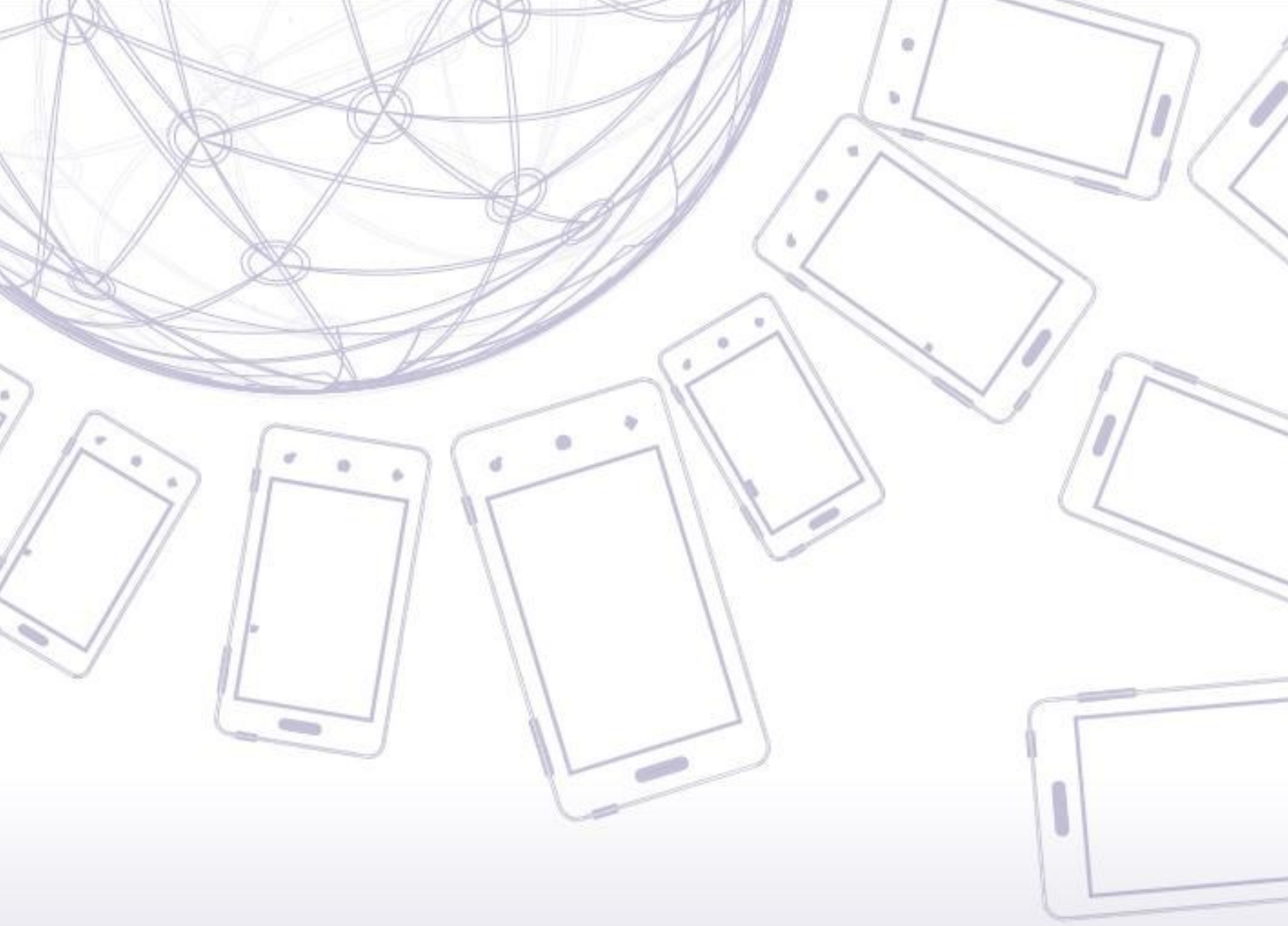

# First Report of the Working Group on m-Learning

# m-POWERING DEVELOPMENT INITIATIVE

A BDT Initiative — Organized by ITU

# m-Powering Development Initiative
# Report of the Working Group on m-Learning

25th February 2014

## Executive Summary

Mobile devices have the potential to contribute significantly to education and learning across the world. There is, though, still uncertainty as to the precise impact that they have, and how best they can be used to contribute positively to education. The very rapid expansion of mobile connectivity and devices makes it both timely and important to consider the ways through which they can be utilised effectively for education, and how the ITU can best contribute to this process. The m-Powering Development Initiative created working groups in October 2013 to address particular issues within its remit, and this report is the first output of the m-Learning Working Group. The report results from written collaborative input from members of the Working Group, subsequent correspondence between members, and a conference call to discuss an earlier draft of the document. We are grateful to the ITU Secretariat for their support in preparing the report.

The report is based on six key principles: it should not seek to replicate or duplicate existing initiatives; it recognises a diversity of views and opinions; it should promote good practices, which can then be localised and adopted in particular contexts; m-Learning, is but one aspect of a wider field of e-learning/education; many of the principles of good practice in the latter are relevant to m-Learning; and that the Working Group should be as inclusive as possible in its recommendations

The report provides an overview of m-Learning and m-Education initiatives that are either already successful or show promise. A key finding from this is that there is still far too little rigorous evaluation and monitoring of such initiatives, and there is an urgent need for quality comparative data to enable success factors to be clearly identified. A review of the main stakeholders participating in m-Learning initiatives is then presented, before the report synthesises existing knowledge on good practices, highlighting eight main conclusions:

- Focus on learning outcomes not technology;
- Involve teachers and users at all stages;
- Consider sustainability, maintenance and financing right at the beginning;
- Think holistically and systemically;
- Ensure that all relevant government departments are involved;
- Ensure equality of access to all learners;
- Appropriate and rigorous monitoring and evaluation must be in place;
- Involve participatory approaches in design.

Building on this, the report identifies eight main gaps and challenges facing those seeking to implement m-Learning initiatives:

- The imperative of ensuring joined up approaches across Governments;

- Open Platforms for sharing mobile-learning content;
- Effective and Rigorous Monitoring and Evaluation;
- Sharing contextualised examples of good practices;
- Affordability;
- Connectivity;
- Creation of really effective multi-stakeholder partnerships
- Lack of relevant content.

