Education, Children and Families Committee

10am, Tuesday, 6 March 2018

Digital Learning in Schools

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Executive Summary

The Scottish Government report on Enhancing Learning and Teaching through the Use of Digital Technology was published in September 2016. For many years, and following publication of this report, schools in Edinburgh have been encouraged to create their own curricular and pedagogical approaches, within a framework for delivery as best meets their needs.

As a result of Scottish Government policy to improve outcomes for learners living in poverty, statutory duties on schools and local authorities are now in place to ensure equity of access to learning. This has implications on all areas of policy and practice.

The Edinburgh and South East Scotland Enterprise & Development 'City Deal' strategy clearly details the need to develop data skills for future citizens of Edinburgh. Courses and programmes of study are now being devised to ensure that learners are equipped to be data literate and numerate. This will require increased access to technology which enhances and supports learning and teaching.

Within this climate of equity and innovation, strategic and policy decisions are now being revised.

The Digital Learning in Edinburgh Schools Framework is under revision to ensure that teachers can provide the best learning opportunities, supported by the best technology to enable all learners to develop skills.

Report

Digital Learning in Schools

1. Recommendations

1.1 It is recommended that committee:

1.2 Notes the Education Digital Learning in Schools Framework contained in (Appendix 1).

1.3 Requests an update within nine months on the progress of implementation of each of the key strategic actions contained within the Framework (Appendix 1)

1.4 Requests an update within nine months on the progress as detailed in the scoping document (Appendix 2)

2. Background

2.1 Technological skills are outlined in Curriculum for Excellence and are an entitlement to all learners.

2.2 Digital skills are references in the Initial Teacher Education and the Professional Standards set by the General Teaching Council.

2.3 In September 2016 the Scottish Government produced a report: Enhancing Learning and Teaching through the Use of Digital Technology: A Digital Learning and Teaching Strategy for Scotland. It is this report that provides the basis for developing policy and practice in CEC schools.

2.4 The Education Act (2016) places a duty on all local authorities to raise attainment for all, and to improve outcomes for children living in poverty.

2.5 New regulations for General Data Protection Regulation come into effect in May 2018 and require to be assessed in regard to how data is protected. This impacts on all areas of work in schools.

3. Main report

3.1 The City of Edinburgh has been at the forefront of developing approaches to digital pedagogy for many years. Through various strategic frameworks, Headteachers in Edinburgh schools have been supported to develop the use of digital technology in their schools as best befits their context.

3.2   This has led to a mixed estate of technology and methodologies, due to the self-evaluation of schools, their different contexts, and stages of implementation and development, for example Tynecastle High School uses Apple devices and was praised in its most recent Inspection Report:

3.3   The school's digital learning has been recognised as innovative. The school has improved access to digital technology by supplying all young people in S3-S6 with a tablet. Technology is used to enhance learning which is equipping young people with vital digital skills. In some cases, the use of digital technology gives young people personalisation and choice in how they present their learning. It assists young people who need support with their learning, while for others it reduces barriers to learning in a language which they are acquiring as part of immersion.

Young people's independent learning skills are promoted through courses and study notes being available electronically. Staff are moving towards having digital technology as a key aspect of learning in all areas of the curriculum. They are encouraged to customise digital technology to their subject requirements. In this, teachers are supported with professional learning which results in almost all of them using technology in their teaching. Teachers should continue to use self-evaluation to ensure consistency in young people's use and high-quality experience of digital technology which enhances and personalises their learning.

3.4   The devolution of responsibility resulted in different approaches. In one case, this has seen a request of support to implement a model where pupils used their own, rather than council-managed devices, to enhance learning and teaching. This is known as Bring Your Own Device.

While there are advantages to this method, such as making use of a device without incurring costs to the school, there are several other factors which must be considered, such as legal risk, equity, and how staff adapt teaching to make best use of the device. In the main, where this approach is used, it is low level tasks such as searches that are used. Therefore, any approach which employs this method must ensure that all risk factors and benefits are analysed.

