

Education, Children and Families Committee

10am, Tuesday, 19 May 2015

1:1 Digital Learning Rollout

Item number	7.14
Report number	
Executive/routine	
Wards	All

Executive summary

In session 2012/13, 1:1 digital learning pilot projects in 4 schools provided evidence of positive impact on learning. Subsequently, an increasing number of schools are making good progress with developing ICT provision, with increasing impact on pedagogy.

Looking forward, ICT Procurement in March 2016 will provide further opportunities to expand 1:1 provision. Consideration will also be given to a Bring Your Own Device (BYOD) approach, as staff expertise with ICT becomes further embedded and personal device ownership increases, but retaining equality of access as a guiding principle.

Links

Coalition pledges	P5
Council outcomes	CO2
Single Outcome Agreement	SO3

1:1 Digital Learning Rollout

Recommendations

- 1.1 The committee notes the deployment of 1:1 devices as the most equitable and effective way to embed Information and Communication Technology (ICT) in learning and teaching.
- 1.2 The committee notes the potential future role of a Bring Your Own Device (BYOD) approach, to supplement and extend 1:1 provision where appropriate.

Background

- 2.1 The Scottish Government's [*ICT in Learning Vision*](#) states that "Scotland's educators, learners and parents take full advantage of the opportunities offered by technology in order to raise attainment, ambition and opportunities for all."
Education Scotland's [*'Building Society' Technologies Impact Report*](#) (March 2015) states that "Our children and young people require that centres and schools place digital technologies at the heart of learning".
- 2.2 The traditional model of ICT provision in schools is through the use of ICT suites, usually in specific departments such as Computing or Business Education. These suites are timetabled for use by these departments, and teachers of other subjects will seek to book classes into any available spaces for occasional ICT use. This means that the integration of ICT into learning and teaching is inconsistent, depending on subjects chosen by pupils and on ICT suite availability.
- 2.3 In order to best prepare our pupils for success in the rapidly evolving and digital world, schools should aim, where possible, to routinely and effectively embed ICT in all aspects of learning and teaching. In order to do this, there is a need to improve access to ICT beyond the traditional ICT suite.
- 2.4 A key approach to achieve this aim was to investigate '1:1 digital learning' – that is providing access to a personal mobile device for every learner that can be used where appropriate in any lesson, and potentially at home. In high schools, this was achieved by providing each learner in a year group with an individual device for their own use, both in school and at home. In primary schools, it is possible to work towards 1:1 by providing clusters of devices in each class, which can be shared by small groups of learners in this class. The number of devices available to each class can then be increased over time as budget allows.
- 2.5 Providing learners with access to a personal mobile device allows teachers to fully embed the use of ICT in learning, providing a more relevant, stimulating and

personalised educational experience to learners and better equipping them with the ICT skills required for learning, life and work.

2.6 1:1 digital learning can transform learning by:

- providing access to up-to-date, authentic information from a huge variety of primary sources;
- allowing us to personalise and transform learning and teaching using a wide range of digital tools;
- allowing us to extend learning, collaborate and publish beyond the classroom;
- improving home school links by increasing parental involvement in learning;
- helping develop the learning, thinking and digital literacy skills vital for success in today's technology rich society.

2.7 In preparation for 1:1 implementation, key City of Edinburgh Council (CEC) staff visited Islay High School, where whole school 1:1 had been running for several years. While government funding had allowed Islay High School to commence 1:1, they were subsequently been able to sustain the deployment of devices to all pupils through the savings that 1:1 enabled. eg significantly reduced spending on paper, photocopying, books, camera and visualisers. They were also able to demonstrate the successful embedding of ICT in learning and teaching.

2.8 Underpinning CEC's roll out of 1:1 digital learning, was a clear strategy to redesign the ICT service we receive from our managed service provider BT. At the last refresh, funds were diverted from traditional desktops and laptops to enable the provision of significantly increased wireless networking and bandwidth to all schools.