Based on the review of available evidence the report reaches four main findings:

- A very considerable amount of research and practice has already been done in the field of m-Learning and m-Education;
- Despite the lack of high quality and rigorous monitoring and evaluation, there is widespread recognition of the potential of m-Learning to improve delivery of education and skills acquisition;
- There already exist major international initiatives in the field of m-Learning and m-Education; and
- We are still in the relatively early days of the use of mobile devices in learning and teaching, and developments are moving very quickly

In the light of this, the report's main conclusion is that whatever recommendations emerge from the m-Powering Development, it is essential that in the field of m-Learning and m-Education there is very close co-operation and collaboration with existing initiatives such as the M-Education Alliance, UNESCO's initiatives in the field of m-Learning and the GSMA's ongoing activities in m-Learning and m-Education. It also recommends that the prime role of the ITU's m-Powering Development Initiative should be with Telecommunication Ministries and Regulators, and that its main emphasis should be to advocate and influence, rather than actually to deliver physical products. Another concluding recommendation is that it is much better to seek to deliver a few things really well, rather than to try to be over-ambitious and fail to deliver anything satisfactorily.

With this in mind, it suggests that four possible areas of activity, in order of priority, warrant particular consideration by the ITU:

1. Support and advocacy for the fundamental importance of appropriate monitoring and evaluation;
2. Support for and engagement in activities that will enhance awareness of m-Learning by governments and their understanding of the essential need for all mobile initiatives to be approached in a holistic manner, involving all relevant Ministries and partners;
3. Sharing and showcasing good practices in m-Learning as part of the wider m-Powering Development Initiative; and
4. Support for the creation if an Open mobile app to provide for free sharing of m-Learning content as well as the dissemination of commercial resources.

## Context and remit

The m-Powering Development Initiative Advisory Board meeting on 15th October 2013 recommended the creation of a Working Group (Annex A) on m-Learning, to deliver five main activities:

1. review ongoing initiatives and activities in its field;
2. identify key stakeholders;
3. identify real life examples and best practices that can be replicated and scaled-up;
4. review the current state of play and carry out a gap analysis; and
5. prepare a white paper and report back to the Board with suggested actions to be taken by the Board.

This report provides an initial overview of the field, drawing on the expertise of the Working Group to address four initial aspects of this endeavour:

1. Successful and promising existing m-Learning initiatives;
2. The main stakeholders working in this area;
3. Examples of existing good practices and opportunities;
4. Existing gaps where further work is needed; and
5. Suggested actions.

## Why m-Learning and m-Education

It is widely argued that the future of education is through the Internet, and that the Internet is increasingly being accessed through mobile devices. If these propositions are accepted, then it follows that learning through mobile devices connected to the Internet will have a very significant role to play in the future. Mobile devices are also generally cheaper, more ubiquitous, frequently personal, and above all usable in parts of the world that would otherwise have limited access to formal learning environments. Whilst learning and teaching with and through mobile devices is a subset of the wider field of ICT in education, it nevertheless has distinct characteristics, such as greater affordability, greater ubiquity, and smaller size, which require a reconsideration of some, although by no means all, of the findings gained from more traditional computer based learning.

Whilst much is already known about m-Learning and m-Education, and there are very many existing initiatives in the field, there is still a need for greater understanding of its impact on and potential for learning and teaching. We need to know more about why m-Learning is important, who it is important for, what countries and companies are seeking to achieve and deliver through m-Learning, and the progress that has been achieved so far.

## Key principles

In responding to these issues and in line with discussions during the first meeting of the Advisory Board, the Working Group adopted six main principles:

1. It should not seek to replicate or duplicate existing initiatives, but should rather identify the *relevant gaps* where the ITU has a competitive advantage.
2. It recognises a *diversity of views and opinions*,
3. It should promote *good practices*, which can then be localised and adopted in particular contexts, rather than advocating a single best practice.
4. m-Learning, is but one aspect of a wider field of e-learning/education, and *many of the principles of good practice in the latter are relevant to m-Learning*.[1]
5. There are many definitions of the mobile "m-" in m-Learning/Education. For the purpose of this exercise the term is being used to refer to *all kinds of education and learning undertaken through the use of mobile devices*, most commonly mobile-'phones and tablets, but also including laptops and other devices where appropriate.[2]
6. The Working Group should at this stage be as inclusive as possible in its recommendations, recognising that many different types of m-Learning/Education initiative have been developed and funded by a diversity of actors including governments, development agencies, the private sector (both as commercial services offered, and also as CSR or other activities funded by the private sector), social enterprises and civil society.

### Successful and promising m-Learning initiatives

The Working Group recognised that there are very many existing m-Learning and m-Education initiatives, developed in a range of contexts. However, there is insufficient rigorous monitoring and evaluation of such initiatives to be able to reach firm conclusions as to what makes them successful.

Moreover, there are many different criteria for success, with members of the Working Group often having markedly different thoughts on this. From a commercial private sector perspective, success is sometimes initially measured primarily in terms of the number of devices sold, or the profits generated, whereas from a teachers' perspective it is more usually measured in terms of learning outcomes in particular fields of study. Within the context of what some see as a global learning crisis, many governments place particular emphasis on key indicators such as numeracy and literacy.

[1] The concepts of m-Education and m-Learning are subtly different, with the former often being used for top down institutional structures (to facilitate learning within educational systems) and the latter more usually for bottom-up and less formal processes (to facilitate self-learning within and beyond the formal school environment). The Working Group believes that the term m-Learning is more appropriate for tis title, reflecting an approach where the learner is at the heart of the learning process, and is therefore recommending a change in the Group's name to the m-Learning Working Group. We recognise that organisations such as the m-Education Alliance prefer the use of the term m-Education, since they see this as referring to the Education sector, whereas "learning" can refer to any time of learning. The distinction made in this report, and that it widely used elsewhere is that "learning" is a process that primarily focuses on the experience of the learner, whereas "education" is more focused on the system and structures within which that learning takes place. Using "learning" suggests more of a user/learner-centred approach. This does not in any way, though, negate the importance of teachers as facilitators in the learning process. Indeed, teachers are crucial in m-Learning.

[2] Whether or not to include initiatives specifically focusing on laptops was debated at some length, but dominant view in the Working Group was that the important attribute was the physical sense of mobility rather than any specific technological preferences. It is therefore important to be device agnostic in discussing m-Learning.

Some of the more important criteria of success include measures such as:

- Enhanced learning outcomes, differentiated by subjects of study;
- Value for money with respect to alternative modes of learning;
- Scale and number of users;
- Increases in the quantity and quality of learning materials/educational software available for mobile platforms;
- Attainment of relevant skills for employment, focusing especially on collaborative learning and assessment.[3]
- Numbers of devices sold or rolled out to learners;[4]
- Enhanced levels of Internet use, and thus revenue for ISPs and mobile operators;[5]
- Enhanced use of education-based value-added services;
- Enhanced literacy and numeracy skills;
- Increase in employability of learners;
- Sustainability and funding mechanisms.

Overall, the Working Group strongly believes that there is a need to undertake further high quality assessments of the impact of mobile initiative on learning outcomes, so that these can be shared more widely amongst all stakeholders.

