



Development Fund

mLearning: A Platform for Educational Opportunities at the Base of the Pyramid

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Foreword by Chris Locke



We have seen over the past years how mobile is playing an increasing role in addressing development issues – such as providing access to banking, to health information, to agricultural services reaching rural farmers. The scale and ubiquity of mobile networks means they are often the only infrastructure in remote and rural areas, and the mobile industry has shown its innovative approaches to solving these needs using mobile technology.

Perhaps the most impactful long-term development goal that mobile technology can aid is education. We know that focusing on education builds sustainable benefits – educating parents who then educate children, or vice-versa – and yet access to education outside of traditional schooling programmes can be limited. It is in this area, in life-long learning driven by consumers, that this report focuses. There is an

increasing role for mobile ICT in schools, and within this report we look at some projects in this area, but we feel that mobile has a unique role to play in reaching those who are outside of the scope of traditional schooling, and yet who will benefit immensely from access to simple educational programmes.

We are encouraged by the case studies we document here, and there are some great programmes that show there is a large appetite and need for mobile learning services, but we hope that by releasing this report we can catalyse more activity in this area, and start building programmes at scale that can provide a strong complementary role for mobile alongside existing educational services.

A handwritten signature in black ink that reads "Chris Locke". The signature is fluid and cursive, with the first name "Chris" being more prominent than the last name "Locke".

Chris Locke
Managing Director, GSMA Development Fund

Foreword by Her Majesty Queen Rania Al Abdullah



mLearning is 'anytime, anywhere' learning. It's a lesson down a phone line; a text book in a text message; a signal of hope on an affordable screen.

For nearly 70 million out-of-school children and nearly 760 million illiterate adults; for rural communities, poverty pockets, and conflict zones, mLearning is much more: it is a lifeline. And it's dialing up social and economic reform.

Education through mobile devices can be a transformative force for good. In the face of disease, it can mean a clean bill of health; in an economic downturn, it can mean a skilled workforce ready to earn again; in a warzone, it can be the language of diplomacy and dialogue.

Most of all, greater mobile learning means greater life-long earnings. For every year of school a child attends, their future incomes could rise by as much as 20% – so not only can mobile phones boost connectivity, they can boost prosperity, too.

For the mobile phone industry, there is much to be gained, as well. As a family's income rises from \$1 to \$4 a day, their spending on telecoms increases – faster than spending on any other category.

Of course, mLearning will never replace a teacher in a classroom. But, when half of all out-of-school children live in fragile and conflict-affected countries, the majority in sub-Saharan Africa, there are precious few alternatives. In fact, it is conflict children in particular who are most desperate for an education, because they know it is their best hope at finding prosperity and their countries' best chance at securing peace.

Without innovative approaches like mLearning, these children will remain imprisoned by poverty, immobilised by insecurity, and beyond the reach of traditional aid. Mobiles offer opportunities to children too scared to leave their homes; to little girls who spend half the day fetching water; or to little boys tilling the fields until nightfall.

I want to thank GSMA for their leadership role and this ground-breaking report that will help transform mLearning from a patchwork of pioneering initiatives into a global network of well-founded and well-funded programs. As industry leaders, it is your job to scale up existing efforts, encourage more, and raise the urgency of this issue.

Together, if we imagine and re-imagine the possibilities for mLearning, we can give our most vulnerable children, a teacher in their pocket, a classroom in their hand, and a future at their fingertips.

Rania Al Abdullah



1. Introduction

Education is a key investment in human capital: no variable from 1900 better explains economic success in 2000 than investment in education¹. Yet today 69 million school children globally don't have access to basic education while 759 million adults don't have a formal education². With worldwide GSM mobile connections predicted to reach 5 billion by the end of 2010³, the opportunity for mobile learning, or mLearning as it is known, to overcome barriers to traditional learning such as accessibility and cost moves closer to becoming a reality.

The GSMA represents the interests of the worldwide mobile communications industry and as such, has taken a leadership role on behalf of mobile network operators (MNOs) and vendors, in understanding how mLearning is being used today and its potential for the future. The GSMA Development Fund has conducted preliminary research into the current landscape of mLearning in the developing world to assess the ways in which mobile devices are being used as an intervention in learning and to consider the future of this powerful tool.