Main report

1:1 Pilots

- 3.1 Over session 2012/13, four 1:1 pilots were undertaken, in Gracemount and Forrester High Schools, and Broomhouse and Sciennes Primary Schools. These schools were chosen as pilot schools as they were considered best placed to trial this innovation because of previous success with ICT innovation. In the secondary schools, pupils in a whole year group was provided with a device. In the primary schools, it was one or two classes. Three different technical solutions – iPads, Android tablets and Windows 7 netbooks – were investigated, to see if choice of device had any differential impact on success. In each pilot, 1:1 costs were met 50% by the school and 50% CEC funds.
- 3.2 Researchers from Hull University (a university with previous experience in this field) were commissioned to carry our research on these pilots. Details of their results can be found in section 3.13.

- 3.3 Moving to 1:1 can involve a significant culture shift for staff and learners in a school, so good planning and preparation is essential to a successful 1:1 implementation. Throughout 2012/13, pilot schools were supported by CEC's Schools' Digital Learning Team, providing strategic advice, staff development and technical support. An online '1:1 Toolkit' was also created, documenting the key steps in planning, preparation and implementation of 1:1.
- 3.4 Key elements in the success of a school's 1:1 implementation include strong senior leadership, an effective ICT working group, and (crucially) sustained priority given to staff development.
- 3.5 As well as very positive results across all four pilots, evidence also suggests that the iPad was the most effective platform for more creative and deeper learning, so a decision was taken that the iPad should be the recommended mobile device for the further development of 1:1 digital learning.
- 3.6 Subsequent to the success of the pilots in 2012/13, from 2013 onwards more secondary schools began to work towards 1:1, using the 1:1 Toolkit to guide this process. To acknowledge the significant leap secondary schools needed to make to implement 1:1 for a whole year group, each was offered the possibility of 50% funding towards one year group, as long as they utilised the 1:1 Toolkit and could demonstrate a state of readiness.
- 3.7 To date, 12 high schools have implemented 1:1 for at least one year group, with at least one more high school planning a deployment for August 2015, as follows:

School	Cluster	Yeargroup 1:1					
		S1	S2	S3	S4	S5	S6
Balerno Community High	South West						
Boroughmuir High	South						
Broughton High	North						
Castlebrae Community High	East	y	y	y	y	y	y
Craigmount High	West						
Craigroyston Community High	North						
Currie Community High	South West						
Drummond Community High	North	y	y	y	y	y	y
Firrhill High	South West						
Forrester High	West			y	y		
Gracemount High	South			y	y	y	y
Holy Rood RC High	East			y	y		
James Gillespie's High	South						
Leith Academy	North				y		
Liberton High	South				y	y	y
Portobello High	East		y	y	y		
Queensferry Community High	West						
St Augustine's RC High	West			y			
St Thomas of Aquin's RC High	South						
The Royal High	West			y	y		
Trinity Academy	North						
Tynecastle High	West			y	y	y	y
Wester Hailes Education Centre	South West			y			

Primary School Rollout

- 3.8 Because of primary schools' ability to gradually work towards 1:1 by providing smaller numbers of devices to each class, most iPad use in primary schools adopted this approach. Nonetheless, we do also now have a small but increasing number of primaries successfully implementing full 1:1 for selected classes.

Special Schools Rollout

- 3.9 iPad use is also significant in the special school sector. The model of deployment varies depending on the specific needs of learners, decided at local level.
- 3.10 Including staff devices, CEC's iPad deployment in each sector to date is:

Sector	No of iPads	Cost (approx £250 per device)
Primary	5608	£1,402,000
Secondary	6913	£1,728,250
Special	468	£117,000
Nursery	117	£29,250
Other C&F	508	£127,000
Total	13614	£3,403,500

- 3.11 The Digital Learning Team remains a central point of support, skills and knowledge for schools in their ongoing development of the use of digital technologies. The team provides strategic support, training in transformative uses of ICT for learning, and technical advice on device setup and troubleshooting.
- 3.12 Primary colleagues indicate that a full 1:1 deployment is most effective from P5 upwards. Longer term, a Bring Your Own Device (BYOD) approach, perhaps in the upper years of secondary, will be being explored. This will need to be considered sensitively, with a clear focus on equality of access, both within a school and across schools, given the likely differences in personal device ownership across different areas of the city.