3.4   Nationally, there are many approaches to developing digital learning. This was reflected in The Scottish Government report on Enhancing Learning and Teaching through the Use of Digital Technology, published in September 2016.

3.6   This report details four essential and interrelated elements which should be developed to ensure that learning and teaching are enhanced by digital technology.

These are:

- Develop the skills and confidence of teachers.

- Improve access to digital technology for all learners.

- Ensure that digital technology is a central consideration for all areas of curriculum and assessment delivery.

- Empower leaders of change to drive innovation and investment in digital technology for learning and teaching.

3.7 To ensure that these elements are being effectively addressed within current structures, a pilot study has been scoped out, involving 3 secondary schools. These schools have been chosen to be reflective of Edinburgh's wide demographic. These are Craigroyston CHS, Forrester HS and James Gillespie's HS.

3.8 The study, contained in Appendix 2, will frame the issue as an approach to School Improvement and will attempt to answer the following questions:

- From the learner perspective, what is the problem and what is the current impact upon learning and teaching?

- From the school perspective, which actions and opportunities listed on pages 9, 10 and 12 of the Enhancing Learning and Teaching through the use of Digital Technology paper will the project address?

- What other potential solutions to the problem have been identified?

- What non-functional requirements need to be considered from: performance, interfaces, operations, resources, security, reliability, and availability, maintain ability, safety, recovery?

3.9 Under the current government, all school improvements must be seen within a culture of raising attainment for all. New guidelines relating to ensuring access for all have emerged, placing statutory duties on schools and local authorities to provide equity for learners. This theme is also observable in the current Children's Partnership Plan: Equity.

3.10 Similarly, other national and regional developments will influence the strategic direction for Headteachers as they plan for school improvement. The Edinburgh and South East Scotland City Deal strategy clearly details the need to develop data literate citizens within Edinburgh. Courses and programmes of study are now being devised to ensure that learners are equipped to learn to be data literate and numerate. This will require increased access to technology which enhances and supports learning and teaching.

Within this climate of equity and innovation, strategic and policy decisions are now being revised.

4. Measures of success

4.1 Measures of success are detailed in the framework, delivery plan and scoping document.

5. Financial impact

5.1 The recommendations in this report have been assessed in relation to finance and no negative impacts have been found. To combat on-costs for IT, schools may use Pupil Equity Fund monies for those learners in poverty or from other at-risk groups.

6. Risk, policy, compliance and governance impact

6.1 The recommendations in this report have been assessed in relation to risk, policy and compliance and will be reported in line with the findings of the pilot projects.

7. Equalities impact

7.1 The recommendations in this report have been assessed in relation to equalities and human rights and will be reported following in line with the findings of the pilot projects.

8. Sustainability impact

8.1 Schools must ensure that they are fully aware of costs for refresh when purchasing IT. This is dependent on contracts negotiated centrally where schools make use of council managed devices.

8.2 They must also be prepared to fund learning and development for staff to ensure that professional learning skills are constantly updated.

9. Consultation and engagement

9.1 N/A

10. Background reading/external references

10.1 www.gov.scot/Topics/Education/Schools/ICTinLearning

Alistair Gaw

Executive Director for Communities and Families

Contact: Lorna Sweeney, Service Manager, Schools and Lifelong Learning

E-mail: lorna.sweeney@edinburgh.gov.uk| Tel: 0131 469 3138

11. Appendices

11.1   Appendix 1   Digital Learning in Schools Framework for Edinburgh

11.2   Appendix 2   Feasibility Study Business Case

Appendix 1

Digital Strategy Planning Framework

Statements from the National Digital Strategy to consider when planning a school digital strategy

The Role of the Education Establishment

Develop the Skills of Our Educators

- Encourage educators to *share innovative and effective practice* both face-to-face and through digital platforms.
- Ensure that *students and newly qualified staff are sufficiently supported* in the appropriate and *effective use of digital technology*.
- Look for *opportunities to use digital technology to engage with parents and carers*, allowing them to *understand the benefits of digital technology in education*.
- Ensure that *appropriate career-long professional learning opportunities* are offered to a range of educators.
- Ensure learners are involved in sharing their digital experiences and skills and that they are given opportunities to comment on the use of digital technologies to deliver learning and teaching.