The GSMA Development Fund was established in 2006 to help accelerate social and economic development for those living under US\$2 per day through the use of mobile technology. As part of its ever growing programme, new research areas are assessed to understand the potential benefits of mobile technologies in helping foster innovation and growth within the industry. Although mLearning is not a new concept, the GSMA Development Fund believes that mLearning is now approaching a tipping point where the potential of such services are realised, supported by sustainable business models.

This report summarises our findings on past developments and the current landscape of mLearning in the developing world through research and interviews with MNOs, technology vendors, foundations and the academic community. It is not intended to be an exhaustive evaluation of the global mLearning market, but rather a summary of activity so far and, more importantly, some guidance and ideas for future development.

The research found that there are many mLearning projects currently taking place globally, although the vast majority are on a small scale and it is assumed an even greater number are not documented. It was observed that activity is more widespread in the developed world, especially the US and the UK, where mobile technology is more prevalent and advanced, and where funding does not present as great a barrier. However, with 98% of the world's illiterate or semi-literate population⁴ residing in developing countries, where access to schools and resource materials is at a minimum, such regions present the greatest areas of need. These markets therefore represent the greatest opportunities for mLearning programmes and products.

The past year has seen a substantial increase in mLearning initiatives⁵ and certainly there is escalating talk of its potential. But is the potential of mLearning hype or reality? Despite the many successes mLearning is experiencing, more research is needed to understand how this ubiquitous technology can be used to provide educational resources to those most in need, along with the development of a sustainable and robust business case.



Photo: GSMA

1 Edward L. Glaeser, Fred and Eleanor Glimp Professor of Economics at Harvard, New York Times, October 6, 2009

2 <http://www.campaignforeducation.org/docs/reports/1goal/1Goal%20School%20Report.pdf>

3 Wireless Intelligence

4 The 2010 Education for All Global Monitoring Report, Reaching the Marginalised: <http://unesdoc.unesco.org/images/0018/001866/186606E.pdf>

5 Sam S. Adkins, Chief Research Officer, Ambient Insight

2. What is mLearning?

For the purpose of this report, the following definition will be used:

mLearning is the ability to access educational resources, tools and materials at anytime from anywhere, using a mobile device.

A fundamental element of mLearning is its ability to deliver learning resources to those who may otherwise be unable to attend traditional learning environments such as classrooms, and provide a practical and personal way to learn. However, mLearning can occur in the classroom, as an online course or anywhere the learner has their mobile device. He/she does not even have to be mobile. It is not only about the device, but about the connectivity, capabilities and experience⁶.

Mobile phones are truly unique in their ubiquity, accessibility and affordability. Although mLearning is often considered as part of the wider ecosystem of eLearning (which comprises all forms of electronically supported learning and teaching) mLearning is

differentiated from eLearning in its ability to unlock the user from a fixed infrastructure and limited distribution. Devices synchronous with mLearning include Personal Digital Assistants (PDA's), Pocket PC's and laptops, Smartphones and, importantly in the developing world, basic mobile handsets.

When considering the 'learning' component of mLearning, there needs to be a distinction between general 'information' being made accessible to users and content that is educational and has been developed to teach the end user a skill or to provide new knowledge. Therefore, learning activities should enable the achievement of stated objectives and learning outcomes. Although the delivery method will influence the learning format, learning and educational resources should focus around content and not content delivery.

The Development Fund has devised a framework for mLearning to help categorise the many options in this expansive and complex landscape.



Photo courtesy of Nokia

⁶ Judy Brown, Mobile Technology Analyst <http://mlearnopedia.blogspot.com/2009/05/types-of-mobile-learning.html>

Figure 1: mLearning Framework

Technology	IVR	MESSAGING			MOBILE WEB		APPLICATIONS	
	VOICE	SMS	USSD	GPRS	BLUETOOTH		WiFi	
	LOW END				FEATURE		SMART	
Mode	SYNCHRONOUS				ASYNCHRONOUS			
	FORMAL				INFORMAL			
Learning Area	Foundation Primary Secondary Tertiary	Vocational Certified Self Improvement	Teacher Training Ongoing Education and Support	Languages Practice/Improve Learning New	Life Skills Development Education	Literacy Numeracy Tech Financial	Health Education Patient Education Practitioner Education Support	
Learner	STUDENT		TEACHER		EMPLOYEE		SELF MOTIVATED	
Method	COMPLEMENTARY In addition or support to other learning activities				INDEPENDENT As a standalone way of accessing educational tools, resources or courses			
Players	ACADEMIC COMMUNITY	CONTENT PROVIDERS	GOVERNMENT ORGANISATIONS	MOBILE NETWORK OPERATORS	NON GOVERNMENT ORGANISATIONS	TECHNOLOGY VENDORS		