Hull University 1:1 Mobile Evaluation (2012-13)

- 3.13 Full report available from link in 'Background reading/external references' section. Key findings from the report included:
- 3.13.1 Student autonomy was considered to be an immediate benefit arising from the allocation of mobile devices;
 - 3.13.2 Levels of engagement and motivation amongst students rose across each of the pilot schools;
 - 3.13.3 Most teachers report changes in their attitudes and practices associated with their teaching style and approaches to learning;

- 3.13.4 Personal access to the Internet enabled teachers to set more authentic and realistic tasks for students;
- 3.13.5 Teachers who had previously shunned technology or considered themselves to be technological ‘newbies’, began to recognise benefits for the teaching and learning in their subject areas;
- 3.13.6 There is evidence that teachers are shifting their practices in ways which might prove to be very significant. These include different patterns and means of communicating with students to support their learning beyond school; changing relationships between students particularly in regard to the traditional knowledge giver role of the teacher; and new models for organising learning such as the ‘flipped classroom’.

Attitudes towards learning	Results
Thought it made learning more fun and enjoyable	91% (121)
Thought they were more engaged in learning when using the device	82% (109)
Thought they learned better with the devices	83% (110)
Thought it helped them understand difficult ideas better	79% (105)
Preferred using it to a fixed computer	77% (103)
Thought it helped them work better with other people	68% (91)
Thought they behaved better when using the devices	66% (88)

- 3.14 No further formal evaluations of the impact of 1:1 deployments have yet been undertaken 2014-16. Some schools however have been conducting their own qualitative evaluations and a small sample is shown below.

Feedback from teachers

- 3.14.1 “One of the most rewarding experiences I witnessed was when P7 pupils became the ‘teachers’ and P2s were the ‘learners.’ The experience was made possible and beneficial due to the fact that all pupils had access to a device”.
- 3.14.2 “Pupils are making good progress and the pace moves at a better speed as pupils have appropriate one to one resources available. Meaningful extension to learning takes on a new dynamic for those who are ahead while supporting instructions can be given to those who are in need”.

Feedback from parents

- 3.14.1 “[name] has been much more keen to do his homework since he had access to the iPad. He’s been making movies and animations in his room and he is really motivated to make homework tasks look professional”.
- 3.14.2 “My daughter was a bit worried about taking the iPad home in case it was damaged but now it’s a key piece of school equipment”.
- 3.14.3 “I’m amazed at the work [name] can produce on the iPad. It’s so creative and she’s very happy to share it with her father and me. This was not the case with homework in the past”.
- 3.14.4 “Having an iPad that he can take home has made [name] more organised. He checks the homework calendar and emails his work to the teacher”.

Feedback from pupils

- 3.14.5 “They help with my spelling when writing and it has improved it even when not on my iPad”.
- 3.14.6 “My iPad is a wonderful addition to my learning, and now that I have it I don’t know what I would do without it. I use my iPad on a daily basis for schoolwork and also a lot for homework”.
- 3.14.7 “I am grateful that we got iPads as they have enhanced our learning and there is now much more capability for lessons to be different and fun”.
- 3.14.8 “They make learning more enjoyable and it is good we have modernised”.

Measures of success

- 4.1 These are encompassed in previous sections.

