Mobile Learning Policy Handbook

An insider's guide to the issues

This handbook belongs to:

AUG | 2014

Mobile Learning Policy Handbook

An insider's guide to the issues

Contents

mLearning is the application of mobile devices and services, connected to mobile and other networks, in any education process, including teaching and learning, assessment and administration. (GSMA, 2014)

Mobile Learning (mLearning) encompasses many facets of mobility – the mobility of learners, the mobility of connectivity and the mobility of learning environments. It brings together both the pedagogical innovation of mobile learning and the pragmatic streamlining of administration in schools through mobile data collection and management.

Perhaps the most significant advantage of mLearning is that it leads to more authentic learning opportunities by extending the reach of education beyond the classroom, and allowing students to take a more active role in their own learning in real world contexts.

Students use mobile devices, individually and collaboratively, to explore locations, collect data and create learning materials whilst maintaining contact and receiving support and feedback from tutors.

mLearning allows the blurring of boundaries between school and community, to make learning more relevant, collaborative and culturally significant.

In many countries, mobile devices make learning more accessible to students who lack access to formal education and to those with educational needs which may not have been adequately met by more traditional teaching approaches in the past.

Stakeholder consultation, partnerships and excellent communication are key to developing successful mLearning policy and implementation strategies.

mLearning policy development as a catalyst for improving teaching and learning

A well-designed and implemented mLearning policy can play an important role in improving, or potentially transforming, education.

mLearning is not just about large-scale projects introducing mobile ICT devices into classrooms. It supports learning in almost any location at any time chosen by the learner. A personal mobile device for each student is very important because it means that its use becomes integrated into their life and their learning.

An mLearning policy is required to provide vision and structure for planning and implementation, to remove barriers and avoid pitfalls, and to guide the use of devices by learners and teachers. It should ensure they have access to excellent services and learning materials and that they receive the pedagogical and technical support they need to gain the maximum benefit from mLearning.

The rapid pace of technological change means policies regarding education, and the use of ICT in education, can quickly become outdated. The need to develop a policy to take account of the potential of mobile devices and mobile connectivity, which many educational establishments are already using, provides an opportunity to review education and technology policies more generally.

Partnership and communication

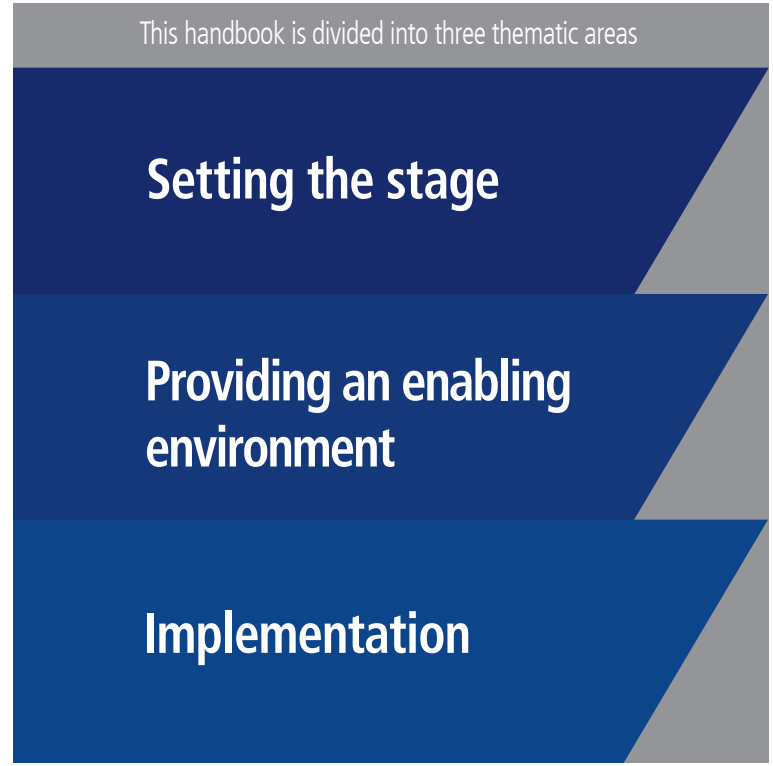
A significant challenge when implementing mLearning is its interdisciplinary nature, requiring the input of officials and industry partners with a range of expertise as well as educators who need to understand the benefits and be empowered to integrate mLearning into their teaching.

This handbook

This handbook is intended to support informed decision making by K-12 education policy makers around the world. It is also applicable to, and may be of use to, all education sectors including both formal and non-formal education.

The guidance and recommendations in the handbook are based on research commissioned by the GSMA drawing on relevant literature as well as interviews with 29 policy makers, educators, academics and industry partners.

The aim is to ensure policy making is guided by the very latest thinking and understanding of the opportunities offered by mLearning as well as helping decision makers to avoid potential pitfalls.



Setting the stage

Define mLearning

Background

The GSMA defines mLearning as the application of mobile devices and services, connected to mobile and other networks, in any education process, including teaching and learning, assessment and administration. mLearning is much more than allowing students and teachers to use mobile phones in schools or tablet computers in classrooms: it includes a range of policies to structure and guide planning, implementation, support and evaluation of the use of devices by learners and teachers, which are particularly important if large-scale projects are to be rolled out in schools.

A multi-faceted approach to the use of mobile devices is required that allows for a range and flexibility of implementation and accepts the reality that teachers and students are, or will, increasingly bringing their own devices to schools.

mLearning encompasses all aspects of mobility – the mobility of learners, the mobility of connectivity and the mobility of learning environments. It brings together both the pedagogical innovation of mobile learning and the pragmatic streamlining of administration in schools through mobile data collection and management.

mLearning includes access to high-quality learning materials and access to people though voice, text and video, as well as data collection and enquiry-based learning. It utilises the unique functionality of mobile digital devices including the ability to take pictures, record video and sounds, and use location-aware apps.

Debate

Should mLearning be defined only in terms of what takes place in the classroom or within the confines of the school environment or should it be more broadly based on learning that supports a young person's education at any place and at any time?

What tools, technology and services come under the umbrella of mLearning? Are smartphones included? and what about BYOD (bring your own device)?

What is the pedagogy of mLearning?

How can mobile technologies be used to enable:

- greater personalisation?

- more collaborative learning?

- enquiry-based learning and assessment in authentic real world locations and contexts?

- greater learner autonomy?

How can mobile technologies be used by teachers and other school staff to support administrative and managerial processes?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Bring educators, policy makers and technologists together with mobile and publishing industry experts to agree the defintition and scope of mLearning and produce documentation that makes this explicit to all stakeholders
- Promote the benefits of mLearning taking place outside the classroom and beyond the school walls, and trusting the learners to use their own mobile devices inside school
- In planning to use mobile technologies to support learning outside school include employers, community leaders, cultural organisations, youth groups, hospitals and others to provide authentic sources of information and potential collaboration
- Decide the types of mobile devices required for mLearning, future-proofing this decision by defining the type of device in terms of the funtionality required to support pedagogical requirements rather than specifying particular technology types, brands and models

Provide a clear rationale and vision for mLearning

Background

The prevalence of mobile devices globally indicates that young people are growing up in a connected world, where mobile devices and connectivity are a ubiquitous reality. Mobile phone subscriptions were estimated at 6.8 billion in 2013, with 128% penetration in developed nations and 89% in developing nations.[1] The GSMA recently undertook international research into mobile ownership by young people.[2] They found that 12 was the most common age for children to acquire a phone; 27% of young mobile phone owners have a smartphone, 54% access the mobile internet (this figure goes up to 87% for smartphone users) and 57% of those who access the mobile internet download or use apps.