3. Challenges for Learning Today

There are a number of significant challenges preventing the delivery of education today in the developing world. A lack of funding, resources and limited access are amongst the major issues. Below is a summary of the challenges:

a. Cost and Funding

- Achievement of universal education is expensive and many developing world countries simply do not have the wealth to educate their citizens, even to primary level.
- The role of international aid in achieving Universal Primary Education has been critical and much progress has been made, to reach the first UN Millennium Development Goal by 2015. Prospects for children receiving education beyond primary level in the developing world are however very poor on account of cost.
- Remoteness of educational institutions permits many children and adults from being able to access them.

b. Child Labour Expectations

- Children are often unable to attend school as their parents require them to work and bring an income into the household.
- Children that attend school are limited in their contribution to household and paid labour, which leads to an increase in costs for a family and a decrease in household income. Nearly 250 million children have to work to help their families .

c. Equal Opportunity

- Half of the world's out of school children live in communities where the language used in schools is different from that used at home.
- A third of all children out of school have a disability⁸ and it is often their disability that prevents them from attending school.

- Whilst the gender gap in primary education is narrowing in many countries, 54% of all children out of school are girls⁹ generally due to parents' low demand for education of their daughters reflecting both cultural norms and the importance of girls' work in and around the home.

- Based on World Bank research and economic data and UNESCO education statistics, Plan estimates the economic cost to 65 low and middle income and transitional countries of failing to educate girls to the same standard as boys as a staggering US\$92 billion each year¹⁰.

d. Drop-Outs

- Drop-out rates in the developing world are very high for various reasons.
- Many children suffer violence, sexual abuse and bullying at school that make them not want to return. Corporal punishment is widespread in African schools.
- There is an issue of girls dropping out of education when they reach puberty due to poor sanitation in schools¹¹.

e. Application and Relevance of Curriculum

- Adhesion to the national or local curriculum is especially a problem in developing countries where often the educational resources are outdated due to a lack of funding and availability.
- Curricula are often developed by urban elites who have limited understanding of the learning needs of children from poor rural communities.

8 Campaign for Education, Millions Missing Out: <http://www.campaignforeducation.org/en/why-education-for-all/millionsmissout/>

9 World Vision, Education's Missing Millions: http://www.worldvision.org.uk/upload/pdf/Education%27s_Missing_Millions_-_Main_Report.pdf

9 The 2010 Education for All Global Monitoring Report, Reaching the Marginalised: <http://unesdoc.unesco.org/images/0018/001866/186606E.pdf>

10 Children in Focus, Paying the Price, Plan 2008, Plan, International Headquarters, Chobham House

11 http://www.wateraid.org/international/what_we_do/how_we_work/equity_and_inclusion/8350.asp

f. Cultural and Religious Attitudes

- Often conflict arises between what is taught at home and at school which can lead to parents opposing girls' continued attendance at school.
- Discriminatory attitudes towards the schooling of girls are informed by customs and culture.
- Adults are often embarrassed to go back to school and study.

g. Teacher Training and Support

- It is estimated that up to half of all teachers in developing countries lack proper training and continuing professional development.
- Throughout the developing world teachers on the public payroll are often absent from school. Teacher-absenteeism rates are around 20% in rural Kenya, 27% in Uganda and 14% in Ecuador. (The Economist, Global targets, local ingenuity <http://www.economist.com/node/17090934>).
- Many schools do not provide the management support, resources or tools that teachers need to carry out their job.
- Pay and benefits (such as housing and health care) for teachers are generally poor which leads to low morale and declining status.
- Overcrowding occurs in many classrooms, in many countries, because of teacher shortages and poor deployment of teachers to rural areas. Policies that stipulated free education have exacerbated this issue, since they weren't accompanied by the needed increase in the number of trained teachers.