Most such initiatives by definition have focused on the use of one particular technology, such as a particular brand of laptop, a particular mobile 'phone, or specific mobile game or piece of software. We strongly recommend that this approach be replaced by one in which mobile devices are instead integrated into a holistic systematic approach to learning that utilises a range of technologies (books, desktop computers, tablets, mobile devices, the Internet…) and activities or experiences to enhance learning. It should also be an approach that involves several different partners, each of which brings their own particular expertise to the initiative.

Another complexity in recommending m-Learning or m-Education initiatives that currently appear to be particularly successful, is that many such initiatives are not specifically designed for schools, but are instead focused on providing training for health workers or farmers, and therefore reflect overlap with these sectors. The approach adopted here has

[3] These skills are sometimes termed 21st Century skills, but the term is not used here because not all members of the Working Group endorse this particular concept.

[4] Although not all members of the Working Group accepted this criterion, it is included because it is indeed the fundamental underlying criterion of success for many companies, although not necessarily the ones represented on the Working Group. The fundamental rationale of all private sector companies is to make profit for their shareholders, and ultimately the number of devices sold is important. Moreover, for many governments, the number of devices given to learners is also often used as a criterion of success, even if there is no measurable impact on learning.

[5] Again, this criterion was questioned by some members of the Group, whereas others recognised that although companies might not wish to be so blatant in their marketing, this is indeed an important criterion for them in terms of their rationale for encouraging m-Learning along with other mobile-initiatives

therefore been to focus primarily on initiatives specifically for formal education, although also including a small number that are for vocational and wider purposes.

Members of the Working Group identified very many examples of initiatives that they believed were worthy of mentioning, some specific and some generic. Annex B provides a short list of such initiatives and gives an indication of the richness of this field. The following initiatives were seen as being particularly successful:

- *Agastya Mobile Labs (http://www.agastya.org/how/how-we-do-it/mobile-labs)* - Tapping the valuable resource of bright but underprivileged children and teachers in rural India, Agastya provides an environment in which they can create, tinker, seek solutions and find them. Agastya encourages enquiry from children, who are inquisitive by nature
- *BBC Janala – mobile phones for adult literacy (Bangladesh) (http://www.bbcjanala.com/)* - On TV, online, in print and accessible through even the most basic mobile phone handset, the multiplatform English language service also works through roughly 6000 English clubs across the country
- *Dr Math (http://mathforum.org/dr.math/) - a question and answer service for maths students and teachers*
- *Mobiles for Education Alliance (www.meducationalliance.org)* Consortium of international organisations focused on mobile technologies for education primarily in developing countries
- *Nokia Life Tools (http://www.nokia.com/in-en/support/faq/?action=singleTopic&topic=FA132357; although now no-longer being continued, despite having 80 million subscribers)* - an SMS based, subscription information service designed for emerging markets which offers a wide range of information services covering healthcare, agriculture, education and entertainment
- *Tangerine technology, RTI (http://www.tangerinecentral.org/)* - electronic data collection software for use on mobile devices to enable recording of student responses
- *Text2Teach, Philippines (http://www.text2teach.org.ph/)* - aims to contribute to the quality of teaching and learning in underserved schools and communities in the Philippines
- *UNESCO's Mobile Learning work (http://www.unesco.org/new/en/unesco/themes/icts/m4ed/)* - *UNE*SCO's programme of activities is therefore based on growing partnerships geared towards exploring how mobile technologies can enable the achievement of Education For All
- *Urban Planet Mobile (http://www.urbanplanetmobile.com/what-we-do)* - With products ranging from basic word and phrase lessons to TOEFL & SAT preparation, to a new online writing tool with assessment and tutorials, Urban Planet specializes in forward-thinking educational tools
- *Worldreader (http://www.worldreader.org/) using e-books to advance early grade reading*

- *Yoza (http://yozaproject.com/) - originally known as M4Lit, providing m-novels in* a funky youth-zone with engaging stories that include more Kontax episodes as well as stories from other genres, e.g. soccer, issues and teen romance

Above all else, this survey indicates that there are not only very many existing m-Learning initiatives, but also that there are already several global coalitions working in this field, notably the work led by UNESCO and also that of the Mobiles for Education Alliance and the GSMA. This re-emphasises that whatever recommendations are to be made, they should ensure that they recognise such ongoing work, and identify specifically the areas where the ITU and its partners are best placed to have an impact that is complementary to these existing activities.

### Main stakeholders working on m-Learning

One of the specific remits of the working group is to identify the main stakeholders involved in m-Learning and m-Education initiatives. The following provides a list of the generic and specific stakeholders identified by members of the Working Group:

#### Generic

There are clearly very many groups of stakeholders involved in developing m-Learning solutions, among the most important of which are:[6]

1. **International organisations**
   - UN bodies (UNESCO, ITU, UNDP, UNICEF)
   - Regional organisations
   - La Francophonie
   - Commonwealth organisations
   - Multilateral donors
   - Standards organisations

2. **National Governments and Public Sector organisations**
   - Ministries
     - Education
     - Communications/ICT
     - Finance/Commerce
     - Employment
   - Education regulators and standards authorities
   - National curriculum authorities
   - Examination boards
   - Bilateral donor agencies

[6] It is by no means easy to cluster these diverse stakeholders into mutually exclusive groups, but this classification is intended to emphasise the complexity involved, and to go beyond just a simple division into the Public Sector, the Private Sector and Civil Society.

3. **Private Sector companies**
    - Commercial publishers
    - Companies as employers
    - ICT industry (e.g. Apple, LG, Microsoft, Samsung)
        - Mobile 'phone producers
        - PC and tablet suppliers
        - Telecom equipment producers
    - Network operators
    - ICT solutions enablers[7] (e.g. Intel, Microsoft, Google)
    - Telecommunications companies
        - Infrastructure providers (e.g. Alcatel-Lucent, Cisco, Ericsson, Huawei)
        - Mobile operators (e.g. Orange, Vodafone, Mobilink and many others)
    - Private Sector examination bodies
    - Software developers
    - Gaming industry

4. **Civil Society organisations**
    - NGOs
    - Think Tanks
    - Trades Unions
    - End-user associations

5. **Educational and research institutions and their staff**
    - Educationalists/Teachers
    - Institutional leaders
    - Administrators
    - Universities (research and teaching)
    - Schools

6. **Citizens**
    - Learners
    - Parents
    - Open content providers
    - Groups of end-users

7. **Partnership organisations**
    - Alliances and networks

This framework emphasises above all that many different types of organisation have significant interests in m-Learning and m-Education, and therefore that it is important to adopt a holistic, inclusive approach to any such initiatives.