In some areas, students and teachers are using mobile devices and data to understand their world and communicate with others. Tablets and smartphones are also having considerable impact – for example, in 2013 Apple sold more than 8 million iPads to the education sector and reached a milestone of 1 billion downloads of its iTunes U app, the brand's flagship education product[3]. The UK 2013 Ofcom report found just under one-third of parents with a tablet said their child used a tablet for school/college work and 18% of 8–11s and 26% of children aged 12–15 have their own tablet.

It is clear that there is no longer a need for research into whether mobile devices have a role to play in education; in many contexts around the world mobile learning is now seen as integral. However, there is a need for policy making to include provision for evaluation of the impact of introducing new mobile technologies. This should particularly focus on how to adapt pedagogical approaches for maximum beneficial impact, meeting or even exceeding educational goals.

Whilst it is not uncommon for parents to express concerns when consulted on the use of mobile devices in schools, there is also increasing pressure from some parents, and from students themselves, to introduce mLearning. Research in the USA[4] has found 52% of parents surveyed believed that mobile devices should be used more in schools for education, 32% that schools should require mobile devices to be used in the classroom and 45% have bought or plan to buy a mobile device for learning.

mLearning will also be welcomed by employers who increasingly demand improvements in the digital literacy and skills of school leavers and college and university graduates in order to close the skills gap and ensure young people can contribute to economic growth.

Failure to formally incorporate mobile use into education may lead to adoption in an unstructured and haphazard manner; banning mobiles in schools is increasingly understood to be ineffective and rather than solving safety concerns, actually removes the opportunity for positive and contextual discussion about safe and responsible behaviours. The timely introduction of mLearning policies is required in order to pre-empt future problems of fragmentation and address improper use.

Debate

What is the extent of mobile ownership in your jurisdiction and what devices are being used by students and teachers at home and in schools?

What is the current extent of take up of mLearning in your jurisdiction and what is the learning from any evaluations?

What barriers exist preventing or delaying deployment of mobile technologies for teaching and learning? How can these be addressed?

What are the key benefits you wish to deliver via mLearning?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Review current education policies in the light of the affordances offered by the latest mobile technologies and infrastructure
- Integrate this rationale into an overall digital learning policy and align with teaching, assessment, administration and ICT policies
- Develop a clear rationale and vision for mLearning
- Promote your rationale and vision. Encourage debate, experimentation and sharing of lessons learned

Notes

[1] ITU(2013) ICT Facts & Figures

[2] GSMA & NTT DOCOMO's Mobile Society. Research Institute (2012) Children's Use of Mobile Phones – An international comparison. NB. "Young People" defined as up to 18 years old.

[3] Apple press release 28th Feb 2013

[4] Grunwald Associates LLC. (2013). Living and Learning with Mobile Devices: What Parents Think About Mobile Devices for Early Childhood and K–12 Learning. Available at www.grunwald.com/reports

[5] UNESCO (2013) Policy Guidelines for Mobile Learning

Develop a roadmap for mLearning

Background

A roadmap or high-level action plan assists in the process of moving from policy to implementation and helps policy makers to monitor progress towards realising their policy aims.

In many jurisdictions, despite pilots, there has been no holistic policy formulation for mLearning.

Mainstreaming effective pilots can be difficult as long-term funding models and support arrangements are required.

Continuing professional development is needed for all staff, if they are to move beyond take up by the initial group of technically sophisticated enthusiasts.

Planning and guidance focussed on introducing mLearning and embedding it into the curriculum in a sustainable, future-proof manner can help.

The roadmap does not need to contain the operational details required to implement an entire mLearning project. Instead it should document a series of steps, stages or phases, together with overall aims, budget, responsibilities and action required.

Where appropriate political stability and will exist, roadmaps may span long time periods and this can assist with achieving real culture change.

The Singapore Government, following a policy decision to increase the use of technology in education, developed three 5-year Master Plans to guide implementation. The first Master Plan addressed 'Building the Foundation', the second 'Seeding Innovation' and the third 'Strengthening and Scaling'.

It needs to be clear how the roadmap aligns with other education and digital society policies.

Areas of focus include:

How implementation of the policy will be funded and funding models
The infrastructure needed to support mLearning
Requirements for procurement, development and/or providing access to mobile-friendly digital learning resources; the level at which this will be organised (e.g. national, district) and the management process
Selection of technology partners, including mobile operators, to advise and help ensure smooth deployment
Initial teacher training and continuing professional development for school leaders and staff
Promotion of safe and responsible use of mobile technologies and development of security policies

Debate

Where are we now? What percentage of schools have not implemented mLearning? What is the typical state and capacity of infrastructure? How ready are school leaders, teachers, IT staff?

Is it necessary to pilot before proceeding to large-scale implementation? What lessons have been learned from pilots to-date? How long should pilots be allowed to mature to produce reliable evidence of what works?

Which public sector bodies can support and what private sector, NGO or charity organisations can assist or partner?

In developing a roadmap what external research should be undertaken or needs to be taken into account?

What is the availability of mobile-ready learning materials in all subject areas?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Develop a roadmap to help ensure smooth and effective implementation of mLearning
- Identify and fund a team or agency to oversee and support implementation and evaluation
- Make use of research evidence and design pilot programmes to test the strategy, technologies and support structures
- Work with mobile operators to plan the necessary infrastructure and security arrangements
- Work with learning content providers to identify, develop and ensure mobile access to resources aligned to the curriculum and assessment requirements
- Review the number and skill level of technical support staff in schools and sources of technical advice and assistance
- Ensure initial teacher training is updated to include mLearning
- Provide timely continuing professional development for school leaders, teachers, technical and admin. staff

Define an evaluation framework

Background

The American Evaluation Association defines evaluation as involving "assessing the strengths and weaknesses of programme, policies, personnel, products, and organisations to improve their effectiveness" and observes "Evaluation is the systematic collection and analysis of data needed to make decisions, a process in which most well-run programs engage from the outset".

Governments require evaluation to judge whether educational innovation has achieved the desired impact and therefore justifies investment made and planned. Planning for evaluation needs to take place when mLearning policies are being developed to ensure the necessary data is collected to provide evidence of impact. This data should include 'hard data' such as student achievement and attendance statistics and the costs associated with delivering education both traditionally and innovatively. However, in some countries some of this data may be unavailable or difficult to collect.

In the context of the use of mobile technologies for teaching and learning, expert opinion (Sharples, M, 2009) suggests three types of evaluation, 'Evaluation as part of education research', 'Evaluation to inform design' and 'Evaluation for policy makers' which evaluates "evidence of learning gains or changes, by comparison with existing approaches or by showing how radically new opportunities have been created".

