

Spring 2010

**Becta** leading  
next generation  
learning



**Messages from  
the evidence:**  
Personal  
technologies  
for learning

## The challenge

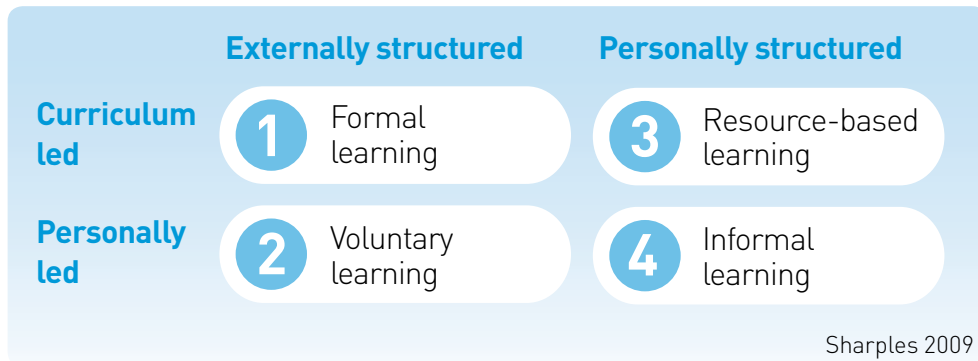
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Evidence tells us that using personal technologies can benefit young people in a number of ways. There are new opportunities to provide information, resources and services to learners via their own devices which include ultra-mobile PCs, netbooks and smart phones. However, the management of learning and technology in this context can be challenging. Schools that have used learner devices to good effect have worked hard to put in place suitable policies and provision and have promoted an appropriate culture of behaviour. Unsurprisingly, the teacher's role is critical. Young people whose teachers model the effective use of the technology for learning use it more effectively themselves.



# The context

Benefits when using personal technologies to support learning include:



Resource-based learning, voluntary learning and informal learning can play an important part in improving achievement.

Teachers can work with learners to use personal devices to support and enhance all four types of learning.

Benefits when using personal technologies to support learning include:

## Increased motivation and engagement

With guidance young people develop a strong sense of personal devices as learning tools. As a result, their interest in learning is sustained both inside and outside the classroom. Personal devices in these contexts connect learning between formal and informal settings.

## Improved learning continuity

Because devices can be used at home and school and across subject areas, learners take advantage of new opportunities for learning outside the classroom. There is increased family involvement and this continues as young people progress through their school experience.

Learner-owned devices can now offer a range of functionality such as wireless connectivity, powerful processors and applications, multimedia capabilities, integrated cameras, social media, content creation tools, GPS and sensors. At the same time, previous issues with personal devices, such as limited battery life, small displays, poor interfaces and high cost, are being addressed.

Globally, personal devices are becoming the primary means for connecting to the internet and an interface to the user's networks of people, information, tools and services. They are already in use as tools for education in colleges and universities. Third-party applications are readily available for the newest devices, and educational content is getting easier to find for almost every subject. As technology develops mobile technologies will support more sophisticated functions, many of which are likely to have useful educational benefits. Schools that adopt personal mobile technologies will be well placed to realise these benefits.

#### **Examples of innovation using personal technologies**

Learning2Go is the UK's largest collaborative mobile initiative developing new ways to deliver learning. The project encourages 24/7 ownership and use of personal handheld computers.

The Personal Inquiry Project enables science learning at KS3 between school and home. Learners investigate a topic with classmates by carrying out explorations between their classroom, homes and discovery centres, guided by a personal computer.

MyArtSpace encourages learners to creatively negotiate new ideas across locations. Learners build, curate and share virtual collections via photos, notes and recordings.

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Data from interviews with teachers and learners from the Learning to Go Wolverhampton project (McFarlane and Trigg 2008) and from student surveys reveal a belief that the use of devices had a positive impact.

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Specific mention was made of revision, practice, concept development by iteration, and extended writing, building confidence and contributing positively to attainment. The use of video for paired analysis – for example of an aspect of skill or performance in PE or dance – has raised skill levels. Similarly, the use of audio in modern foreign languages has been positive in developing confidence and competence.