[7] Although readers should be aware that this term was not liked by all members of the Working Group.

### Specific stakeholders engaged in m-Learning and m-Education

Many specific organisations were also identified as having particular interests in m-Learning and m-Education, and these are listed in Annex C. Among these, four stood out as being of particular prominence:

- *BBC Media (see for example* http://downloads.bbc.co.uk/mediaaction/policybriefing/bbc_media_action_health_on_the_move.pdf)
- *GSMA* (http://www.gsma.com/connectedliving/meducation/; http://www.gsma.com/mobilefordevelopment/programmes/mobile-for-employment)
- *mEducation Alliance (http://www.meducationalliance.org)*
- *UNESCO (http://www.unesco.org/new/en/unesco/themes/icts/m4ed/)*

### Good practices

Although there remain insufficient rigorous evaluations of m-Learning and m-Education initiatives, especially from a user-perspective, there is widespread agreement amongst practitioners on the good practices that can help to ensure success. Many of these build on the substantial literatures on good practices in the wider field of e-learning, as well as the experience acquired from existing m-Learning projects and initiatives. Annex D provides references for some recent literature on effective m-Learning, and could provide the initial basis for a more extensive review of resources that could be used by stakeholders interested in developing m-Learning initiatives.

Annex E lists all of the good practices identified by members of the Working Group. Of these, the following were those most frequently cited by members of the Group as being of most significance:

- *Focus on learning outcomes not technology*; mobile devices should be seen as a tool to implement pedagogy and but one of many such technologies available to teachers
- *Involve teachers and users at all stages from design to implementation and review*; ensure that effective in-service and pre-service training, as well as on-going peer support, is available
- *Consider sustainability, maintenance and financing right at the beginning*
- *Think holistically and systemically*
- *Ensure that all relevant government Ministries and Departments are involved*
- *Ensure equality of access to all learners, especially those who are marginalised (particularly those with disabilities and those without access to existing education systems)*.

- *Appropriate and rigorous monitoring and evaluation must be in place*; independent peer reviewed evaluations should be disseminated widely
- *Involve participatory approaches in design so as to ensure that adoption of technology is user-centric*

In identifying these good practices, it is important to stress that they should not be seen as "best" practices that will always lead to success. Indeed an important overall aspect of this report is that it has very explicitly avoided the notion of "best practices" in favour of an approach that encourages those engaged in developing m-Learning initiatives to draw on a range of good practices that are relevant to their own geographically diverse national or local contexts.

### Main gaps and challenges

The key role of the Working Group is to identify the gaps that exist, and the challenges that can be overcome, in ensuring effective use of mobile devices for development.

Annex F provides an initial working list of such gaps and challenges, with the following having been identified as of most significance:

- *The imperative of ensuring joined up approaches across Governments*; bringing together all of the different Ministries involved, and encouraging cross-sector work. It is important that Ministries of Education work jointly with Telecommunication or ICT Ministries within the context of their national ICT and broadband strategies.
- *Open Platforms for sharing mobile-learning content* – not many yet exist, and such platforms could be valuable and effective resources so that users can share content and duplication of effort could be reduced
- *Effective and Rigorous Monitoring and Evaluation*; we still do not know enough about what really works; need for more direct evidence of success of m-Learning within the school system (K-12)
- *Sharing contextualised examples of good practices*; this is essential so as to reduce duplication of effort, and to avoid reinventing the wheel
- *Affordability* – in many countries, access to broadband either does not exist or is far too expensive for most people to use for learning. Need to work closely with other initiatives such as the work of the Broadband Commission, and the Alliance for Affordable Internet to enable widespread access at affordable process.
- *Connectivity* – ensuring universal access to the Internet, both spatially and also socially, as well as access at effective speeds
- *Creation of really effective multi-stakeholder partnerships* with the ability to implement; many people talk about partnerships, but fewer have real expertise in crafting and implementing true multi-stakeholder partnerships.
- *Lack of relevant content,* especially in local languages, and differentiated according to the learning needs of students

## A way forward for the m-Powering Development Initiative to address gaps in m-Learning and m-Education

Four things are very clear from this overview:

- A very considerable amount of research and practice has already been done in the field of m-Learning and m-Education;
- Despite the lack of high quality and rigorous monitoring and evaluation, there is widespread recognition of the potential of m-Learning to improve delivery of education and skills acquisition;
- There already exist major international initiatives in the field of m-Learning and m-Education; and
- We are still in the relatively early days of the use of mobile devices in learning and teaching, and developments are moving very quickly

It is crucial that anything undertaken by the m-Powering Development Initiative should therefore not replicate or duplicate the ongoing work done by other initiatives, but should instead add value to them or focus on areas that are insufficiently being addressed at present.

It should also focus especially on the core agenda of the Telecommunication Development Sector (ITU-D) and its Secretariat, the Telecommunication Development Bureau, whose core mission is "to foster international cooperation and solidarity in the delivery of technical assistance and in the creation, development and improvement of telecommunication/ICT equipment and networks in developing countries".

Recognising that UNESCO's remit is primarily with Education Ministers and the GSMA represents and has strong links with the mobile operators, the Working Group recommends that the prime role of the ITU's m-Powering Development Initiative should be with Telecommunication Ministries and Regulators.

We also recommend that the main emphasis of the m-Powering Development Working Group should be to advocate and influence, rather than actually to deliver physical products, such as apps, ourselves. We do not have the capacity, or the financial ability, to compete with companies and groups already creating such apps, and we see the ITU's role primarily as being one of influencing and convening.

Furthermore, the Working Group believes that it is much better to seek to deliver a few things really well, rather than to try to be over-ambitious and fail to deliver anything satisfactorily.

Given the core focus of ITU-D in fostering international co-operation and in developing and improving technologies and networks, the Working Group recommends that in the field of m-Learning and m-Education, the Initiative should seek to explore the following four areas of activity which are listed in broad order of priority:

- **Support and advocacy for the fundamental importance of appropriate monitoring and evaluation of m-Learning and m-Education initiatives**. Throughout this report it is evident that there is as yet insufficient clear evidence of the benefits of m-Learning and m-Education for learning outcomes. The m-Powering Development initiative should work together with existing major global m-Learning programmes and organisations to help develop a clear framework for effective monitoring and evaluation, that would enable the educational community to assess how and why m-Learning delivers different, possibly better, learning outcomes from those achieved by other methods. The most important priority should be for the ITU to use its good services to agitate strongly for the need for evidence upon which future funding decisions can be made. This approach would be strongly supported by many members of the Working Group, including bilateral donors such as USAID and DFID, who would be willing to work collaboratively in this endeavour.