Evaluation of education initiatives is concerned with whether short- and longer term desired outcomes have been achieved. Short-term aims may relate to impact on individual learners' achievements and attitudes, e.g. improvements in examination results or improved attendance. Medium term aims may be more focussed on impacting upon individual and institutional behaviour e.g. changes to teaching practice and institutional policies. Longer term desired outcomes could be social or economic change, e.g. reduced unemployment.

When considering implementation of evaluation it is often suggested that a hierarchy of research methods exists, with randomised controlled trials collecting quantitative data being the best approach. However, educational research frequently combines different research approaches and methods, including collecting both quantitative and qualitative data, in order to establish not only what happens but why it happens. It has been observed: "combining quantitative and qualitative methods in a single study can help elucidate various aspects of the phenomenon under investigation, providing a more holistic understanding of it and resulting in better-informed education policies. This is particularly true when studying complex social phenomena, such as the attitudes and behavioural reactions of teachers when confronted with an educational reform." Giannakaki M S (2003)

Debate

What is the purpose of evaluation and what is it trying to achieve?

What comparative data are available? is it sufficient to constitute a baseline? which data are likely to provide the best indicators of impact? who has access to historic data? and when is new data (e.g. examination results) available?

What methodological approaches are appropriate and effective in evaluating education initiatives?

Who will carry out evaluation? Practitioner action researchers as well as independent researchers?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Include a budget for evaluation within an mLearning deployment
- Make clear expectations regarding evaluation including the type of evidence required by policy makers
- Evaluation should be a key strand in implementation plans
- Evaluation plans should include the purpose and intent of evaluation, the research approach, questions evaluation aims to answer, success criteria, data collection and analysis methods, roles and responsibilities and timescales
- Ensure that evaluators will have adequate access to official data sets to be used for comparative analysis of evaluation data collected

Establish partnerships

Background

Establishing strong public–private partnerships for technical support, infrastructure provision, hardware and teaching and learning resources can speed the development of an mLearning strategy and achieve significant cost savings and efficiencies. Private sector partners provide the wide range of products and services required to enable schools' ICT and eLearning systems and mLearning, e.g. hardware, software, fixed line, broadband and Wi-Fi infrastructure, mobile network access, mobile broadband, cloud computing, apps, eBooks and other eLearning and mLearning materials and services, virtual learning environments, mobile device management systems, etc. These partners can also provide useful advice and support to policy makers and schools drawing on their technical expertise and experience of previous implementations. For example, mobile network operators add connectivity, as well as technical expertise, and have a broad reach in most countries, matching the need for universal coverage of the education system. Mobile network operators can also help to provide solutions to connect students, manage data, deliver content and support successful learning initiatives.

School-based experts, especially IT department staff, and local civil society partners together with key stakeholders, e.g. parents, teachers' associations and local employers, are very important. If local policy makers actively engage with these partners from the early stages of planning an mLearning initiative, this can have a very positive impact on the subsequent implementation.

A diversity of devices and strategies will help to develop robust mLearning models and industry partners can tailor technology solutions to evidence-based expressions of need from policy makers and educators.

The most effective way to implement mobile learning can often be through multi-stakeholder partnerships that include a wide range of partners.

For large scale, e.g. national or regional mLearning initiatives, rather than each school developing partnerships, government can foster effective partnerships between stakeholders through brokering relationships, where appropriate, and promoting greater dialogue between educational leaders, mobile partners, content developers, other suppliers and policy makers.

Where mLearning initiatives are initiated at national level, governments will often look for easy-to-deploy, easy-to-maintain solutions; solutions that work 'out of a box'. To this end policy makers may negotiate purchase of end-to-end solutions involving just one partner, or a small number of partners, to include connectivity, devices, infrastructure, content and teacher training.

Research carried out for this report suggests critical success factors in managing multi-stakeholder partnerships are transparency, continuous evaluation and on-going stakeholder consultation, allowing stakeholders to express concerns and discuss challenges openly. This approach allows issues to be addressed before there is a crisis and helps to avoid relationships becoming adversarial.

Etisalat worked with the Ministries of Education and the educational community for the augmented reality and distance learning projects. This has helped to ensure their sustainability and reach.
Etisalat / GSMA (2012)

Debate

Are complete solutions provided by a single partner or a small number of partners preferable to purchasing each component of the mLearning solution from a different supplier?

If a large number of supplier partners are involved do schools, or the bodies supporting them, have sufficient expertise and resources to manage integration and on-going support?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Define clear parameters for large-scale institutional partnerships to ensure that all participants' needs are being met and that roles are clearly defined
- Work with mobile network operators to ensure reach and technical support so that mLearning plans can be realised
- Ensure that partnerships are in the best interest of students and their parents/guardians and that partnership deals are transparent
- Agree a transparent process by which partners are identified, approached and appointed
- Set up a programme management office to work with partners ensuring there are clear rules of engagement and equitable access across schools and learners, avoiding conflict and duplication. Establish memoranda of understanding and define time lines

Financing mLearning

Background

There are always significant costs associated with setting up any new educational initiative: budgets need to be agreed and funding models developed. This will include whether and how costs are to be shared, e.g. between national and local education authorities, between government or school and a sponsoring organisation and/or between schools and parents.

Matching funding arrangements, where schools as well as government contribute to the total cost of introducing mLearning, can help to ensure that school leaders are committed to and engaged with the implementation programme thus increasing the likelihood of achieving programme aims.

There are savings which can accrue from the introduction of mLearning and offset some of the investment required. These include reduced expenditure on printed textbooks, desktop computers, dedicated computer labs, printing and photocopying and potentially therefore printers and photocopiers, so avoiding recurrent costs.

However, introducing mLearning is likely to require upgrading or full deployment of wireless network infrastructure and/or an improvement in 3G/4G connectivity particularly in rural areas. Additional technical staff may also be required. Implementing a bring your own device) (BYOD, or bring your own technology (BYOT) approach to mLearning can potentially deliver savings, both initially and in the long term, by leveraging student-owned mobile devices (see further discussion of BYOD in 'Device Policies' section). However, such initiatives will also involve infrastructure and technical staff costs as well as many of the other costs associated with any mLearning initiative.

Some savings may be achievable by device subsidies or bulk purchase discounts from hardware suppliers or as a result of in-kind donations by partner organisations. Private donations for mobile learning are usually for smaller deployments, or in some cases for infrastructure (such as mobile bandwidth or connectivity in schools) rather than widespread distribution of devices to every student. Corporate donors in technology industries, non-governmental organisations (NGOs) and other bodies may provide mobile devices for education in some developing countries.

Substantial cost savings can be achieved by national or district-level procurement of large numbers of identical devices. This strategy can also simplify and therefore reduce the cost of device set up and subsequent technical support.

When budgeting for introducing mobile, or any technology, into schools it is very important to adequately fund initial training and continuing professional development for teaching and support staff. Initiatives which fund only hardware typically fail to achieve their aims.

Debate

What kind of funding models are likely to achieve both efficient initial deployment of mLearning and long-term improvement of education delivery?

How can partnerships help defray costs for the stakeholders involved?

What can mLearning enhance or replace? What can't it replace?