Photo courtesy of Nokia

UNESCO Six Goals of Education for All

Goal 1

Expanding and improving comprehensive early childhood care and education, especially for the most vulnerable and disadvantaged children

Goal 2

Ensuring that by 2015 all children, particularly girls, children in difficult circumstances and those belonging to ethnic minorities, have access to, and complete, free and compulsory primary education of good quality.

Goal 3

Ensuring that the learning needs of all young people and adults are met through equitable access to appropriate learning and life-skills programmes

Goal 4

Achieving a 50 per cent improvement in levels of adult literacy by 2015, especially for women, and equitable access to basic and continuing education for all adults.

Goal 5

Eliminating gender disparities in primary and secondary education by 2005, and achieving gender equality in education by 2015, with a focus on ensuring girls' full and equal access to and achievement in basic education of good quality.

Goal 6

Improving all aspects of the quality of education and ensuring excellence of all so that recognized and measurable learning outcomes are achieved by all, especially in literacy, numeracy and essential life skills.

The Ayala Foundation have partnered with several organisations to use mobile technology to help tackle two of the key challenges in learning- relevance of curriculum along with teacher training and support. They have now trained over 600 teachers on how to use their educational toolkit that was developed in conjunction with Nokia.

Case Study

Ayala Foundation – Text2Teach (BridgelT)

Complementary classroom based learning and teacher support

Almost every Filipino family has at least one mobile phone within their reach. SMS is the most popular feature of mobile phones which Filipinos use to connect with family and friends, do business, and to get involved in social and political activities. Access to information, as well as creation of opportunities for growth, is now at the fingertips of every phone owner.

The Ayala Foundation convened the Text2Teach (T2T) Alliance consisting of Ayala Foundation, the Department of Education, Globe Telecom, Nokia, SEAMEO INNOTECH, PMSI-Dream Satellite, and Chikka Asia to roll out T2T in the Philippines in 2003. T2T allows teachers to download short videos to a mobile device and screen them in their classroom. The project was originally satellite-enabled education equipment consisting of a machine called a Media Master, a television set, and a mobile phone. However, the T2T technology has since upgraded from this satellite-based delivery to a full cellular platform, using a 3G-enabled device such as the Nokia N95 8GB and N86 8MP, equipped with an application called Nokia Education Delivery (NED). NED makes it easier for teachers to select and download video clips to be used in their day-to-day lesson.

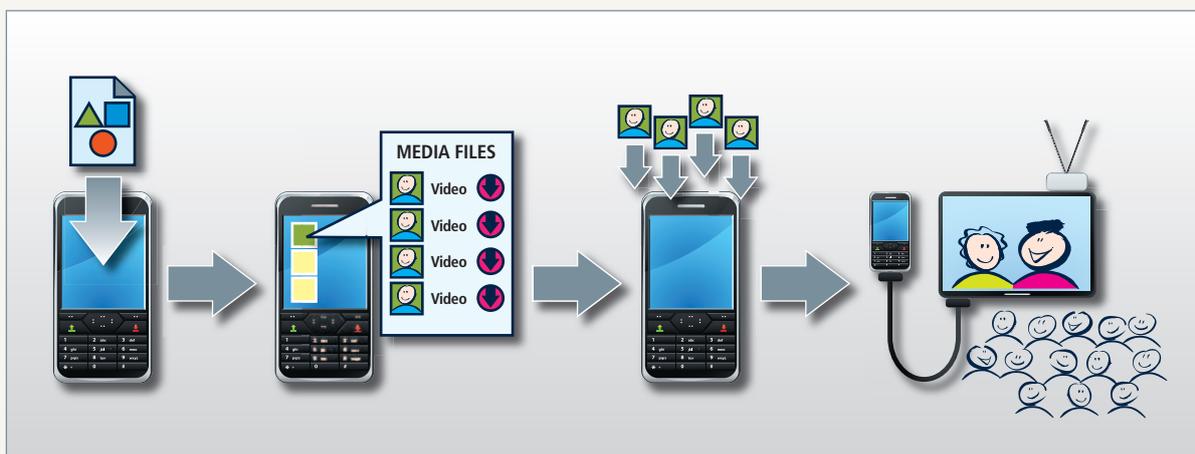
The growth and expansion of the Text2Teach Alliance can be seen through the years from the time T2T program was piloted in 40 schools from Quezon City, Batangas, and Cotabato City way back in 2003. In 2004, Text2Teach reached 41 schools in Oriental Mindoro, Antique, and Cagayan de Oro; and then another 124

public schools in Region 12 and the Autonomous Region of Muslim Mindanao (ARMM), funded by USAID through the Education and Livelihood Skills Alliance (ELSA) in 2005-2007.