Children and Families Improvement Plan

Priorities for Improvement:

- Our children and young people are successful learners, confident individuals and responsible citizens, making a positive contribution to their communities;
- Our children and young people at risk, or with a disability, have improved life chances;
- To improve the educational attainment of the lowest achieving pupils;
- All learners with additional support needs have their needs met.

Financial impact

- 5.1 This work was financed within existing budgets, as follows:
- From 2012 to 2014, CEC central funding was used to support 50% of one year group for 12 secondary schools, plus the two pilot primary schools. The cost of this support was approximately £206,000. All other expenditure on iPads has

been from schools' devolved budgets. Going forward, schools will continue to improve their ICT provision in this manner.

- 5.2 ICT Procurement (March 2016) will provide schools with a future opportunity to enhance their ICT provision. A core principle for schools will be to allow them maximum flexibility with the type and proportion of equipment (desktop, laptop, or iPad) that they will receive to best meet the needs of their learners.

Risk, policy, compliance and governance impact

- 6.1 There are no adverse impacts arising.
- 6.2 Throughout all 1:1 implementations, schools are given clear guidance on appropriate measures to ensure mitigation of risk and compliance with council ICT policies. These include guidance on delivering an appropriate digital safety curriculum, providing clear information and enabling discussion with parents, ensuring parents learners and schools formally sign up to a 'Home School Agreement' outlining rights and responsibilities for all three parties.
- 6.3 Schools are also given guidance and support with setup, maintenance and monitoring of appropriate use of iPads, including their enrolment in a Mobile Device Management (MDM) solution. This enables a number of asset management features including the enforcement of appropriate security settings, the monitoring of software installed, and device tracking.
- 6.4 The support and development of ICT in schools is a partnership between in-school staff and the Digital Learning Team. Guidance on all of the above is available for schools on the Digital Learning Team's website.

Equalities impact

- 7.1 There are considered to be no infringements of the rights of the child in the strategies employed and only positive impacts in relation to equalities groups (in particular young people with disabilities, see 7.3 below).
- 7.2 A guiding principle of the implementation of 1:1 digital learning has been the desire to provide equality of access to ICT for learners. Providing all learners in a cohort with the same device is considered to be the fairest way to have a positive impact on all learners.
- 7.3 With respect to pupils with additional support needs, the iPad is also the predominant device recommended by the ASL team because of the range of software and accessibility options available. Furthermore, this strategy enhances the continuing provision of other appropriate ICT devices for pupils with specific additional needs.
- 7.4 We do have a number of schools interested in pursuing a BYOD approach to enabling 1:1. While this may well be seen as a more financially sustainable way

forward, this approach presents additional challenges in ensuring equality of access, both within a school and across schools, so will require careful consideration in order to avoid any negative impact.

Sustainability impact

- 8.1 Moving towards 1:1 digital learning provides opportunities for schools to reduce their carbon footprint through a gradual decrease in the use of physical text books, paper and photocopying.

Consultation and engagement

- 9.1 Regular and ongoing feedback and discussion between Senior Education Manager and Headteachers, and between Digital Learning Team and school ICT Coordinators.
- 9.2 'Developing 1:1 Digital Learning' position paper, written in March 2014, discussed and agreed with Headteachers. Attached as appendix 1.

Background reading/external references

[Scottish Government ICT In Learning Vision](#)

['Building Society' Technologies Impact Report](#)

[University of Hull, Edinburgh 1:1 Mobile Evaluation, 2012-2013](#)

[Digital Learning Team](#)

Gillian Tee

Director of Children and Families

Contact: David McKee, Quality Improvement Officer (Technologies)

E-mail: david.mckee@ea.edin.sch.uk | Tel: 0131 469 3046

Links

Coalition pledges	P5 – Seek to ensure the smooth introduction of the CfE and that management structures within our schools support the new curriculum
Council outcomes	CO2 – Our children and young people are successful learners, confident individuals and responsible citizens making a positive contribution to their communities
Single Outcome Agreement	SO3 – Edinburgh’s children and young people enjoy their childhood and fulfill their potential
Appendices	1 - ‘Developing 1:1 Digital Learning’ procedure, March 2014