Is a BYOD policy more cost effective than a large-scale purchasing programme

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Review your mLearning aims and objectives in the context of funding options and models
- Review schools broadband and Wi-Fi infrastructure and calculate the level of investment required to support current mLearning plans and provide capacity for expansion
- Examine the demand and need for a range of devices in schools – PCs, laptops, tablets, smartphones, mobile phones, etc
- Provide advice to schools on the educational opportunities, benefits and drawbacks of each type of device and the relative costs of ownership
- Explore large-scale mobile device purchasing programmes for schools or education districts and provide advice to schools on options
- Work with partners to find ways to defray costs through preferential purchasing schemes and/or donations
- Work with mobile network operators on making favourable subscription rates for mLearning in schools and enabling free access to educational learning materials for school students

Providing an enabling environment

Network accessibility

Background

The ability to access a telecom network is a key ingredient in delivering the mLearning vision of enabling learning anywhere, anytime, on any device. Many of the people whose lives can be transformed most profoundly by mLearning live in areas where connectivity may be limited especially in terms of access to broadband networks.

The GSMA mLearning team believes that innovation in education delivery will lead to richer content delivered over mobile broadband networks as well as new communications and education services. Examples include the use of data-hungry, asynchronous and synchronous video in administration and teaching and learning, as well as enhanced forms of assessment, including adaptive and collaborative assessment.

This will require increased access to affordable, ubiquitous mobile broadband services that can support rapidly increasing amounts of data. The key to achieving this is to ensure operators can affordably access the right amount and type of radio spectrum as well to encouraging them to invest in the latest mobile broadband technologies.

The type and amount of spectrum operators can access directly impacts the reach and capacity of mobile broadband networks. It is essential that national regulators license as much spectrum as possible to mobile operators in order to widen access to high-speed services. This is especially important given mobile data usage is rapidly expanding across the globe therefore exhausting the existing supply of spectrum.

A good example is the'digital dividend' spectrum that is made available for mobile use when analogue TV services move to digital. These low frequency bands provide widespread coverage using fewer base stations, making them a critical means of delivering affordable high-speed mobile broadband services especially in rural areas and developing markets. This spectrum should also be licensed on a 'technology-neutral' basis to allow operators to continuously roll out the latest mobile broadband equipment thereby increasing access to the fastest services.

There are also numerous ways policy makers can foster an environment where mobile operators are incentivised to invest in the latest mobile broadband technologies. Most fundamentally, they can adopt an approach that balances driving competition to reduce consumer prices with enabling operators to invest significantly in upgrading their networks. This should include addressing the duration and terms of spectrum licenses as they have a major impact on the extent to which operators will make major, long-term investments in their networks.

The prospect of licence expiry makes investments risky so best practice has moved towards issuing long-term licences – a minimum of 20 years – together with a presumption of renewal. Alongside transparent and predictable terms and charges associated with licences, these measures can have a major impact on mobile network investment.

Debate

How can access to affordable mobile broadband services be extended in order to improve the reach of mLearning?

What will mLearning offerings look like in the future and how can we ensure adequate network access to support them?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Develop a roadmap of potential mLearning applications and services and use it to inform demand for mobile broadband specifically from the education sector
- Support and contribute to spectrum and wider telecom policy that not only protects mLearning as an important national asset but allows it to scale, innovate and grow through low-cost, ubiquitous mobile broadband access

Safety, security and privacy

Background

Safe and appropriate use of digital technology by younger users is an important consideration. Concerns relating to mobile in schools include students accessing inappropriate content or being subject to inappropriate contact. Mobile network operators view safeguarding of young people as a principal concern and many are taking steps towards promoting safe and appropriate mobile usage through both technical solutions and educational campaigns.

Internet access and content

Internet access in the classroom is normally controlled through content filters over the broadband network. Filtering systems restrict access to websites or social networking sites that are marked as inappropriate for the users while other systems identify content that is deemed suitable for education and only provide access to those sites. Firewalls prevent viruses being downloaded onto devices.

However, mLearning gives students the ability to access content in and out of school across the mobile data networks and other access channels, such as Wi-Fi. Educators are concerned that their security policies are rendered useless when students bring their own mobile devices into school, so they take the easy option and ban their use. However, young people will connect to the internet out of school on a range of devices and therefore banning mobiles in schools is not an effective way of ensuring their overall safety. Instead, strongly articulated responsible usage policies can help to promote responsible behaviour throughout life. If mLearning is to become pervasive in schools, student privacy and safety needs to be considered and promoted, regardless of how or where students are connecting.

One technical option is to install MDM (mobile device management) software onto the student's mobile device, so that material is filtered no matter where the student is. Mobile network operators in some countries are also taking a proactive approach to filtering inappropriate content for young users. In Europe, for example, most operators subscribe to a code of practice and many already offer filtering tools for young people. BYOD schemes complicate matters as choices of filtering solutions will be primarily at the discretion of the parent/carer. Different filtering options may also raise the challenges of consistency, and of ensuring that filters and searches are not overly restrictive and that students have access to useful content, news sites and social networks.

Limiting access to specific content within the classroom is seen as important for preventing distraction and limiting problems with student behaviour. To avoid the necessity of doing this, mobile apps are emerging that allow teachers to determine what their students can see, filter URLs or prevent incoming calls. However, it should also be noted that technical solutions will always be imperfect, and that younger users will, at some point, come into contact with unfiltered access to the internet and will need to know how to keep themselves safe and show respect for others. It is important to educate students about safe and appropriate internet use rather than simply focus on restricting access.

The school environment is an important place for students to discuss the issues around on-line safety, bullying and inappropriate conduct and usage, and for young people to be empowered with the knowledge and confidence to act appropriately on-line and to respond to difficult situations. UK school inspectors from Ofsted have said that "students [are] safest using the internet when they are trusted to manage their own risk".

Security and privacy

mLearning systems inevitably involve management of data, for example, students' personal details, students' work and communications, assessment grades, and institutional data. This data may be stored on the device, on the institution's servers, or through cloud computing, and backed up. Controls are therefore required on who can access this data for what purpose, in addition to protecting the data from viruses or interception.

Cloud services are often useful for mLearning programmes because the data can be accessed from any location where the user has an internet connection. However, these services can raise additional concerns over security of the school or institution's servers. Problems can arise when untrained teachers have accessrights that allow them to download or upload software or data without understanding the risks or how to mitigate them. This is a particular challenge in schools with understaffed IT departments or with no such support at all.

Device tracking and content filters also raise questions about privacy. A balance must be struck between protecting the data and preventing

Safety, security and privacy

excessive monitoring of users. Older students, for example, will feel uncomfortable with the idea of their institution monitoring their social media communications, phone calls or texts. Students will accept that the websites browsed may be tracked using institutional devices, but they might not accept the same tracking under BYOD schemes.

Mobile learning and granular privacy preferences should therefore enable students to make informed choices about the information they access, their on-line reputation and their privacy (e.g. how their personal information is used/shared by academic staff and others). More broadly, educators should ensure that the content and applications they are using respect the privacy of students, staff and their data.

Debate

What security processes are essential to ensure students' safety and block access to inappropriate content in a school environment?