A US\$600K grant in 2007 allowed the expansion of the program in Luzon through an agreement between Nokia and the local T2T alliance. The expansion covers 350 additional schools in Luzon. In 2009, 97 schools from 8 areas in 5 provinces of Northern Luzon, were reached and 466 teachers trained to use the technology. Out of the 200 targeted schools for 2010, 56 schools have been reached, with another 111 schools targeted for deployment within the year. 25,700 students are presently benefiting from the program. It's projected that by 2011, T2T will have reached 350 schools in Luzon, with about 1,750 teachers and DepEd officials trained and approximately 70,000-80,000 grades 5 and 6 public elementary school students reached.

The country's geographical landscape continues to be a challenge in making services, resources, and information accessible. While it takes time, effort, and resources, investing in the Filipino youth's education is ultimately a sound investment toward a brighter future for the country. T2T has proven that distance does not equate to inaccessibility; and that effective partnerships can help us improve the quality of instruction for our students not just to raise student performance, but also to better prepare them in becoming productive Filipino citizens. Investing in education is an investment for the country's future.

Evolution of BridgelT T2T Technology from satellite-based delivery into Nokia Education Delivery (NED)



4. Benefits of mLearning

Mobile devices are able to offer a solution to several key challenges facing learning today in the developing world. The benefits of mobile devices to learning are as follows:

a. Inclusive and Non Discriminatory

mLearning provides a personal way of accessing educational content with the ability to build an extensive learning community. Activities can be tailored to meet the individual user needs. mLearning can be done confidentially in the privacy of one's house or preferred learning area and has no time constraints. Therefore learning can take place outside of work or other duties without loss to household income.

With 80% of the world's disabled living in developing countries and only 2-3%¹² of disabled children attending school, mLearning can provide a way to access otherwise hard to obtain educational resources. Voice or text can be customised for use with blind or deaf learners and speech recognition technology is advancing at a great pace and will be looked upon to play a significant role for those with disabilities, mLearning and mServices in general.

mLearning can help to bridge the educational gender divide that is more pronounced in developing countries by providing a safe learning environment for females without having to leave the household or community. Religious and informative content or messages (general knowledge, science, health and nutrition, etc) can help overcome cultural sensitivities.



Photo: GSMA

¹² World Bank, You Think: <http://youthink.worldbank.org/issues/disabilities>

Case Study

Mobilink – SMS for Literacy

SMS used to help improve young women's literacy in Pakistan

Pakistani mobile operator Mobilink, a subsidiary of Orascom, has sought to demonstrate the power of mobile phones to improve literacy rates for adolescent girls in rural areas of Pakistan where reading materials are often scarce. Yet there is often resistance to girls' having the independence that mobile phones symbolise. In 2009, Mobilink partnered with UNESCO and a local nongovernmental organisation (NGO), Bunyad, on a pilot project in a rural area of southern Punjab province involving 250 females aged 15-24 who had recently completed a basic literacy programme. Each of the girls was provided with a low-cost mobile phone and prepaid connection. Teachers were trained by Bunyad to teach students how to read and write using mobile phones.

The company set up a system for the NGO to send out SMS messages in an effort to maintain and improve participants' literacy, which often lapses because of inadequate access to interesting reading material. Crucially, low-cost phones were selected which can send and receive messages in Urdu, the local language, rather than in English. The girls received up to six messages a day on a variety of topics including religion, health and nutrition, and were expected to practise reading and writing down the messages and responding to their teachers via SMS. Monthly assessments of participants' learning gains were conducted to assess impact.

Programme organisers encountered considerable resistance on the part of parents and community leaders to the idea of allowing girls to have mobile phones, largely due to the conservative social norms of the area. This resistance began to soften, however, once people began to see the nature of the messages the girls were receiving and the benefits the programme conferred. **Exams taken by the girls participating in the programme showed striking early gains in literacy, with the share of girls receiving the lowest scores dropping nearly 80%.**

Participants and their families are even taking advantage of other features of the phones, including the calculator. While 56% of learners and their families initially maintained negative feelings toward the programme, 87% were satisfied with its results by the

end. Families also appreciated the greater sense of security that being able to contact their daughters or wives provided. Users can pay US\$6 to buy their phones at the end of the programme and continue receiving text messages.