- ***Enhanced understanding by Governments of the essential need for all mobile initiatives to be approached in a holistic manner, involving all relevant Ministries and partners*.** In the case of m-Learning, this would involve at least the Telecommunications, Education, Finance, Infrastructure and Commerce Ministries, but we believe that this should be a major output of the m-Powering Development Initiative as a whole. Specific activities involved in this deliverable could include short guidance and briefing documents for Governments, and the holding of a major conference on the importance of holistic approaches to mobile development initiatives, preferably jointly with other cognate bodies. A central element of this recommendation is also for activities to be undertaken that would help increase awareness among governments of the potential of m-Learning. If the Internet is going to play a key role in education in the future, and the future of the Internet is mobile, then it follows that the future of education is mobile. Several members of the Working Group expressed willingness to convene and develop workshops and training resources to deliver this potential output. It is also critically important to ensure that such any such initiative is undertaking in collaboration with other major international bodies and partnerships, such as UNESCO and the m-Education Alliance. Rather than developing its own specific initiative in this area, the ITU should work with and support its members and cognate bodies, by convening joint activities that benefit all of their members. Additionally, it would be particularly interesting to focus attention on the least-developed countries that have the greatest needs, so as to work diligently to reduce the inequalities caused by differential access to social and physical infrastructure.

- ***Support for an environment for sharing and showcasing good practices in m-Learning as part of a wider m-Powering Development online resource***. There already exist several initiatives that have platforms for sharing information about good quality m-Learning practices. Likewise, there are international awards for m-Learning content. However, if the ITU wishes to have a visible output from the m-Powering Development Initiative it could create, or support, a digital environment to

enable users easily to access information across all of the fields in which it was working (health, education, rural development…). This could provide real value for the Initiative's presence on the ITU site (http://www.itu.int/en/ITU-D/Initiatives/m-Powering/Pages/default.aspx). We do not, though, recommend duplicating the work of existing initiatives by specifically creating a m-Learning or m-Education portal. Rather, our recommendation is to use the ITU's distinctive position to draw attention to existing initiatives where interested parties can find high quality advice and resources. Several members of the Working Group offered to expedite the sharing of good practices.

- ***Support for the creation of an Open mobile app to provide for free sharing of m-Learning content, as well as the dissemination of commercial resources***. There are several initiatives underway in this field, but nothing has yet been developed that would enable all kinds of mobile user, including commercial and OER developers, as well as teachers and learners, to access and upload m-Learning content in a variety of languages and contexts. Interestingly, in the four months since the first meeting of the Advisory Board, several initiatives, mainly by private sector companies, have already moved towards delivering the sort of product that was initially identified by the Working Group as being a gap. This shows that commercial interests are likely to be best positioned to deliver on this recommendation. It is important for the ITU to advocate, though, that any such apps should be platform agnostic, and that they should pay specific attention to accessibility issues, for example being readily usable by people with disabilities. There is a definite need for such a resource, but the Working Group recommends that this is not something that the ITU itself should embark on.. The ITU's role might therefore be to develop and advocate appropriate standards through which such apps could be created.

The opening meeting of the Advisory Board did not address funding issues, either relating to specific activities to be developed by the m-Powering Development initiative itself, or more generally in terms of wider funding support for mobile services, such as m-Learning. It is clear that this is a major issue in developing anything substantial in this field. Most of the above proposals are, though, relatively low-cost, and could readily be combined with ongoing activities and plans within the ITU and cognate bodies. If the m-Powering Development Initiative is to gain traction, and deliver valuable outputs, there is an urgent need for its web-presence to be enhanced. Moreover, it would not be difficult to combine forces with relevant organisations represented on the Advisory Board to deliver an international event, or indeed a series of regional events, to promote systemic and holistic approaches to m-Powering Development. One of the key roles that the ITU can play is in advocacy and awareness raising of the importance of m-learning. This can be done very cost effectively by including sessions on m-learning in existing ITU events, such as Telecom World and ITU's various Regional meetings. One exciting suggestion could be to have a stream at Telecom World 2014 dedicated to the various aspects of ITU's m-Powering Development initiative. Additionally, ITU could support existing well-established events, such as e-

Learning Africa, by supporting a stream on some of the aspects emanating from the m-Learning Working Group's recommendations.

More generally, some members of the Working Group felt that there would also be value in creating incentive funds for multi-stakeholder partnerships to form around specific m-Learning initiatives. The track record of such funds in the field of ICTs has not been particularly successful to date, as for example with initiatives such as the Digital Solidarity Fund, and it is extremely difficult to identify where the core funding for such initiatives might come from. Encouragement to bilateral and multilateral donors, as well as international banks, to develop incentive funds is nevertheless something that the ITU might consider taking forward as part of its wider agendas. Some members of the Working Group, for example, are already considering funding incentives to encourage aspects of m-learning, as with USAID's championing of the need for greater evaluation of promising technology-supported interventions for advancing reading. There could be particular value with incentives that would be designed to encourage local innovation, thereby helping to build internal capacity within poorer countries of the world. National governments might also be encouraged to consider the introduction of incentive funds should they have the means to do so.

Concluding this discussion of funding, members of the Working Group suggested the following:

- All of the four practical recommendations for further action are to an extent already being undertaken. They nevertheless remain important, and more action is needed to ensure that they succeed. The ITU can therefore play a key role in synergizing support for existing initiatives, and joining forces with them to reduce duplication of effort, and help to maximize the likelihood of impact.
- The number of organizations represented on the Working Group is an indication of the considerable importance that they all place on m-Learning and m-Education. Most members of the Working Group are already providing funding and resources to support m-learning initiatives and more generally they already contribute to the ongoing work of the ITU. They are therefore willing to consider supporting aspects of m-learning advocated by the ITU, especially where they coincide with their own ongoing activities.

Overall, we recommend that the m-Powering Development initiative should therefore next consider focusing on the systemic issues common to all of the Working Groups, before deciding whether or not to invest further energies specifically into one or more of them. It is crucial that we do not seek to duplicate or detract from the success of existing ongoing initiatives in the specific field of m-Learning and m-Education.