To what extent does duty of care go beyond the school environment?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Develop policy that will ensure students' safety and security in the school environment; seek to embed discussion of issues relating to safe and responsible 'digital citizenship' within lessons incorporating mobile content/internet
- Decide and make known how these policies will extend beyond the school environment
- Ensure teachers and school principals are aware of data protection laws and respect students' privacy
- Devise procedures by which breaches of security and inappropriate access to student data are handled swiftly and appropriately
- Design 'acceptable use' policies and parent information packs that schools can choose to adapt and adopt
- Work with Mobile network operators to understand the extent to which they can provide security either through their networks or on students' devices, and agree a modus operandi

Device policies

Background

How mobile devices for schools are chosen, procured and financed depends upon policy decisions taken at national, region, district and/or school level.

Governments or districts may purchase a single device for use in all schools, e.g. the OLPC (One Laptop Per Child) in for, example, Uruguay. Some governments and education authorities have commissioned the manufacture of mobile devices designed for schools, e.g. the Learning2Go programme in Wolverhampton, UK and the Indian Government's Aakash tablet.

All students using the same device provides economies of scale and simplifies technical support and staff training. However, where devices have been developed specifically for education there have been issues with quality and sustainability. Greater availability and the falling prices of consumer mobile devices also undermine the economic argument for developing an education device.

Education authorities may instead develop a minimum specification for mobile devices and in some cases initiate a process to appoint preferred suppliers from whom schools or parents purchase devices at a discounted price, e.g. UK Home Access initiative. This approach provides additional choice, flexibility and future proofing whilst retaining some of the benefits of the single device approach.

Mobile devices may be purchased and supported by the school, the school's funders or funders of an mLearning initiative, which may include sponsors or NGOs.

Some mobile network operators offer school-as-a-service which provides devices, connectivity, cloud computing, technical support and training for a small monthly fee per student. Such arrangements move device procurement from capital to revenue spending which can have advantages.

Schools also specify, possibly with guidance from government or district, their policy concerning where devices are used e.g. classrooms only, only in school or everywhere. Limiting use to classrooms, especially where they are handed out for a lesson and then handed back, has been shown to severely restrict benefits realised. Some of these benefits depend on use of mobile devices in real world learning situations and on learners' feelings of ownership. Class-only use encourages a misconception by teachers that mobile devices do not offer significant advantages over desktop computers.

Mobile devices may be procured and fully supported by the school but paid for by parents. In this case it is important to have financial assistance and/or device loan schemes to assist parents who may struggle with the cost of purchasing a mobile device for their child.

This is also the case with BYOD where students are able to use in school mobile devices they or their parents have purchased. Most BYOD policies involve the school, or education authority, specifying particular devices allowed or a minimum device specification for ease of pedagogical and technical support.

Arguments for BYOD include cost saving by leveraging student-owned devices and built-in future proofing if students replace devices more frequently than schools could. However, specific policy must be created as part of a BYOD strategy and additional expenditure on infrastructure, technical support and staff training may be incurred.

Debate

What device functionality is required for schools? Is there a case for developing a device for schools?

What selection and procurement processes and models are needed?

Will BYOD deliver equity of access, cost savings and sustainability?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Develop guidelines for mobile device acquisition for or by schools
- Agree minimum specifications for mobile devices in schools and review regularly
- Explore national and local procurement programmes with mobile device providers and other technology partners
- Promote a focus on how mobile devices and infrastructure such as Wi-Fi, 3g/4g and cloud computing enhance teaching and learning
- Consider a BYOD strategy as part of any device strategy.

Professional development for school leaders, teachers and administrators

Background

Many mLearning initiatives concentrate on mobile devices, and enabling students to access these, but do not adequately address the needs of teachers, school leaders and other staff.

Providing staff with the same devices and connectivity as students and enabling them to learn how to integrate mobile technology into teaching and administration helps to ensure the success of mLearning. Teachers often lack confidence with technology, and fear that students are more adept with it than they are. Educators need to feel comfortable with the technology to be used and to understand the benefits and the potential pitfalls of using it before starting full-scale implementation of mLearning.

The value of mobile learning for teachers is well documented. A UNESCO country-by-country analysis reveals that mobile technologies expand educational access for teachers as well as students, supporting teachers' professional development, administration and classroom instruction .

Staff development should assist and encourage teachers to review their pedagogical approaches and to take full advantage of the opportunities mobile devices provide to explore learning opportunities in and outside school. Mobile devices can be used to support individual, personalised and collaborative learning and new approaches to the teaching such as the flipped classroom. They also enable learning and data collection in authentic, real-world locations with access to on-line materials and support.

Preparation for the introduction of new technology should include professional development for school leaders as well as school and district administrators to ensure that they have the understanding required to support their teachers and to provide space for teachers to test and develop their new skills.

Professional development for teaching, managerial and administrative staff should include exploration of how mobile technologies can be used to improve interdepartmental communication and data collection for monitoring progress and informing evidence-based policy.

It is very important to think beyond training courses. Professional development should include face-to-face events focussing on both technology and pedagogy. However there are many other tools and approaches that can be used including on-line learning, podcasts, videos, online events, mentoring or coaching tailored to the needs of individual staff, on-line communities of practice offering expert and peer-to-peer support as well as sharing of information, good practice and learning materials.

Teacher-led local implementation and action research projects are very effective staff development tools and can contribute to achieving the long-term culture change required to embed the use of mobile technologies into mainstream education delivery

Debate

What are the essential elements in effective continuing professional development programmes for teachers and other staff?

How can innovative pedagogy and new technologies be applied to improve professional development?

What forms of encouragement, recognition or reward will encourage teachers to innovate?

How should championing, mentoring and coaching be encouraged and enabled?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Develop mLearning staff development programmes in consultation with educators, reflecting up-to-date pedagogical approaches that embrace and make full use of technology including mobile devices
- Encourage and enable teacher experimentation, action research and piloting
- Align staff development to existing frameworks, e.g. UNESCO ICT Competency Framework for Teachers[6]

Note

[6] UNESCO (2012) Mobile Learning for Teachers: Global themes

Implementation

mEnable innovative pedagogy in schools

Background

Mobile learning research and experience to-date indicate that merely mimicking with mobile devices existing teaching and learning methods, some of which may themselves require updating, delivers few benefits.

mLearning has the potential to break through classroom walls. External teachers and experts can be brought in, not only into the room but to interact directly with individual learners. Students are also enabled to learn out in the real world; observing, interacting with and recording people, places and processes in authentic settings.

Mobile devices provide excellent support for enquiry learning as they are powerful data collection tools and provide instant access to on-line sources of information and expertise. They facilitate communication and collaboration via text, email, voice and video with peers, teachers, researchers, experts, businesses, and cultural and community organisations.

The introduction of any new technology into a school provides an opportunity to review current teaching practices and education management processes and to explore how these can be improved.

Mobile devices are not essential for students to benefit from some new techniques, e.g. the flipped classroom. This involves students preparing on-line by, e.g. watching videos, for a class in which the teacher takes the role of an expert mentor addressing aspects not understood and discussing the implications and applications of the information studied. For this new pedagogy only on-line access with good broadband speed is essential. However, dedicated individual on-line access via a mobile device avoids problems, e.g. if there is only one computer shared by a whole family, and provides more options for when and where to study.

