 Main developments in practice in ICT for Inclusion since 2000 in relation to the main project themes

2.1 (i) ICT as a tool for promoting equity in educational opportunities

1. Curriculum for Excellence framework, so that ICT is no longer taught solely as a subject within Business Studies, for example, but is broader and cross-curricular;
2. Infrastructure improvements from 2000: hardware purchases; installation of networks within schools; secure intranet for Scottish school education; training of all teachers in ICT, including one provider that focused solely on ICT for pupils with SEN.
3. Assessment methods: framework for assessment that addresses assessment as learning, assessment for learning, and assessment of learning.
4. The many informal networks offering user support at all levels.

2.1 (ii) Access to appropriate ICTs as an entitlement

1. There is no entitlement as such: although there are rights and duties, these are not quite the same as entitlement to appropriate ICT. In some areas of inclusion, for example visual impairment, ICT is more likely to be considered an entitlement; however, this is not applied universally across the spectrum of ASN/SEN.
2. There are examples of policy-driven practice changes as a result of legislative change, such as through the Education (Disability Strategies and Pupil Educational Records) (Scotland) Act 2002, SEN and Disability Act 2001, and others. These policy changes introduced improvement agenda in core practice areas. Together with accompanying (non-statutory) guidance, ICT was increasingly seen to offer viable solutions to improve successful inclusion.

2.1 (iii) Training of educational staff in the use of general and specialist ICT

1. The most significant development in this area, referred to above [see (i)2], has been UK-wide teacher continuing professional development (CPD) under the New

Opportunities Fund in the period 2000-2002. One element of this was that ICT for Inclusion was specifically targeted by a consortium of expert providers, led by Inclusive Technology. CALL Scotland provided all training to SEN teachers in Scotland and to a proportion in North England. This introduced much needed equity into the area.

2. The development of Glow, bringing all teachers into a secure intranet area, has helped develop generalist ICT skills: email, interest groups, ePortfolios, file and document sharing and so on.
3. Teacher training institutions have not kept pace with teachers' needs for in-depth specialist training in the use of ICT in inclusion. Expertise exists; however, funding arrangements within institutions do not bring the potential market together with experts in the area – even though in some cases they are already located within a teacher training institute. One study referred to elsewhere in this response found that newly qualified teachers reported that, on graduating, they were least prepared to work in the areas of Additional Support Needs and, separately, in supporting ICT.

2.1 (iv) The promotion of ICT research and development requiring a multi-stakeholder approach

CALL Scotland is the lead exponent in bringing to the market solutions to problems that are experienced by disabled learners and, more generally, those with ASN, and their families, teachers and other support workers. Some examples include:

- From 1982 to 1990, introduction of the earliest switch access and scanning hardware and software, with the technical designs then passed to commercial companies for exploitation.
- Smart Wheelchair: from concept, through design, to market and partnership with commercial firm.
- CALLtalk: dynamic screen vocabulary system for communication aid users.
- The Scottish Voice's Heather and Stuart: high-quality computer voices for Macintosh and PC users.
- Books for All: complete infrastructure for finding, using and producing accessible alternative format books, worksheets, etc. for use in the classroom and elsewhere. It incorporates a number of partnership arrangements.
- Digital Question Papers (DQP): accessible versions of questions papers based around PDF versions of printed exam papers. From six schools in the trial year of 2006, now one in three secondary schools in Scotland is using DQPs.
- Links with suppliers to drive best value for end users: for example, with Texthelp, PDF Aloud was licensed for use only in Scottish secondary schools. This enabled Digital Exam Papers to provide a cost-effective solution to schools.
- Numerous informal and formal discussions with suppliers to help them refine their products so that they are more accessible to users with disabilities or SEN and their families.
- Influencing the policy environment so that the available technical solutions can be brought to the individual pupil or teacher's desktop. Unless policy is addressed, technical solutions often cannot deliver to their potential.

The following are a few of the examples of an essential approach, as followed by CALL Scotland:

- finding out what the problem is by involving the most important stakeholders;
- identifying potential solutions, which may mean defining the problem in a different way;
- determining whether the problem is shared by others, in which case others will benefit from the solution.

At that point, the most appropriate responses can be considered. These will include: one-off development appropriate to one pupil; preparation of information sheets for wider circulation; quick guides on software or other; equipment loan for the trial period; CPD/training on specialist solutions; technical developments; research in the form of scoping reports, and other.

2.1 (v) Data collection and monitoring in the use of ICT for inclusion

The clearest evidence-based support for successful use of ICT for inclusion comes from reports on uptake patterns of alternative assessment arrangements for students sitting formal examinations. Between 2006 and 2012, uptake of ICT support using digital exam papers, for example, has gone from zero to one in three schools in Scotland using digital exam papers.

Other examples include iPads in Scotland Evaluation (report described elsewhere).

Case study reports feature on many sites.

2.2 ICT to promote learning in inclusive settings

2.2 (i) Country-based networks to support teachers in using ICT to promote inclusive learning

ICTSLS (ICT Support for Learners in Scotland) is dedicated specifically to ICT and Inclusion. Other networks that may discuss the topic include:

- SICTDG (Scottish ICT Development Group);
- Although groups such as Augmentative Communication in Practice: Scotland do not specifically address learning in inclusive settings, the AAC work they do applies to learners in inclusive and other settings;
- Posture and Mobility Group: as above in the area of wheelchairs and access to learning for disabled people;
- BRITE (Beattie Resources for Inclusiveness in Technology & Education): addresses more inclusive settings in lifelong learning.