Improve Access

- Work with the local authority to obtain *appropriate digital hardware and software* that can support learning and teaching.
- Ensure all learners, including those with additional support needs, are *able to access* appropriate digital technology for learning and teaching.
- Ensure that all learners become *resilient users of digital technology and can stay safe online.*

Enhance Curriculum and Assessment Delivery

- Ensure that the use of digital technology is a *central consideration in the planning and delivery of any learning and teaching* across Curriculum for Excellence.
- Provide a range of opportunities for learners to develop their digital skills across Curriculum for Excellence.
- Work to *identify opportunities to enhance assessment* using digital technologies.

Empower Leaders

- Ensure that the *use of digital technologies within their establishment aligns closely with evolving self-assessment and improvement guidance* such as 'How Good is Our School?'
- Actively seek to *identify existing expertise within the staff complement* and *ensure that their knowledge is shared with senior leaders*.
- Ensure that *cyber resilience and internet safety is central to all digital technology use* in the establishment.
- *Involve parent councils and parent/carer groups* in discussions around the use of digital technology *to help realise anytime/anywhere learning.*

Statements from the HGIOS 4 to consider when planning a school digital strategy

Themes: Success and Achievements – How good are we at improving outcomes for all out learners?

QI 3.3 Increasing creativity and employability
- Creativity skills
- Digital innovation
- Digital literacy
- Increasing employability skills

Management of resources to promote equity

Features of a highly effective practice:
- All available resources, including digital technologies and outdoor spaces, are used effectively to create and sustain effective learning environments. These are used well to support learning.
- Teachers make effective use of a range of resources, including digital technologies, to provide appropriate support and challenge for learners.

Curriculum

Features of a highly effective practice:
- There is a clear focus on developing skills of literacy, numeracy, health and wellbeing, creativity, digital and employability skills in a progressive way across the curriculum.

Increasing creativity and employability

Features of a highly effective practice:
- All children and young people have the opportunity to develop and apply more sophisticated computational thinking skills.
- Young people make informed choices about the way digital technology can and should be used.
- The development of digital skills enables children and young people to be creative and use digital technologies to meet a personal or social need.
- Young people understand the importance of developing their own digital skills for learning, life and work.

Standards from the GTCS to consider when planning a school digital strategy

Standards for Registration

Have knowledge and understanding of contexts for learning to fulfil their responsibilities in literacy, numeracy, health and wellbeing and interdisciplinary learning.

Professional Actions for Student teachers:

Have knowledge and understanding of current guidance on the use of digital technologies in schools and know how to use digital technologies to enhance teaching and learning.

Professional Actions for Registered teachers:

Have secure knowledge and understanding of current guidance on the use of digital technologies in schools and know how to use digital technologies competently to enhance teaching and learning.

Standards for Career Long Professional Learning

Pedagogy, Learning and Subject Knowledge Professional Actions:

Demonstrate a critical understanding of digital technologies and how these can be used to support learning.

Pupil digital skills to consider when planning a school digital strategy

Digital intelligence or "DQ" is the set of social, emotional and cognitive abilities that enable individuals to face the challenges and adapt to the demands of digital life. These abilities can broadly be broken down into eight interconnected areas:

Digital identity: The ability to create and manage one's online identity and reputation. This includes an awareness of one's online persona and management of the short-term and long-term impact of one's online presence.

Digital use: The ability to use digital devices and media, including the mastery of control in order to achieve a healthy balance between life online and offline.