If curriculum-focussed learning can take place in many locations away from the classroom more student autonomy and a greater degree of trust by the teacher are required, as well as security, safeguarding and acceptable use systems, processes and policies. Also required are professional development for teaching staff and digital literacy skills for students and their parents.

More autonomous students can work on individual assignments and group projects, consulting with peers in and outside the classrooms, consolidating their learning through the use of digital resources and electronic communications with approved experts. Individual access to a mobile device holds the promise to connect each learner into intelligent personalised systems that can suggest learning pathways, enable aggregated analysis and through better data capture of learner experiences enable much better decision making about all aspects of a students' education.

Debate

To what extent is there awareness in schools of the need for and understanding of new pedagogical approaches that support student autonomy, develop employability skills and help learners to work collaboratively?

How are these new pedagogies being disseminated, and are curriculum and assessment methodologies up to date to support and measure the new skills students will develop?

Are there opportunities to personalise learning so that each student achieves to the best of their ability? What needs to change in order for this to happen?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Review the research on new pedagogies and personalised learning for mLearning in particular and ICT in education in general
- Develop associated guidelines for personalised learning
- Produce guidelines on what changes need to be made in school for mLearning to be most effective and align these with professional development and in-service teacher training programmes
- Develop programmes which encourage and support teachers experimenting with technology-enabled new pedagogy, sharing good practice and lessons learned
- Publicly recognise the achievements of schools and teachers using mobile technologies to improve teaching and learning

Increase access to learning opportunities

Background

As mobile devices, especially mobile phones, are so ubiquitous, mobile learning has been able to reach children and young people who are not able to attend school.

Globally, 57 million children do not attend primary school[7] and, as Sugata Mitra has noted, the quality and availability of teachers reduce the further one moves from urban centres.

mLearning has the potential to address the resulting inequality of learning opportunities between rural and urban children and young people.

Previous education solutions for remote and marginalised communities have focussed on broadcast technologies, particularly radio, with limited opportunity for feedback or interactivities.

Mobile technologies enable these young people to learn, on their own or collaboratively, with on-line access to qualified teachers and using digital resources, thus gaining access to opportunities to achieve qualifications.

Where economic pressures prevent access to school and to mLearning, loan schemes, microfinance and donor support can widen access to mobile devices and therefore to learning.

mLearning also has the powerful ability to extend beyond the individual student, providing learning opportunities and other benefits for their family and wider community. The device can become a learning tool for everyone, not just for the student it is issued to.

mLearning can reduce isolation for students in rural areas or unable to access schools for other reasons, e.g. illness or disability, and provide support for less well qualified teachers. Mobile devices are also being used to provide girls with access to education in areas where there are few formal education opportunities available to them.

There is a common misconception that boys are naturally more technologically adept than girls. This can be detrimental to the progress of girls as they can be excluded from opportunities to improve their technical abilities. Early and equitable access to technology can enable girls and women to make an equal contribution in technical industries.

Debate

What level of support is needed to enable educators outside the formal system to provide quality education opportunities through mLearning?

What policy innovations are needed to provide mLearning opportunities for out-of-school children and young people?

How can mobile technologies and mLearning help to reduce economic, social, cultural and gender-related digital divides and inequality?

What areas or groups should be prioritised? How can this be undertaken?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Explore the potential of mLearning to provide learning opportunities for children and young people who are not in school and develop policies for enabling this
- Develop an equitable access policy for mLearning prioritising support for marginalised groups
- Develop partnerships with organisations that can help with implementation and/or funding of mLearning for remote or marginalised individuals and communities
- Develop gender-specific policy to ensure girls are given equal access to technical skills development and subsequent employment opportunities

Note

[7] UNESCO Institute for Statistics (2011)

Provide mobile support for special educational needs

Background

Learners who have disabilities and/or learning difficulties can benefit from mLearning. One of the main challenges in this area is that learners have diverse needs, with different starting points and accessibility needs. Technology and content providers are working with educators to adapt mobile technologies to make them more accessible. Examples for blind and partially sighted learners include the native accessibility of the iPad (which connects seamlessly to refreshable Braille devices) which has transformed their independent access, and the use of voice recognition software. For learners who are hearing impaired, video conferencing technologies that facilitate sign language and lip-reading are useful. For learners with motor and mobility issues, speech recognition tools turn speech into shareable text and e-books can be used to eliminate page turning.

There are also a growing number of apps which are meeting these learners' needs at a fraction of the price of the expensive hardware and software systems available until comparatively recently. Some examples include:

- Apps which have replaced expensive alternative hardware for augmentative and alternative communication devices (e.g. 'Grid Player' to access grids on mobile devices)

- Apps for the blind/visually impaired, such as TapTapSee, which use the device's camera and voiceover functions to photograph objects and identify them out loud for the user

- Apps for the deaf/hard of hearing which convert text to speech

- Apps for people who have learning disabilities like dysgraphia or dyslexia that affect their written expression, e.g. TextExpander to customise text shortcuts to write faster

It should not be forgotten that mobile technologies can also be used to help with ordinary tasks requiring memory and personal organisation, such as reminders using a calendar tool (e.g. for timetabling, medical and tasks), finding their way around (using geographic locators), playing 'how to' videos and the production of audio files for learners who find reading difficult, listening to podcasts (e.g. from iTunesU) and also for recording evidence of achievement.

As rich content becomes more available on mobile devices, and more types of devices become available, the challenge will continue to be how hardware and software developers prioritise accessibility for all learners.

Debate

Does the use of mobile technologies make learning more inclusive for students with special educational needs?

Is there a risk of reinforcing existing disabilities/difficulties? And if so how can this be avoided?

How can educationalists make the best use of mobile technologies, which may not have been designed with accessibility issues in mind, to ensure the best match between the device and its applications and the reason for its use together with the learners' profiles?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Ensure focus on accessibility for learners by promoting alignment between operating system user experiences, in terms of accessibility, and specific learner needs
- Encourage developers to create tools that others, including teachers, can use to create content with a high degree of accessibility for learners with special educational needs
- Provide initial training and continuing professional development for teachers, and other professionals assisting these learners, that ensures learner inclusivity is addressed in the light of constant technological development

Learning materials and resources

Background

Large quantities of digital educational resources have been developed including much that is available very cheaply or free of charge and can be used on mobile devices. However, some learning materials developed for use on desktop computers may not be easily customised for mobile use. More importantly, adapting existing printed or digital resources may fail to take full advantage of the functionality and affordances of offered by the latest mobile devices.

Many educational apps, eBooks, games and other learning materials have been specifically designed for use on mobile devices. Indeed, development of educational content for mobiles is developing so rapidly that the issues for educators are more about keeping up with what is available and making appropriate selections than about a lack of resources.

It has been suggested that when implementing mLearning the teacher's role evolves from the source of knowledge to that of the 'curator' of the learning environment. Just as a museum curator gains public interest by selecting which artefacts to put on display, arranging them logically for better understanding, and displaying notes and captions alongside the exhibits to provide further information, so the teacher sets out learning objectives, supports students to access specific materials and signposts further resources for learners who want to pursue a topic in greater depth.