Procedure Title - **Developing 1:1 Digital Learning**



CHILDREN AND FAMILIES

Procedure Title – Developing 1:1 Digital Learning

Management Information	
Lead Officer	Name: Karen Prophet
	Designation: Senior Education Manager
	Tel: 0131 469 3048
Lead Service Area	Children and Families
Last Review Date	
Implementation Date	March 2014
Review Date	
Date Agreed	
Agreed by	

Definition: Procedure – An agreed method or approach to comply with Policy, Legislation and Departmental Decisions.

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Lead Officer: [Karen Prophet]
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1. RATIONALE

'1:1 digital learning' is learning transformed through ubiquitous access to ICT for all.

In order to best prepare our learners for success in tomorrow's rapidly evolving and digital world, all schools should aim to deliver two key objectives:

- **ICT is routinely and effectively embedded in all aspects of learning and teaching**
- **All learners have personal access to ICT whenever and wherever it benefits learning**

Current integration of ICT in learning and teaching is inconsistent - most schools have pockets of good practice, usually delivered by teachers with a personal interest in ICT. ICT should be a core element of all schools' improvement planning and PRD/CPD programmes so that it is embedded in all teachers' practice and there is equality of opportunity for all learners.

The traditional model of ICT provision, using only fixed labs of desktop computers or laptop trolleys, with limited access for all learners, is inadequate. Learners and teachers need universal access to ICT so they can use it whenever and wherever it is beneficial to learning.

2. BACKGROUND

In September last year, Cabinet Secretary Michael Russell announced a national **Technologies for Learning Strategy** with five main objectives:

- to change the culture of the use of ICT
- to improve confidence in the use of ICT for learners, teachers, school leaders and parents
- to promote new behaviours for teaching
- to deepen parental engagement
- to strengthen position on hardware and associated infrastructure

1:1 digital learning helps meet these objectives by:

- providing access to up-to-date, authentic information from a huge variety of sources
- allowing us to personalise and transform learning and teaching using a wide range of digital tools
- allowing us to extend learning, collaborate and publish beyond the classroom
- improving home school links by increasing parental involvement in the learning process
- helping develop the learning, thinking and digital literacy skills vital for success in today's rapidly evolving, technology rich society

3. RESEARCH

Over session 2012/13, four 1:1 digital learning pilots were undertaken; two in secondary, two in primary. The City of Edinburgh Council commissioned Hull University to carry out research on these pilots. The **Edinburgh 1:1 Mobile Evaluation** has recently been published and key findings include:

- *Student autonomy was considered to be an immediate benefit arising from the allocation of mobile devices*
- *Levels of engagement and motivation amongst students rose across each of the pilot schools*
- *Most teachers report changes in their attitudes and practices associated with their teaching style and approaches to learning*
- *Personal access to the Internet enable teachers to set more authentic and realistic tasks for students*

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- *Teachers who had previously shunned technology or considered themselves to be technological 'newbies', began to recognise benefits for the teaching and learning in their subject areas*
- *There is evidence that teachers are shifting their practices in ways which might prove to be very significant. These include different patterns and means of communicating with students to support their learning beyond school; changing relationships between students particularly in regard to the traditional knowledge giver role of the teacher; and new models for organising learning such as the "flipped classroom"*

4. LEADERSHIP

It is clear that with the expansion of the use of ICT in schools the leadership of learning & teaching needs to include the use of ICT in enhancing and transforming the learning experience. It is essential that a member of the Senior Leadership Team should have a strategic overview of ICT, supported by an ICT Coordinator (with time allocated for this role), a staff working group and perhaps an ICT Technician.

Schools should have a clear vision and strategy for the development of ICT, using the **Edinburgh Self Evaluation Framework** to benchmark their ICT capability and to establish improvement plan priorities to develop ICT in school and work towards 1:1 digital learning.