Digital safety: The ability to manage risks online (e.g. cyberbullying, grooming, radicalisation) as well as problematic content (e.g. violence and obscenity), and to avoid and limit these risks.

Digital security: The ability to detect cyber threats (e.g. hacking, scams, malware), to understand best practices and to use suitable security tools for data protection.

Digital emotional intelligence: The ability to be empathetic and build good relationships with others online.

Digital communication: The ability to communicate and collaborate with others using digital technologies and media.

Digital literacy: The ability to find, evaluate, utilize, share and create content as well as competency in computational thinking.

Digital rights: The ability to understand and uphold personal and legal rights, including the rights to privacy, intellectual property, freedom of speech and protection from hate speech.

Above all, the acquisition of these abilities should be rooted in desirable human values such as respect, empathy and prudence. These values facilitate the wise

and responsible use of technology — an attribute which will mark the future

leaders of tomorrow. Indeed, cultivating digital intelligence grounded in human values is essential for our kids to become masters of technology instead of being mastered by it.

(Source: https://www.weforum.org/agenda/2016/06/8-digital-skills-we-must-teach-our-children/)

Vision

- *What digital vision, if any, is currently in place in your establishment and what impact has this had on learning and teaching?*
- *Having evaluated your current digital practice, what impact will this have on the development of an ongoing strategy?*
- *Can you set specific, measureable goals that help define what your vision will look like in practice?*

Team

- *Who are the key stakeholders in your community?*
- *Can you identify key people (more than one) who could lead elements of your digital strategy?*
- *What role will learners play in developing and evaluating the digital strategy and its impact on teaching and learning?*
- *How will school leaders support the embedding of the digital strategy?*

Feasibility Study Business Case

PRINCE2®

The purpose of the Business Case is to articulate the initial investigative work to be undertaken at the early stage of a project. The objective of the Business Case is to provide enough background information for key sponsors to approve a short Feasibility Study. Further the Business Case provides a high level overview of the full project lifecycle beyond feasibility.

Conducting a Feasibility Study will enable the rationale for the project to be defined, specifically the business or operational problem to be addressed in accordance with the governing processes of PRINCE2, **PRINCE2** (an acronym for PRojects IN Controlled Environments) is a de facto process-based method for effective project management. Used extensively by the UK Government, **PRINCE2** is also widely recognised and used in the private sector, both in the UK and internationally.

This Business Case recommends that the investment in a short Feasibility Study would be beneficial in establishing a clear rationale to proceed with a Bring Your Own Device project, identifying and analysing requirements and introducing control around risks, delivery timeframes and costs.

Rationale

A feasibility study during an evolving project seeks to specify and clarify what is required, especially where the proposed project deviates from existing strategy. A feasibility study can be seen as an analytical tool that is used to help defined problems and opportunities leading to a successful outcome. A feasibility study delivers the recommendations providing the sponsors with a mandate to proceed.

The rationale for the use of digital technology in learning and teaching illustrated in the following extract from 'Enhancing Learning and Teaching through the use of Digital Technology'.

The Prominence of Digital Technology in the Curriculum

There is now a wide consensus that digital technology should receive a more prominent role in curriculum delivery.

"It is important that young people have the opportunity to develop technology and industry awareness across all parts of the curriculum"

ICT and Digital Technologies Skills Investment Plan (2014) Skills Development Scotland

"Digital skills should be embedded in the curriculum and developing a digital literacy for all has to be integral throughout Curriculum for Excellence"

Digital Solutions to the Productivity Puzzle (2016) Scottish Council for Development and Industry

"Students who were only exposed to digital education in designated ICT classes suffered a distinct disadvantage when compared to those whose schools chose to mainstream technology and digital skills across the curriculum"

Digital Skills Crisis (2016) House of Commons Science and Technology Committee

There are typically three courses of action that may result from early project investigation and analysis. A decision to proceed to the next stage (in this case Feasibility) would be reviewed at the end of each significant stage of the project lifecycle.