There are remaining issues around judging the quality of available learning materials, matching resources to the curriculum and managing the process of developing new materials to fill gaps.

The eSkills institute in South Africa developed a decision tree to help avoid duplication of effort in developing learning materials and to decide whether existing resources should be adapted. Steps include asking the questions: 'do resources exist for these skills?', 'are they fit for purpose?'. If not 'can they be localised or adapted' and 'are they available under OER?' (i.e. open educational resources which are freely accessible, openly licensed) before developing or commissioning development of new materials.

A powerful mLearning innovation is creation and adaption of learning materials by learners for their own study and to assist other learners.

Teachers and students using Telecom Italia's school-as-a-service product Educ@TIon are actively involved in collaborative creation of multimedia teaching materials. Students are requested to integrate their multimedia contributions into the teacher's text and when all input and amendments have been agreed the enhanced material is published for other students to use.

Debate

What is the critical mass of curriculum-specific and tailored resources for mLearning needed to ensure take up in schools?

How should teachers be encouraged and supported to share mobile learning materials they have developed?

Should teachers be encouraged to develop mobile learning materials or is this better left to specialist staff or external suppliers in consultation with teachers?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Set up subject- and phase-specific curriculum groups to review national or local curriculum requirements
- Task the groups to review the availability of and need for additional relevant mLearning resources to support teaching and learning of their curricula and to justify and prioritise their requirements
- Determine funding requirements and funding models
- Allocate funds to the adaptation, translation and customisation of existing resources where appropriate as well as funds for new resource development
- Develop on-line communities of practice in subject areas and encourage and reward sharing of resources and good practice

Assessment of learning and skills acquisition

Background

Use of technology, and especially mobile devices, in education and training offers opportunities for educators, trainers and companies to rethink assessment.

However, some experts interviewed in GSMA's research expressed concerns that improvements in assessment methods and processes are not keeping up with the changes in society and pedagogy enabled by new technologies. Established forms of assessment, and traditional attitudes to these, may be holding back innovation and preventing mLearning from being embraced, particularly in developed countries.

mLearning includes more efficient electronic distribution of assessment tasks and collection of completed work. Tools for teachers enable them to annotate students' work and monitor progress. Mobile devices help students to collect data for use in completing assignments and enable them to compile and submit for assessment multimedia portfolios of evidence of their learning and skills aquistion.

Connected mobile devices improve support for formative assessment by enabling immediate feedback on learners' understanding and progress regardless of their location. Mobile phones are ideal for quick understanding checking via polls and communicating personalised feedback from teachers. Efficient formative assessment allows learners and teachers to identify and focus on areas of weakness. It can also reduce costs where learners are taking part in work-based placements as the number of tutor or assessor visits can be reduced.

Summative assessment can be included in mLearning by embedding assessment tasks in electronic resources or carrying out verbal assessment. The inbuilt functionality of mobile devices, e.g. video camera and finger print recognition, can be used to confirm student identity.

Students at Japan's Cyber University, a subsidiary of Softbank Corporation, take their final examination on-line remotely.

During the exam the device camera takes multiple pictures of the student which are matched against the master photo of the student utilising a biometric authentication system to verify that the correct student is taking the exam. (GSMA, 2012)

Mobile devices support collaborative assessment by enabling students to work together gathering, sharing and analysing data within or outside school, collectively developing hypotheses and answers to questions.

This type of activity provides new opportunities to assess soft 21st century skills such as team work, communication, creativity and problem solving. They can also enable teachers and students to be accredited for demonstrating competencies related to the use of technology, retrieving and interpreting information, and using technology to solve problems.

mLearning can also incorporate new ways of assessing and evidencing student abilities, which transcend the ability to pass examinations. This is being demonstrated by the computer gaming community and attracting the attention of employers, especially in technology-related industries. These include earning 'badges' for achievements which demonstrate competence and peer assessment resulting in the accumulation of kudos.

Debate

Are current assessment policies and methods fit for purpose in measuring learning, skills competency and 21st century skills?

What adjustments need to be made?

What barriers to change exist and how can these be overcome?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Review curriculum and assessment in line with digital society, ICT in education and mLearning priorities
- Consult with stakeholders, including employers, concerning requirements for modernising assessment and accreditation
- Develop, with curriculumand assessment authorities and examination boards, a new assessment policy that sets out strategies for developing mobile assessment tools for formative, summative, self and collaborative assessment and guidelines that make use of mobile devices
- Ensure mAssessment has equal validity to other forms of student assessment

Ensure adequate technical support

Background

Arrangements for technical support of ICT equipment and systems used by schools vary considerably from country to country and according to the type of school, the number of students and available budget. Small schools, especially in developing countries, may have no dedicated technical support staff and teaching staff may not be very technologically literate, whereas large schools in developed countries can have well-staffed and knowledgeable IT departments. Technical support can also be provided at district level to groups of schools.

Alternatively, support may be sub-contracted to specialist companies or provided by partner organisations. Some mobile operators are developing school-as-a-service contracts which include connectivity, cloud storage, training and technical support in addition to mobile devices.

Teachers are often reluctant to introduce new tools and technologies into their teaching unless they have full confidence in the reliability of the technology, their own ability to use it and the level of technical support available to them in case of problems. Therefore good, reliable and quickly available technical support is essential for successful implementation of mLearning.

Where IT departments exist within schools or districts implementation of mLearning is dependent upon their co-operation. When IT departments are involved early as key stakeholders and expert advisers they can help to ensure success.

Ensuring adequate staffing of IT departments and keeping the technical skills of IT staff up to date can be a challenge for schools. Recruitment and turnover of IT staff can be an issue where private sector salaries exceed those paid by schools and some schools can be reluctant to provide training which will make their staff more 'marketable' to other organisations.

Contracts with device suppliers can be written to include training for IT staff, and in some cases teachers, within the price. This can be useful where available funding can only be spent on capital items.

Although the tablet can be considered a personal device, in order for its full potential for education to be realized it needs to be part of a much bigger system guaranteeing security, management and support, and with plans for sustainability. Etisalat/GSMA (2012)

Mobile device management systems can reduce some of the pressure on IT departments as they enable automation and streamlining of some aspects of mLearning technical support. They also assist in protecting data stored on, or accessed via, students' and teachers' mobile devices.

Otherwise they can represent a significant barrier. A useful strategy for helping to overcome this barrier is ensuring that IT department staff are the first to receive new mobile technologies with time given to become familiar with them.

Debate

Has technical support, or the lack of it, been an issue with previous ICT deployments in education? How was the situation been addressed and what was the result?

What options are available for providing technical support? And what are the advantages and disadvantages of these?

What training is required for IT staff supporting implementation of mLearning and what is the best way of providing this?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Review availability and skill levels of technical support staff available to schools
- Ensure mLearning budgets have funds for technical support and upskilling IT staff
- Explore with partners, e.g. device and systems vendors, suppliers, mobile network operators, NGOs and charities, options for providing access to well-trained technicians and training
- Develop policy on training requirements for IT staff
- Develop guidance on the technical support requirements
- Develop on-line support, advice and mentoring for school IT staff including encouragement of peer-to-peer support and problem solving and sharing of good practice
- Encourage recognition of the contribution of IT staff to the success of mLearning

mAdministration

Background

mLearning extends beyond the use of mobile technology for teaching and learning. Mobile devices can be used to help simplify and streamline administrative processes for teachers and schools.