The research produced evidence of learning-related gains oriented towards longer-term learning-related goals. Some use of devices in collaborative or co-operative team activity showed potential in the area of the development of skills for learning.

Data on student perception shows that students clearly associate the use of handheld devices with learning, in school and out of school, and see them as improving effectiveness in learning. Several students used the device extensively and autonomously as a tool for their learning.



# How to introduce personal technologies for learning

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- The real concerns are behaviour, use and security of learners rather than personal devices themselves; develop school policies that reflect this.
- Provide hands-on, small-scale opportunities for staff to try out appropriate uses for personal devices, perhaps at local CPD centres, or perhaps with selected learners if staff feel comfortable with this.
- Inform parents of the learning purposes for personal devices and involve them in establishing appropriate ownership, management and ethical arrangements. Address issues of equity of access for all learners regardless of their technology ownership.
- Staff need the time space and support to identify and support champions who are prepared to experiment with new technologies.
- Involve all school staff in discussions about implementation; the use of technology crosses all boundaries and champions may be found in unexpected places.
- Involve those who have responsibility for curriculum, student management, technical support and professional development to plan implementation.
- Begin discussions about the use of personal devices for learning (perhaps using student voice work). Take a survey of current personal device ownership, device capability and the ways devices are already being used in the school.
- Evaluate and prepare for new devices, interfaces, contents and applications.
- Encourage teachers to design activities that make the learning purpose clear and to anticipate management issues at the classroom level (such as rules and etiquette).
- Provide time for teachers to experiment and develop strategies prior to teaching with learner owned devices.
- Allocate time to reflect on practice and facilitate contact with other teachers working with devices to encourage the 'viral' effect that can sustain development.
- Anticipate and address technical issues such as network access and security, data protection and battery charging.
- Put in place processes to update and maintain content to ensure learner owned devices are up-to-date with the school learning platform and website.

This guidance is adapted from Hartnell-Young and Heym (2008) with additions from Traxler (2008).  
Making best use of personal technologies for learning.

## Efficiency and effectiveness

Learner-owned devices can help schools deliver cost savings and improve the sustainability of the ICT estate. Teachers save time booking equipment and securing computer access, and computer room timetabling pressures are eased.

### Inclusion

For disadvantaged learners, screen readers, magnifiers, dictionaries and other assistive technologies can turn personal devices into powerful learning tools. Individually chosen and customised devices can meet needs more effectively than a 'one-size-fits-all' approach. In schools that have used learners' devices to good effect for homes without fixed telephone lines, mobile internet offers young people access to information and learning.

### Empowering learners

Using learners' devices can allow teachers to take a more learner-centred approach. This increases the opportunities for personalisation that are central to empowering student voice.

### Classroom practice and management

Many personal devices can be quickly deployed as cameras or sound recorders to support the creation of coursework or portfolios. Resources that support learning can be accessed as a variety of media. There are systems linked to data projectors which enable teachers to structure and monitor classroom activities. They can also support location-based (GPS) or context aware services ('augmented reality'), for example on field trips and in museums.



77 per cent of students feel that personal technologies help them to learn.

**All from McFarlane, A and Triggs, Becta 2009**





# Technical challenges

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Personal devices and networks must be robust, secure and adequately supported. Important enablers for successful deployment include wireless networks and learning platforms which provide web-based (as opposed to direct access) to school networks and systems. When integrating devices directly, network managers need to balance providing access with maintaining network and data security. See the Becta references below for guidance.

## Technical managers need to ensure there are precautions against:

- devices infected with harmful malware
- use by unauthorised or malicious individuals
- unauthorised access to the internet through another interface (for example 3G dongle).

They also need to ensure there are sufficient resources, network capacity, authentication, security and management processes in place, as with other technology used in the school.

## Enabling access

When learners provide devices, provision and functionality can become unequal. Schools can improve equity via rental, loan or talking to parents about any relevant local or national programmes.

Find out more at [www.becta.org.uk/homeaccess](http://www.becta.org.uk/homeaccess)

## Time and continuing professional development

Teachers are central to the success of the use of personal devices to support learning. For success, teachers need time to experiment and develop strategies for teaching and to share practices with colleagues.