## Annex A
## Membership of Working Group on m-Learning

Members drawn from m-Powering Development Initiative Advisory Board:

- Tim Unwin (Chair) (Commonwealth Telecommunications Organisation)
- Tayfun Acarer (President of the ICTA, Turkey)
- David Atchoarena (UNESCO)
- Anne Bouverot (GSMA)
- Anthony Bloome (USAID)
- John E, Davies (Intel)
- Omobola Johnson (Minister of Communication Technology, Nigeria)
- Veena Rawat (RIM)
- Binali Yikdirim (Minister of Transport, Maritime Affairs and Communications, Turkey)

Invited members with external expertise

- Roz Gater (DFID)
- Simon Milner (Facebook)
- Mike Trucano (World Bank)

Colleagues supporting members of the Advisory Board

- Ahmet E. Cavusoglu (Turkey)
- Belinda Exelby (GSMA)
- Florence Gaudry-Perkins (Alcatel-Lucent)
- Adrian Godfrey (GSMA)
- Carlos Martinez (Intel)

## Annex B

## Examples of m-Learning initiatives

The following initiatives listed in alphabetical order provide an indication of the richness of this field (those mentioned by more than one member of the Working Group are mentioned first in italics):

### Specific m-learning initiatives

- *BBC Janala – mobile phones for adult literacy (Bangladesh) (4) (http://www.bbcjanala.com/)* - On TV, online, in print and accessible through even the most basic mobile phone handset, the multiplatform English language service also works through roughly 6000 English clubs across the country
- *Nokia Life Tools (although apparently now no-longer being continued, despite having 80 million subscribers) (3) (http://www.nokia.com/in-en/support/faq/?action=singleTopic&topic=FA132357* - an SMS based, subscription information service designed for emerging markets which offers a wide range of information services covering healthcare, agriculture, education and entertainment
- *Urban Planet Mobile (3) (http://www.urbanplanetmobile.com/what-we-do)* - With products ranging from basic word and phrase lessons to TOEFL & SAT preparation, to a new online writing tool with assessment and tutorials, Urban Planet specializes in forward-thinking educational tools
- *Worldreader (http://www.worldreader.org/) using e-books to advance early grade reading (3)*
- *Yoza (3) (http://yozaproject.com/) - originally known as M4Lit, providing m-novels in* a funky youth-zone with engaging stories that include more Kontax episodes as well as stories from other genres, e.g. soccer, issues and teen romance
- *Dr Math (http://mathforum.org/dr.math/) (2) - a question and answer service for maths students and teachers*
- *Tangerine technology, RTI (http://www.tangerinecentral.org*

*/) (2) - electronic data collection software for use on mobile devices to enable recording of student responses*

- *Text2Teach, Philippines (http://www.text2teach.org.ph/) (2)* - aims to contribute to the quality of teaching and learning in underserved schools and communities in the Philippines
- Afghan Institute of Learning Mobile Literacy Program (http://www.afghaninstituteoflearning.org/vision.html)
- Airtel Classroom: http://www.airtel-classroom.com/AirtelPortal/Dashboard.aspx
  Workforce entry exam focused learning on-line and mobile.
- All Children Reading Grand Challenge for Development (http://www.allchildrenreading.org) prizes and grant competition which in Round Two will focus on attracting tech innovations for advancing early grade reading (US$23 million initiative in collaboration with USAID, DFAT, and World Vision).
- BBC Media Action Mobile Kunji (http://www.bbc.co.uk/mediaaction/where_we_work/asia/india/india_sdp_empowering_chw_mamk.html) – empowering community health workers in Bihar
- Canaima Education Program (Canaimitas, Venezuela) (http://www.canaimaeducativo.gob.ve/ ) – the program promotes learning among children in the country using new technology. It reaches 2.7 million Venezuelan children.
- E-Taleem – Nokia Pakistan (http://www.nokia.com/global/about-nokia/people-and-planet/news/news-article-24/)
  Nokia and UNESCO Pakistan - free basic Urdu literacy and basic math app for Nokia phones.
- Efiko (http://www.efiko.com.ng/about.html) a mobile self-testing platform designed for secondary school students in Nigeria. It inspires self-learning by engaging students in taking charge of their own learning and celebrating their successes.
- Electronic Early Grade Reading Assessment (EGRA) (http://www.rti.org/pubs/bk-0007-1109-wetterberg.pdf ) – using electronic devices to capture EGRA scores – Research Triangle Institute (RTI – product:

tangerine) and Education Development Center (EDC) – E-EGRA

- Elimu kwa Teknolojia (Education through Technology, Tanzania) (http://www.iyfnet.org/bridgeit) - a dynamic public-private sector alliance led by IYF and the Tanzanian Ministry of Education and Vocational Training. Through the program, teachers downloaded video content using cellular phones, which were connected to TVs in their classrooms, allowing remote schools and communities to access a vast range of educational content.
- Eneza Education, Kenya (http://enezaeducation.com/) – gives children access to information also schools and parents to meaningful data and tips for helping their students.
- English in Action, DFID Bangladesh (http://www.eiabd.com/eia/) - is using mobile phones, print-materials, television, and peer-to-peer learning to help 25 million Bangladeshis improve their English.
- The FundZa Literacy Trust (http://www.fundza.co.za/) - FunDza aims to boost literacy among teens and young adults in South Africa by using mobile technology to connect and interact.Project K-Nect (www.projectknect.org) - is designed to create a supplemental resource for secondary at-risk students to focus on increasing their math skills through mobile smartphones.
- Learn English with the British Council – Sri Lanka (http://www.ft.lk/2011/08/20/british-council-english-language-programmes-on-etisalat-mobile/) This service is delivered via SMS; customers receive English Language usage tips and multiple choice questions
- Longman Ladybird Mobile Reading - a pilot reading program for children to access with mobile phones.
- M4Lit Shuttleworth Foundation (http://www.shuttleworthfoundation.org/projects/m4lit/) - The m4Lit (mobile phones for literacy) pilot project created a mobile novel and published it on social media platforms in order to explore ways of supporting teen leisure reading and writing

around fictional texts in South Africa (SA), using mobile media.

- Mobile and Immersive Learning for Literacy in Emerging Economies (MILLEE) (http://www.cs.cmu.edu/~mattkam/lab/millee.html) - distributes games in underdeveloped regions around the world on a cost-recovery basis. With mobile technology that can extend the reach of learning beyond formal school environments, the vision is to revolutionize educational services delivery throughout the developing world.
- Nokia Mobile Learning for Mathematics (South Africa) (http://www.un.org/en/ecosoc/innovfair2011/docs/nokia.pdf ) - the project works to support mathematics education in schools using the web, social networking, and mobile applications to deliver learning material directly to students' cell phones. The project uses social networking tools to allow groups to collaborate.
- Mobile-based Literacy Program - Mobilink (Pakistan) in a partnership with UNESCO (http://www.unesco.org.pk/education/mlp.html) - With the help of mobile phones the project addresses the literacy retention issues among the youth population in Pakistan.
- Mother Tongue Literacy (Motoli) (http://www.et4d.com/work/) - MoToLi is an application to teach reading with a phonic pedagogy in local languages. It can be adapted to suit the needs of any country in terms of language and curriculum.
- Planet Read (India) (http://www.planetread.org/literacy.php ) - same language sub-titling of Bollywood Video
- Project Alphabetisation de Base par Cellulaire (ABC) (https://sites.tufts.edu/projectabc/ ) - is a collaborative initiative between Catholic Relief Services/Niger, Tufts University and the University of Oxford that uses mobile phones as a tool to promote adult literacy and numeracy in Niger.
- Shaqodoon Project Somalia (http://shaqodoon.org/) - they use Somali-language audio programs on financial literacy and entrepreneurship and linking youth to opportunities through the use of cell phones and web-based technologies. The project aims to reach 8,000 youth over a three-year period.