5. PROCESS

Schools should follow the Digital Learning Team's **1:1 Toolkit** when choosing to implement 1:1 digital learning. This toolkit outlines a staged approach as follows:

- Plan (vision, readiness, investigation)
- Prepare (pedagogy, policies & procedures, pupils & parents)
- Implement (devices, launch, support)
- Review (review, modify)

As well as outlining the recommended approach to delivering 1:1 digital learning, the 1:1 Toolkit contains a variety of useful documents including policies, CPD frameworks and procedures for managing devices.

1:1 Toolkit is available here: <http://digitallearningteam.org/toolkit/>.

6. TECHNICAL CONSIDERATIONS

The authority's recommended mobile platform for 1:1 digital learning is the iPad and schools should follow the Digital Learning Team's **iPad Deployment Guidelines** when setting them up. Reasons for recommending the iPad include:

- Evidence from 1:1 pilots, including device robustness and quality of available apps
- The iPad is the market leading tablet in education
- Adopting an estate-wide single platform means good practice can be more effectively shared
- More effective support can be developed for a single platform

There are many technical aspects to consider when rolling out iPads for 1:1 digital learning. These include:

- Appropriate deployment methodologies
- Device setup, security, asset management through a Mobile Device Management (MDM) solution

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Procedure Title - **Developing 1:1 Digital Learning**

- App purchasing through the Volume Purchasing Program (VPP)
- Use of Apple IDs
- Wireless connectivity

iPad Deployment Guidelines are available here: <http://digitallearningteam.org/ipad/ipad-setup/>.

7. RESOURCING

In the current financial climate budgeting for ICT can be difficult. However moving towards 1:1 digital learning creates several opportunities to save money in other areas, such as:

- Significant reduction in photocopying and paper costs by moving to digital workflow solutions such as Microsoft Office 365
- Reduction in the purchase of paper based resources such as books, jotters, textbooks, dictionaries, study guides and learner/teacher planners
- Reduced need to purchase devices such as interactive whiteboards, calculators, printers, cameras and scanners

iPads should be purchased from XMA via The 'National Framework for the Provision of Notebook and Tablet Devices for Education', which has been adopted by Edinburgh City Council and is available through Oracle.

There is currently no political will to support Bring Your Own Device (BYOD) in schools as there are inherent difficulties in ensuring parity across all learners. As a result, learners should not be bringing their own tablets/laptops into school at this time.

8. AUTHORITY SUPPORT

The Digital Learning Team supports the integration of ICT in learning and teaching to improve the outcomes for all learners in the City of Edinburgh. The team is available to provide establishments with advice and support with all curricular, strategic, technical and administrative aspects of ICT. Their contact details are:

- digital@ea.edin.sch.uk
- 0131 469 2999
- <http://digitallearningteam.org>
- @DigitalCEC

A commitment has been made to assist secondary schools across the city with 50% funding towards a 1:1 digital learning implementation for one year group. The Digital Learning Team will work with each school to help them prepare for a 1:1 implementation. Schools will be expected to show evidence that they have completed Phases 1 & 2 of the 1:1 Toolkit prior to funding being released.

9. ASSOCIATED DOCUMENTS/LINKS

- Technologies for Learning Strategy (<http://engageforeducation.org/2011/09/technologies-for-learning-unpacking-the-objectives-introduction/>)
- 1:1 Toolkit (<http://digitallearningteam.org/toolkit/>)
- iPad Deployment Guidelines (<http://digitallearningteam.org/ipad/ipad-setup/>)
- iPad support (<http://digitallearningteam.org/ipad/>)
- Edinburgh ICT Self Evaluation Framework (<http://digitallearningteam.org/toolkit/documents/>)
- University of Hull, Edinburgh 1:1 Mobile Evaluation, 2012-2013

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