87 per cent of students say that personal technologies make learning more enjoyable.





### Research sources

Benford, S. (2009) Location-based technologies for learning

✎ [http://emergingtechnologies.becta.org.uk/index.php?section=etr&catcode=ETRE\\_0001&rid=14147](http://emergingtechnologies.becta.org.uk/index.php?section=etr&catcode=ETRE_0001&rid=14147)

Crook, C and Harrison, C (2008) Web 2.0 Technologies for Learning at Key Stage 3 and Key Stage 4: The Current Landscape, Becta

Harnessing Technology: The learner and their context – Mapping young people's uses of technology

✎ [http://research.becta.org.uk/index.php?section=rh&catcode=\\_re\\_rp\\_02&rid=17238](http://research.becta.org.uk/index.php?section=rh&catcode=_re_rp_02&rid=17238)

Hartnell-Young, E and Heym, N (2008) How Mobile Phones Help Learning in Secondary Schools, Becta

✎ [http://partners.becta.org.uk/index.php?catcode=\\_re\\_rp\\_02&rid=15482&section=rh](http://partners.becta.org.uk/index.php?catcode=_re_rp_02&rid=15482&section=rh)

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✎ <http://www.futurelab.org.uk/resources/publications-reports-articles/literature-reviews/Literature-Review203/>

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Sharples, M, Taylor, J, Vavoula, G (2005) Towards a Theory of Mobile Learning. Published in Proceedings of mLearn 2005 Conference, Cape Town

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Traxler, J (2008) Learners – Should We Leave Them to Their Own Devices? Becta

✎ <http://emergingtechnologies.becta.org.uk/index.php?section=etr&rid=14148>

Vavoula, G, Sharples, M, Rudman, P, Meek, J and Lonsdale, P (2009) 'Myartspace: Design and Evaluation of Support for Learning with Multimedia Phones Between Classrooms and Museums', Computers and Education, (53)13

### Useful links

Becta, Developing the use of ICT for assessment

✎ [http://schools.becta.org.uk/index.php?section=pd&catcode=ss\\_pd\\_te\\_02&rid=16682](http://schools.becta.org.uk/index.php?section=pd&catcode=ss_pd_te_02&rid=16682)

Becta, e-safety and mobile technologies

✎ [http://schools.becta.org.uk/index.php?section=is&catcode=ss\\_to\\_es\\_pp\\_mob\\_03&rid=17224](http://schools.becta.org.uk/index.php?section=is&catcode=ss_to_es_pp_mob_03&rid=17224)

Becta, e-safety, developing policy

✎ [becta.org.uk/index.php?section=is&catcode=ss\\_to\\_es\\_pp\\_pol\\_03](http://becta.org.uk/index.php?section=is&catcode=ss_to_es_pp_pol_03)

Becta Home Access project

✎ [www.becta.org.uk/homeaccess](http://www.becta.org.uk/homeaccess)

Becta, Professional development for teachers

✎ [http://schools.becta.org.uk/index.php?section=pd&catcode=ss\\_pd\\_te\\_02&rid=15889](http://schools.becta.org.uk/index.php?section=pd&catcode=ss_pd_te_02&rid=15889)

Harnessing Technology: The learner and their context - Mapping young people's uses of technology

✎ [http://research.becta.org.uk/index.php?section=rh&catcode=\\_re\\_rp\\_02&rid=17238](http://research.becta.org.uk/index.php?section=rh&catcode=_re_rp_02&rid=17238)

e-Learning Foundation

✎ [www.e-learningfoundation.com](http://www.e-learningfoundation.com)

Learning2Go

✎ [www.learning2go.org/](http://www.learning2go.org/)

MyArtSpace

✎ [www.cultureonline.gov.uk/projects/in\\_production/my\\_art\\_space/](http://www.cultureonline.gov.uk/projects/in_production/my_art_space/)

Personal Inquiry Project

✎ [www.pi-project.ac.uk/](http://www.pi-project.ac.uk/)