- SNDT Women's University (India) (http://sndt.ac.in/) - is committed to the cause of women's empowerment through access to education.
- Souktel – (http://www.souktel.org/jobmatch.html) mobiles for CV creation & job matching
- Najja7ni m-English (Tunisia) (http://m-education4all.com/Najja7ni.html) - US State Department funds English learning platform for Tunisian users
- u-Report Uganda – (http://ureport.ug/) - is a free SMS-based system that allows young Ugandans to speak out on what's happening in communities across the country, and work together with other community leaders for positive change.
- UNESCO Mobile Literacy Pakistan (http://www.unesco.org/uil/litbase/?menu=14&programme=125 - The main objective of the project is to develop a mobile-based literacy program where the newly literates receive literacy materials as messages on a mobile phone, which they read and then respond to.
- UNESCO – using mobile technologies to support teacher development in Mexico, Nigeria, Pakistan and Senegal (http://www.unesco.org/new/en/unesco/themes/icts/m4ed/teacher-support-and-development/)
- Ustad Mobile, Afghanistan (Mobile Teacher) (http://www.ustadmobile.com/) - literacy program that enables Afghan women deprived of a basic education to learn to read and write using a mobile phone. It provides national curriculum courses in national languages, Dari and Pashto, as well as mathematics.
- UStad, specifically Paiwastoon (http://www.ustadmobile.com/ and http://svr1.paiwastoon.net/?s=Ustad)
- Verizon Collaborative & Virtual learning services: (http://powerfulanswers.vzwb2bsolutions.com/solutions/education.html#Page1) - Cloud based, end to end, education services for formal environments.

### Networks and generic initiatives

- *Mobiles for Education Alliance (www.meducationalliance.org) Consortia of international organisations focused on technologies for education primarily in developing countries (3)*
- *UNESCO's m-Learning work (2) (http://www.unesco.org/new/en/unesco/themes/icts/m4ed/ ) -*
- Bring your own device initiatives and trials
- Educational television (e.g., Sesame Workshop)
- iEARN (http://www.iearn.org/ ) – international educational resource network (linking schools around the world in collaboration projects) although not focused exclusively on m-Learning
- Intel Classmate initiatives in Venezuela, Argentine, Portugal, Macedonia, Nigeria, Malaysia, Turkey (http://www.intel.com/content/www/us/en/education/evaluations/other-programs.html)
- OERs/MOOCs (such as Coursera), although not specifically focused on m-Learning
- Technology for Reading initiatives

## Annex C

### Organisations and companies with particular interests in m-Learning:

- *BBC Media (see for example* http://downloads.bbc.co.uk/mediaaction/policybriefing/bbc_media_action_health_on_the_move.pdf)
- *mEducation Alliance (http://www.meducationalliance.org)*
- *UNESCO (http://www.unesco.org/new/en/unesco/themes/icts/m4ed/)*
- Alcatel-Lucent (http://www.alcatellucent.com/sustainability/inclusion.html)
- Ayala Foundation (http://www.ayalafoundation.org/)
- British Council (http://www.britishcouncil.org/)
- Carnegie Mellon University (http://www.cmu.edu/index.shtml)
- Commonwealth of Learning (http://www.col.org/Pages/default.aspx)
- DFID (https://www.gov.uk/government/organisations/department-for-international-development)
- Facebook (www.facebook.com)
- French Development Bank/AFD (see for example: http://www.afd.fr/webdav/site/afd/shared/PORTAILS/SECTEURS/EDUCATION/pdf/TIC-table-ronde-1.pdf and http://www.afd.fr/webdav/site/afd/shared/PORTAILS/SECTEURS/EDUCATION/pdf/TIC-table-ronde-2.pdf)
- GESCI – (http://www.gesci.org/)
- GIZ – (http://www.giz.de/en/html/index.html)
- Global Business Coalition for Education – (http://gbc-education.org/)
- Google – (www.google.com )
- GSMA (http://www.gsma.com/connectedliving/meducation/; http://www.gsma.com/mobilefordevelopment/programmes/mobile-for-employment)
- Harvard University – (http://www.harvard.edu/)
- Hewlett Foundation – (http://www.hewlett.org/)
- IGNOU – (http://www.ignou.ac.in/)
- Institute of Education, University of London – (http://www.ioe.ac.uk/)
- Intel – (www.intel.com )

- ISTE – (https://www.iste.org/)
- ITU – (www.itu.int)
- Microsoft – (www.microsoft.com )
- MIT – (http://web.mit.edu/)
- Nokia (note Life Tools is being dismantled – we might think how we can build on this expertise) – (www.nokia.com )
- Open University UK – (http://www.open.ac.uk/ )
- Orange – (www.orange.com)
- Pearson – (http://www.pearson.com/)
- Sesame Street – (http://www.sesamestreet.org/)
- Stanford University – (http://www.stanford.edu/)
- Telefonica – (www.telefonica.com)
- USAID – (http://www.usaid.gov/)
- World Bank – (http://www.worldbank.org/)

## Annex D

## Useful references on good practices in m-Learning and m-Education


Ambient Insight (2011) *The worldwide market for mobile learning products and services: 2010-2015 forecast and analysis,* (http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/04/ambientinsight20102015worldwidemobilelearningmarketforecastexecutiveoverview.pdf)

Broadband Commission Working Group on Education (2013) *Technology, broadband and education: advancing the education for all agenda*, Paris: UNESCO (http://www.broadbandcommission.org/work/working-groups/education/BD_bbcomm-Learning_2013.pdf)

Gaudry-Perkins and Dawes, L. (2012) *mLearning: a powerful tool for addressing MDGs*, Alcatel-Lucent

GSMA Development Fund (2010) *mLearning: a platform for educational opportunities at the base of the pyramid*, London: GSMA (http://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/04/mlearningaplatformforeducationalopportunitiesatthebaseofthepyramid.pdf)

Kukulska-Hulme, A. and Traxler, M. (eds) (2005) *Mobile Learning: a Handbook for Educators and Trainers*, London: Routledge

McKinsey & Company and GSMA (2012) *Transforming learning through mEducation* (http://mckinseyonsociety.com/downloads/reports/Education/mEducation_whitepaper_April%201_vFINAL.pdf), Mumbai and London: McKinsey & Company and GSMA.