On March 25, 2010 Mobilink announced the expansion of the SMS-based literacy project. The pilot project conducted with 250 adolescent girls showed a marked improvement in their skills and has managed to overcome the socio-cultural barriers traditionally associated with owning a cell phone. The expansion of the programme is based on the success of the pilot and the same mechanism as earlier used with an additional 1,000 female learners to understand the impact of replicating the project on a larger scale.

The success of this programme demonstrates how mobile phones can be used to increase the reach and effectiveness of basic education programmes. It also illustrates the fact that suspicion of mobile phones can be overcome by showing parents and leaders how mobiles can be used to transmit culturally sensitive information whilst increasing girls' literacy rates.

"With more than 98 million mobile phone users in Pakistan versus a 60 million illiterate population, the mobile phone holds endless potential if placed in the right hands. A leading cause for extremely low female literacy in Pakistan is either because the educational facility is far or the family does not want the girl to go outside the house. There are however, two flip sides to this socio-cultural barrier: the female, while being confined to the home space in Pakistan, is inadvertently the center of knowledge and learning for her off spring, most of whom don't make it past primary school; and she has relatively more time available to participate actively in mLearning programs."

Bilal Munir Sheikh, Vice President Marketing, Mobilink (Part of Orascom Telecom Group)

b. On the Go and Real Time Learning

mLearning courses can be updated on a regular basis unlike, for example, books which need constant reprints to remain relevant with up to date content. For example, teachers are able to access and download curriculum in real time so that content remains current and relevant. Learning on the go also allows for 'on the job' training to occur and be put into practice immediately.

c. Complementary or Independent

mLearning has the flexibility and capability of acting as a standalone method of learning, in a formal or informal environment, or as part of a wider learning programme. It is often debated that mLearning should only be seen as a final resort for learning or teaching, however, for many people it is a way to incorporate education into their lives when they may have previously been denied the opportunity, therefore becoming an enhancement to their livelihood.