Mobile devices are used to collect data and management information, including attendance and student marks records, and to enable improved communication between schools and parents.

They can also be used to collect data on teachers and school performance to feed into review and inspection processes.

Communication between the school and parents is assisted by mobile devices. Some schools have reduced absenteeism by using SMS to notify parents when their child does not appear at school.

Where parents recognise the benefits of this type of use of mobile devices they can be more ready to accept their introduction as teaching and learning tools or for other initiatives such as reporting on student progress.

Aspects of teachers' professional development can be delivered via mobile devices and apps on mobile devices can assist them with lesson planning and monitoring their personal development.

Support via a mobile device can be particularly helpful for teachers working in isolated locations with limited access to conventional ICT.

Teachers can access learning management systems via apps, mobile clients on mobile phones or web browsers on tablets.

This allows them to carry out learning administration tasks including managing learning materials, setting coursework for students and accessing student work and progress records.

We have a teacher goal tracking exercise where teachers text us their goals for the year ahead, then at intervals through the year they receive SMS reminders of their goals and text back their progress on a scale of 1–5. It helps teachers to stay on top of goals and track progress, and it helps partners to see where teachers need additional help.

USA/Middle East based mobile solutions company Souktel (2014)

Emerging administrative uses for mobile phones in schools include cashless payments, e.g. in the canteen or for photocopying, and the use of NFC (near field communication) to provide access to buildings or rooms and to instantly access on-line information linked to notices or posters.

Debate

How is information and data related to student progress currently collected and shared? Is this process timely enough?

To what extent can teachers use mobile devices for learning management and administration?

Can the use of mobile devices improve communication and provide more timely information to parents and students?

How can mobile device apps and functionality be used to make administrative processes quicker and more convenient?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Review current data collection policy and modify in line with the potential that mobile devices can bring to more speedy data collection and information dissemination
- Review and provide guidance on mobile tools to support and streamline school management and administration including communication with parents and students
- Include information about the use of mobile technologies for management and administration in school leaders' and teachers' professional development programmes
- Provide information for parents about new modes of transmitting information about their children's progress and attendance

mLearning in emergency situations

Background

Mobile devices have proved particularly useful in emergency response and education is increasingly seen as an important aspect of responding to disasters, conflict and other humanitarian emergencies.

Mobile devices can quickly equip teachers to teach in refugee camps or temporary shelters when other basic resources and infrastructure are not available, giving them access to learning resources and administration tools.

Mobile devices can provide students with some continuity in their learning environment when the rest of their world may be in turmoil, thus providing much-needed stability and support in a time of crisis.

Personal emergencies such as hospitalisation, family illness or unexpected trips away from home will also arise from time to time. mLearning can provide continued access to learning materials and support for a student in these situations, thus reducing the impact on their studies and therefore on their life chances.

mLearning has also been used to provide just-in-time learning for charity and armed forces personnel responding to emergencies, enabling them to provide appropriate first aid and to liaise with other teams who can advise and assist.

Students in Ishinomaki, one of the regions worst affected by the tsunami, have benefited from a learning environment that takes advantage of a mobile learning system supported by wireless networks and tablet devices to prepare for college and high school examinations

GSMA / KDDI / Castalia / Shingakukai (2012)

Debate

Are there educational continuity plans in place in case of local, national or personal emergencies, and if so, do they include the use of mobile technologies as a key feature?

Policy guidelines

When considering developing an mLearning policy, it is important to:

- Develop mLearning contingency plans in preparation for possible emergencies that might close schools or otherwise disrupt students' education
- Identify stakeholders and partner organisations to be involved if these plans need to be actioned

The Connected Living programme

The GSMA Connected Living programme is an initiative to help operators add value and accelerate the delivery of new connected devices and services in the M2M market. This is to be achieved by industry collaboration, appropriate regulation, optimising networks as well as developing key enablers to support the growth of M2M in the immediate future and the IoT in the longer term.

Adrian Godfrey
Director of mLearning
agodfrey@gsma.com

Jeanine Vos
Excecutive Director of mLearning and mHealth
jvos@gsma.com

The government and regulatory affairs team

The GSMA's government and regulatory affairs team represents the mobile industry in front of governments and regulators around the world, advocating for a regulatory environment that maximises investment, innovation and the opportunity for mobile operators, the wider mobile ecosystem and mobile users. Through direct engagement with governments, we help to shape the global regulatory agenda.

Tom Phillips
Chief Government and Regulatory Affairs Officer
tphillips@gsma.com

John Giusti
Head of Spectrum
jgiusti@gsma.com

The GSMA would like to thank the following experts who were interviewed in research carried out by Jigsaw Consult to inform the development of this handbook.

Angela Baker, Senior Manager, Wireless Reach, Qualcomm, Inc.
Carolina Jeux, CEO, Telefonica Learning Services
Geoff Stead, Senior Director, Mobile Learning, Qualcomm
Giovanna Chiozzi, Special Projects for Software Services & Solutions, Telecom Italia
Jacob Korenblum, CEO, Souktel
Jeanine Vos, Executive Director, mHealth and mLearning, GSMA
Jenny Jones, Director of Public Policy, GSMA
Jihene Ben Abda, Head of M2M Mobile Applications and Products, Tunisiana
Jill Attewell, Mobile Learning Specialist, GSMA
Jim Ayre, Managing Director, Multimedia Ventures
John Garrity, Manager, Policy Research – Global Technology Policy, Cisco Systems
John Traxler, Professor of Mobile Learning, University of Wolverhampton
Kevin McGuinness, Innovation and Business Development Manager, Portugal Telecom
Kristin Atkins, Senior Director, Wireless Reach, Qualcomm, Inc.
Lord (Jim) Knight, Former Minister of State for Schools and Learners, UK government
Matthew Kam, Senior Technology Strategist, American Institutes for Research
Dr. Michelle Selinger, ConsultEdu Ltd.
Nancy Hafkin, Director of Knowledge Working
Natasha Jackson, Head of Content Policy, GSMA
Niall Winters, Reader in Learning Technologies, London Knowledge Lab (LKL), Institute of Education, University of London
Ricardo Tavares, CEO, TechPolis: Technology Policy and Global ICT Regulation
Sasithara Pichaichannarong, Secretary General, Thailand Education Council
Sonia Jorge, Executive Director, Alliance for Affordable Internet
Steve Vosloo, Senior Project Officer: Mobile Learning Division for Teacher Development & Higher Education, UNESCO
Susan Silveira, Senior Manager, Wireless Reach, Qualcomm
Teresa Lugo, TIC and Education Co-ordinator, IIPE UNESCO Buenos Aires
Thierry Coilhac, Director, e-Education and e-Learning Development, Orange
Tim Unwin, Secretary General, Commonwealth Telecommunications Organisation
Vicki Mealer-Burke, Senior Director, Product Management, Qualcomm
Yomna Elmeshad, Regional Mobile Learning Manager MENA, British Council

http://www.gsma.com/connectedliving