UNESCO (2012) *Mobile Learning for Teachers: Global Themes*, Paris: UNESCO (http://unesdoc.unesco.org/images/0021/002164/216452E.pdf) and note regional publications as well, with details at http://www.unesco.org/new/en/unesco/themes/icts/m4ed/mobile-learning-resources/unescomobilelearningseries/

UNESCO (2013) *Policy Guidelines for Mobile Learning*, Paris: UNESCO (http://unesdoc.unesco.org/images/0021/002196/219641E.pdf)

UNESCO and Nokia (2012) *Mobile Learning and Policies: Key Issues to Consider*, Paris: UNESCO (http://unesdoc.unesco.org/images/0021/002176/217638E.pdf)

UNESCO and Nokia (2013) *The future of mobile learning: implications for policy makers and planners*, Paris: UNESCO (http://unesdoc.unesco.org/images/0021/002196/219637e.pdf)

Winters, N. [Torfin, S./Panos] (2013) How teachers in Africa are failed by mobile learning, SciDev.Net (http://www.scidev.net/global/education/opinion/how-teachers-in-africa-are-failed-by-mobile-learning.html)

World Economic Forum Global Agenda Council on ICT (2012) *Accelerating the adoption of mLearning: a call for collective and collaborative action*, Cologny: World Economic Forum (http://www.weforum.org/reports/accelerating-adoption-mlearning-call-collective-and-collaborative-action)

**Notes**:

1. GSMA have commissioned a research report on mobile education policy. The research will inform the development of a Mobile Education Policy Handbook, which will be launched at the GSMA Mobile World Congress in February 2014.
2. There are numerous websites with relevant m-Learning information and resources, including
   - http://www.unesco.org/new/en/unesco/themes/icts/m4ed/mobile-learning-resources/unescomobilelearningseries/
   - http://www.meducationalliance.org/
   - http://www.gsma.com/mobilefordevelopment/lifestories/mlearning
   - http://www.gsma.com/connectedliving/resources/?project=mEducation
3. ITU have recently commissioned John Traxler to write a new book on m-Learning

## Annex E

## Good practices in m-Learning and m-Education

The following are among the more important principles of good practice that are generally recognised, with those in italics featuring most frequently in responses from members of the Working Group:

- *Focus on learning outcomes not technology*; mobile devices should be seen as a tool to implement pedagogy and but one of many such technologies available to teachers
- *Involve teachers and users at all stages from design to implementation and review*; ensure that effective in-service and pre-service training, as well as on-going peer support, is available
- *Consider sustainability, maintenance and financing right at the beginning*
- *Think holistically and systemically*
- *Ensure that all relevant government departments are involved*
- *Ensure equality of access to all learners, especially those who are marginalised (particularly those with disabilities and those without access to existing education systems)*.
- *Appropriate and rigorous monitoring and evaluation must be in place*; independent peer reviewed evaluations should be disseminated widely
- *Involve participatory approaches in design so as to ensure that adoption of technology is user-centric*
- Crafting of effective multi-stakeholder partnerships (MSPs) that go beyond just the public and private sectors (PPPs) and involve civil society and other wider stakeholders
- Supporting infrastructure must be in place
- Appropriate maintenance of technology should be in place
- Use equipment for as long as possible each day, by ensuring that it remains used outside normal classroom hours
- If the initiative is to be in the classroom, then it has to be undertaken within the formal education system

- Ensure for school-level work that there is close collaboration with curriculum and examining authorities, so that resources deliver on curriculum requirements
- Ensure that there is transparency and accountability in all practices
- Involve parents, and encourage them also to use mobile learning for their own skills development
- Ensure that all learners have the same quality device, especially if 'bring your own device' policies are in place,
- For school level work, ensure that there is close collaboration with the national curriculum and relevant institutions so that resources deliver on the curriculum requirements.
- If online resources are to be used through the Internet, then ensure that there is a digital citizenship element that includes online threats and child online protection
- Focus explicitly on developing resources specifically for mobiles, rather than porting content from elsewhere; focus specifically on what can be done with mobile, rather than on what they are not good for
- Think about developing mobile solutions that complement and extend existing products and services
- Keep interfaces as simple as possible
- Consider using Universal Service/Access funds for education
- Extend utilisation of Open Educational Resources
- Consider using educational games that seem to be effective in particular learning contexts
- Encourage use of mobiles to support peer learning
- Ensure appropriate change management plans are in place to enhance rapid adoption

## Annex F

Significant gaps and challenges in implementing m-Learning and m-Education initiatives; those in italics were mentioned by more than one member of the Working Group:

- *The imperative of ensuring joined up approaches across Governments*; bringing together all of the different Ministries involved, and encouraging cross-sector work. It is important that Ministries of Education work jointly with Telecommunication or ICT Ministries within the context of their national ICT and broadband strategies.
- *Open Platforms for sharing mobile-learning content* – not many yet exist, and such platforms could be valuable and effective resources so that users can share content and duplication of effort could be reduced
- *Effective and Rigorous Monitoring and Evaluation*; we still do not know enough about what really works; need for more direct evidence of success of m-Learning within the school system (K-12)
- *Sharing contextualised examples of good practices*; this is essential so as to reduce duplication of effort, and to avoid reinventing the wheel
- *Affordability* – in many countries, access to broadband either does not exist or is far too expensive for most people to use for learning. Need to work closely with other initiatives such as the work of the Broadband Commission, and the Alliance for Affordable Internet to enable widespread access at affordable process.
- *Connectivity* – ensuring universal access to the Internet, both spatially and also socially, as well as access at effective speeds
- *Creation of really effective multi-stakeholder partnerships* with the ability to implement
- *Lack of relevant content,* especially in local languages, and differentiated according to the learning needs of students
- Really understanding user needs, practices and experiences of educational programmes that integrate technologies
- Standards – ensuring compatibility between solutions for Android, iOS, Windows phone….
- Effective teacher training policies should be put in place by Governments and the appropriate use of ICTs (including m-Learning) should be integrated carefully within these

- Turnkey low cost complete solution (Millennium Foundation is one attempt to address this)
- Funding in general is a challenge; Ministries of Education have tight budgets; using USF or licence fees to connect schools, subsidise devices, and support m-Learning initiatives
- Integrating m-Learning within existing e-learning policies and practices, rather than advocating for its existence as a separate field
- Gap in imagination – thinking differently about what can be achieved through m-Learning
- Ensuring future-proof implementation from technology innovation, for example by creating bring your own device environments and cloud based systems
- Lack of awareness of potential of m-Learning in multiple contexts (formal, non-formal and informal)
- Linkages between the learning and tangible outcomes, such as employment or self-employment.
- Mobile assessment
- Sustainable business models – including functioning partnerships and systems that would support delivery at scale.