Do not proceed

The do not proceed option is selected when the costs outweigh any benefits, there is considered to be a likelihood of negative impact within the target environment or the benefits will be delivered by another project. The option may recommend further feasibility investigations.

Proceed

The decision to proceed is made by the project sponsors where the information available indicates that there would be a clear benefit that would outweigh any costs and that identified risks could be confidently mitigated or accepted by all parties.

Proceed with amendments

This decision is reached where risks, constraints or dependencies that become apparent during investigation, impact the anticipated course of the project.

The recommended decision for this project is to conduct a Feasibility Study, after which an informed decision to proceed to a full project may be made.

The Feasibility outcomes are driven by the project outcomes and seek to address the following key questions;

1. From the learner perspective, what is the problem and what is the current impact upon learning and teaching?

2. From the school perspective, which actions and opportunities from the Enhancing Learning and Teaching through the use of Digital Technology paper will the project address?

3. What other potential solutions to the problem have been identified?

4. What non-functional requirements need to be considered from: performance, interfaces, operations, resources, security, reliability, availability, maintain ability, safety, recovery?

The project outcomes will align to the opportunities and impact statements extracted from 'Enhancing Learning and Teaching through the use of Digital Technology'.

How Does Digital Technology Enhance Learning and Teaching?

Aspect of quality learning and teaching	Opportunities and impact of digital technology
Provision of quality educational content	Learners and educators have access to a multitude of additional online educational content as well as being able to create new digital content that can support education.
Tailoring approach to deliver personalised learning	A range of digital tools and services (apps, games, websites, etc.) allow educators to offer a number of approaches to learning and learners can choose the approach that best suits them.
Collaborating with others to test understanding of new knowledge and skills	Educators can offer learners the opportunity to collaborate online with others from across the world in addition to their peers within their school or early years setting.
Engaging and motivating learners	Educators have access to a range of engaging digital tools and services.
Ensuring education is relevant to learners' experience of the world	Educators can deliver learning in a digital context using digital tools and services. This better aligns with learners' experience of today's digital world.
Opening up experiences and opportunities for learners	Educators can provide learners with access to a range of digital resources which allow 'anytime/ anywhere learning' and build a level of digital skills which will be vital in today's digital world.
Providing quality assessment, personalised feedback and data to inform subsequent learning and teaching	Educators can reduce workload by using appropriate digital assessments that provide instant results and personalised feedback. This frees time for focusing on next steps and improvement.
Allowing sufficient time for learning and teaching, enabling learners to develop their knowledge and skills	Online digital networks allow educators to share resources and digital tools and services expedite lesson planning. Digital assessment eliminates marking time. The time saved can be devoted to quality learning and teaching.
Equity of educational choice	Live video streaming and digital tools and services allow the potential for learners to study subjects via online distance learning.

Risks will be catalogued and managed throughout the project via a Risk Log that will consider stages, timescales, deliverables, resources, facilities, client responsibilities.

The Risk Log will be developed during the Feasibility Study.

These risks typically relate to resourcing, cost, procurement, suppliers, staff skills, methodologies, project management, similar projects, level of understanding of the problem.

An initial risk log is included below:

Risk Number	Risk	Mitigation	Owner
001	Failure to undertake thorough analysis leads to partial or	Conduct Feasibility Study.	JL

Risk Number	Risk	Mitigation	Owner
	ineffective solution.		
#002			

The Feasibility Study is estimated to take 3 days or 22.5 hours within a timescale to be agreed by project sponsors. The estimated timescale for a full project will be identified during the study.

The costs of the Feasibility Study will be met by the 'Raising Aspirations in Science/STEM Education' project and is therefore not a tangible project cost.

Financial Information

The Feasibility Study will provide high-level financial information for the project.