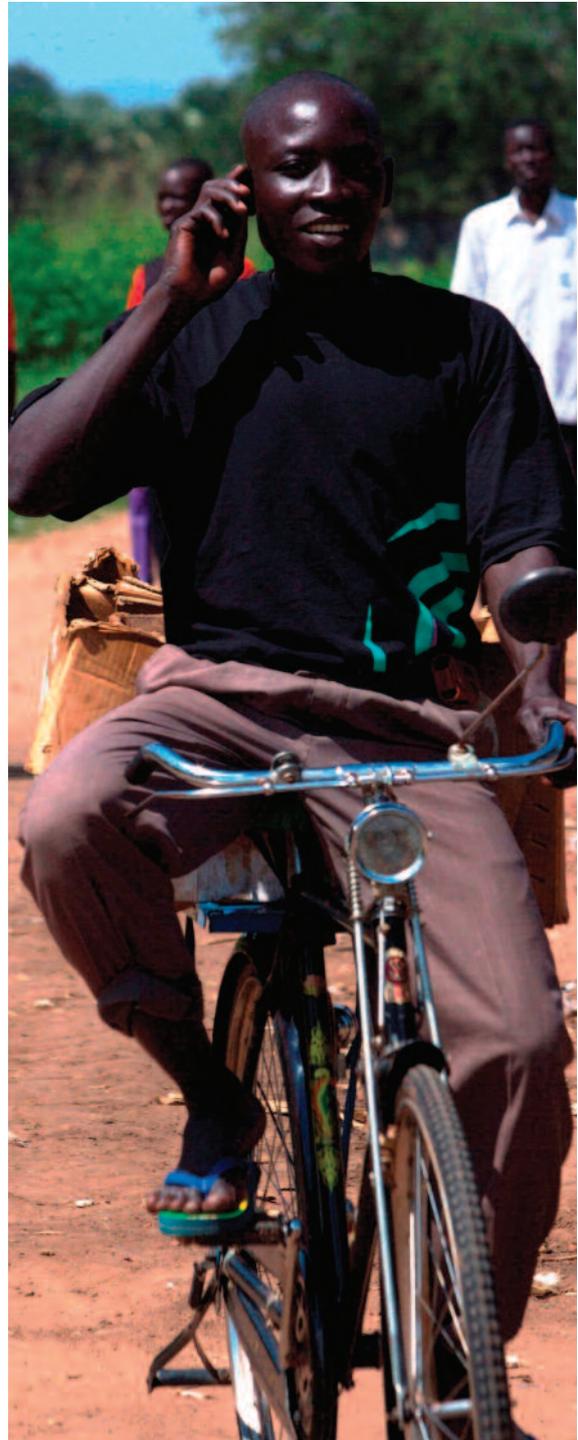


Photo: GSMA

Case Study

Mobitel – mLearning Platform

Mobile solutions for remote vocational qualifications

mLearning is an exclusive purpose-built globally accessible content delivery and learning platform that had been conceived, designed, developed and deployed by Sri Lanka Telecom Mobitel. Further, it is an initiative directly in line with Mobitel's company vision "To lead Sri Lanka into an Info-com and Knowledge rich society" and it's positioning as the Caring National Mobile Services Provider. With mLearning, local educational institutions are now empowered to break through traditional barriers such as limited capacity and resources and extend their reach to a much wider audience and at the same time extract the very best of expertise from across the globe without incurring an additional cost on logistics.

Traditional learning environments mixed with cutting edge technology is what provides mLearning the lead when it comes to supporting education. mLearning's uniqueness lies in the fact that it provides an extensible collaborative learning environment where tailor-made educational environments can be built to provide wide-ranging learning management solutions. The educational tool comprises of a wide range of applications. It combines the most productive elements of current e-learning applications with multiple user interactive video conferencing features, slides, virtual smart boards, material upload facilities, content management facilities and also SMS, email and offline messaging. Furthermore, virtual classroom settings add a one hundred percent interactive element to the learning experience.

Mobitel first trialled this innovative platform by facilitating the Faculty of Graduate Studies, University of Colombo, Sri Lanka to deliver its Executive Diploma

in Marketing(EDM) via mLearning. University of Colombo is Sri Lanka's oldest and largest institution of higher education and was founded in 1921 as the Ceylon University College. Following the success of the trial with the Faculty of Graduate Studies, the mLearning platform was extended to four more faculties of the University of Colombo to offer several other programmes including a Masters in Applied Electronics, Postgraduate Diploma in Business Management, a Diploma in Tourism Management and Business English.

Furthermore, University of Colombo recently commenced its second batch of the EDM programme via mLearning, with the programme's reach now extended to the Maldives, whereby students there could follow the course in parallel with the Sri Lankan students from their own country. The significance of this feat was the fact that the University of Colombo was able to extend their reach overseas without having to physically set up a single branch office.



Photo courtesy of Mobitel

A more recent and significant development with regards to mLearning is the strategic tie up with the Chartered Institute of Management Accountants – CIMA in August 2010. CIMA is the world's largest and leading professional body of management accountants with 172,000 members and students in 168 countries. The tie up with Mobitel now extends CIMA's reach further across the globe and allows prospective students from any location to follow lessons delivered by a world acclaimed CIMA lecture panel using Mobitel's mLearning platform. Initially CIMA will be offering courses to students from Maldives, Pakistan, Bangladesh and the Middle Eastern countries using mLearning, scheduled to commence in November 2010.

Mobitel is also in discussion with several leading Universities in the UK and groundwork is being done to facilitate Sri Lankan students to follow globally recognised courses live from their own homes via mLearning.

Speaking on mLearning, Suren J. Amarasekera, CEO of Sri Lanka Telecom Mobitel said "mLearning is designed to deliver quality education and acts as a catalyst which fosters a knowledge economy where traditional barriers are overcome. The ability to access faculty from all over the world makes it a unique mode of education thus enriching and exceeding traditional classroom experience. Its versatility enables a more engaging learning experience and provides access to learning to anyone, anywhere, anytime. **mLearning is perhaps the most profound transformational endeavour that we have undertaken and we have developed this unique platform with passion and commitment because we believe mLearning has the true potential to create a paradigm shift in the delivery of education, thus far thought infeasible.**"

Case Study

Nokia – MoMaths

Mobile learning used to help boost mathematic skills for Grade 10 students in South Africa