A number of networks can be accessed within the Glow network.

2.2 (ii) Initial teacher education in using ICT to promote inclusive learning

As noted above, this is not well dealt with; one of the three areas in which newly qualified teachers felt least prepared was in ICT, in general. Given this finding, preparation for using ICT for inclusion will be poorer still.

2.2 (iii) Practical support in classrooms to help teachers' use of ICT to promote inclusive learning

There is no programme of learning *per se*; instead it is left to teachers to evaluate their learning needs. Progress will be made on this following a recent review of teacher education, which will incorporate a more robust professional development continuous learning framework, usually on a case-by-case basis.

2.2 (iv) Important information sources about new developments, hardware and software products and ideas for using ICT to promote learning in inclusive settings

International: clearly the internet offers this, assuming that people know what to search for. The groups and sites are too numerous to mention.

National: CALL Scotland provides most information in this area through a number of websites:

- http://www.callscotland.org.uk – main site with blogs, case studies, quick guides and other downloadable resources;
- http://www.books4all.org.uk – hub site for accessible books;
- http://www.wordtalk.org.uk – free text-to-speech add-in for Microsoft Word, downloaded and used worldwide. Used across Scottish schools in conjunction with The Scottish Voice;
- http://www.thescottishvoice.org.uk – information about and downloads of Scottish voices for use in PC and Macintosh as SAPI5 voices. It also offers FAQ and help pages. The voices are used in schools across Scotland and licences are available for home use for people with disabilities;
- http://www.adapteddigitalexams.org.uk – digital versions of exams (see above);
- http://www.booksforallscotland.org.uk/ – accessible books database.

Others include:

- BRITE – http://www.brite.ac.uk – provides advice and information about assistive and enabling technologies and their use in learner support, mainly in further education;
- Assist-IT – http://www.assist-it.org.uk/ – ICT consultant's site in blog format, with information on developments in ICT and Inclusion;
- Concept Northern – http://www.conceptnorthern.co.uk/index.htm – assistive technology and training suppliers, offering online courses on assistive technology;
- Augmentative Communication in Practice: Scotland – http://www.acipscotland.org.uk – network of centres in Scotland providing information on AAC services;
- Pass IT On – http://passitoncomputers.co.uk/tutorials.html – a charity that refurbishes surplus computer equipment for people with disabilities. The website includes text and video tutorials for computer use;
- ATANET – http://www.atanet.org.uk – network of Assistive Technology Advisers in Higher Education;
- Education Scotland – http://www.educationscotland.gov.uk/supportinglearners/positivelearningenvironments/inclusionandequality/index.asp
- You Can Learn It – http://www.youcanlearnit.co.uk – social enterprise company helping people with disabilities learn computer skills;
- Jisc RSC Scotland – http://www.jiscrsc.ac.uk/scotland – includes case studies on the use of ICT to support learners in higher and further education;

- Ignore *The Assistive Technology Landscape in 2012 and Beyond (Scotland)* – http://www.slideshare.net/iansyst/the-assistive-technology-landscape-in-2012-scotland-public#btnNext – it does not actually mention Scotland;
- Assessing Dyslexia Toolkit – http://www.dyslexiascotland.org.uk/addressing-dyslexia-toolkit – noted earlier;
- ACIP Scotland – http://www.acipscotland.org.uk/ – people in Scotland with an active interest in AAC: users, families, carers and professionals from a variety of different disciplines.

2.3 Current obstacles to using ICT to promote learning in inclusive settings

See response to Policy Frameworks Question 6.

Three main obstacles:

1. funding;
2. poor teacher training infrastructure on ICT and Inclusion, including lack of mentoring opportunities;
3. procurement decisions, where contractual terms do not adequately reflect the needs of those with access support needs. The result is that provision for those with ASN can be difficult to obtain, implemented late and costed separately (whereas had contracts been set up differently, it would have reduced costs).

2.4 Factors that support using ICT to promote learning in inclusive settings

1. Learner factors (teacher or other provider characteristics): willingness to learn, problem-solving attitude; openness to solutions; avoiding silo thinking;
2. External factors: funding, range of training opportunities and resources that go beyond awareness-raising; procurement and contractual base that is user-centred, rather than corporate and system-centred;
3. Access to expert advice from people who are willing and able to work on problems with enquirers.

2.5 Perceived short and long-term developments that will have an impact on ICT for Inclusion practice

1. Mobile technologies have huge potential as a learning tool that puts the learner back in control as regards what is learned, how it is learned and where it is learned. There is, however, a disconnection between need and availability. Mobile technologies are most effective if there is a 1:1 (device:person) relationship. Otherwise their usefulness is limited.
2. Potential of Glow+: secure intranet sharing of curriculum information for schools, although this does not address inclusion for lifelong learning.
3. Developments in text-to-speech are likely to continue and will bring benefits to more people in a broader range of lifelong learning settings.
4. Procurement that locks in accessibility and inclusion requirements. This will require a commitment to enforce existing legislation.
5. Funding will still be needed to address provision for higher tariff users, even though this area has seen substantial progress as a result of the ‘app’ emergence.

6. Restrictions on security (and therefore accessibility of platforms, devices and software) are regarded as a problem that demands technical solutions. Often, however, these are more effectively addressed through teachers managing children and young people's learning (in the case of schools).