The Mobile Learning for Mathematics Project (MoMaths) is an innovative intervention in education using mobile phones. It is funded and led by Nokia who partnered with the South African government, MTN and Cell C, Maskew Miller Longman and MXit. It was piloted in 2009 with six public schools in South Africa. **To date, the project has reached 30 schools in three provinces involving approximately 4,000 learners of Grade 10 mathematics.**

Through this project, teenagers in Grade 10 (mostly aged 17) are able to do their mathematics homework and revision on MXit, a mobile social networking platform used by millions of youth in South Africa. The materials are aligned to the current South African curriculum for mathematics. Learners can work through short theory sections, or answer questions from a database of approximately 10,000 questions, which are categorised by topic and degree of difficulty.

The students receive immediate feedback on multiple choice practice exercises, and can compare results with their classmates in their school, in other provinces, and nationally. They can then opt to take a test choosing their difficulty level: easy, medium, or difficult, assess their performance on a particular topic in mathematics, and compare this to other learners' results. By having the service embedded in MXit, which they use to chat with their friends, the mathematics service is available in their social space; they do not have to go elsewhere to find their mathematics homework.

Most learners use their own mobile phones for this service. Those who do not have their own phone either borrow one from friends and family or make use of a device provided by the school. Learners reported that they use the service most commonly outside of school time, and especially in the early evenings. Learners continued using the service over weekends, during school holidays and on days affected by recurrent teacher strikes. It is an anytime, anywhere tool. It is a 'test-yourself and revision' guide for mathematics that fits in your pocket.

The service provides a way to monitor which learners are working regularly at mathematics problems, completing their homework, and getting feedback on their results. Preliminary findings for 350 learners showed that the average shift in their individual results from Grade 9 to the mid-year examination in Grade 10

(where an average decline of 22% is evident), was 7% less for regular users of the service than that of their peers who did not use it regularly.

"Nolukhanyo completed 1,413 practice exercises or tests in 20 weeks, her friend Nokuthulo completed 934 in the same period. Did it help their mathematics results? Nolukhanyo maintained her good results from Grade 9 scoring 64%. This is in a context where the average drop in results from Grade 9 to Grade 10 amongst the learners was 22%. **Nokuthulo improved her results from almost failing Grade 9 with 42%, to a more comfortable pass with 59% in the first term of Grade 10.** This is very positive for the future of social services using mobile technologies."

Riitta Vanska, Senior Manager, Mobile and Learning Services at Nokia.

"One day the projector screen broke down and we had no power-but we did have mobile phones. I was able to continue our lesson using the MoMaths programme. The children thoroughly enjoy it and have shown increased motivation towards maths studies. Learners are open to any new technology and they embrace it with the rules you lay down. It is however a slow process convincing the parents and other teachers to embrace and use the technology which is available and on hand. Adults are always more resistant to change."

Avril Hendricks, Teacher using MoMaths programme



Photo courtesy of Nokia

5. Opportunities for mLearning

a. Access and Ubiquity

Mobile ownership continues to rise at a rapid rate and 5 billion connections are anticipated by the end of 2010, rising to 6 billion by 2012. For example, the current mobile phone ownership level in Kenya is estimated at 53% and is expected to reach 100% by end of 2012¹³ (equating to 42 million people); while in India, current penetration stands at 50% and is forecast to reach around 80%¹⁴ (equating to 945 million people) by this same time. In Africa, research indicates that mobile coverage could be extended to cover 97 percent of Africa's population without public subsidy¹⁵.

Rates of access to a mobile phone, as opposed to ownership, are even higher in developing countries as one mobile phone is often shared within and between families. In Botswana for instance, household surveys

reveal that 62% of the phone owners share their phones with their family, 44% with their friends and 20% share their phone also with their neighbours. Moreover, only 2% of the phone owners actually charge for the use of their mobile phone¹⁶. This highlights the significant role of the mobile handset as a social tool and the importance of access to one.

There have been several successful projects that are based around handset sharing, for example, the operator led 'Village Phone' concept originally launched by Grameenphone and not-for-profit Movirtu's MXShare. With such apparent widespread accessibility and reach, mobiles phones have come to the forefront of technology as a fundamental tool for stimulating social and economic growth in areas of health, agriculture, money and education.

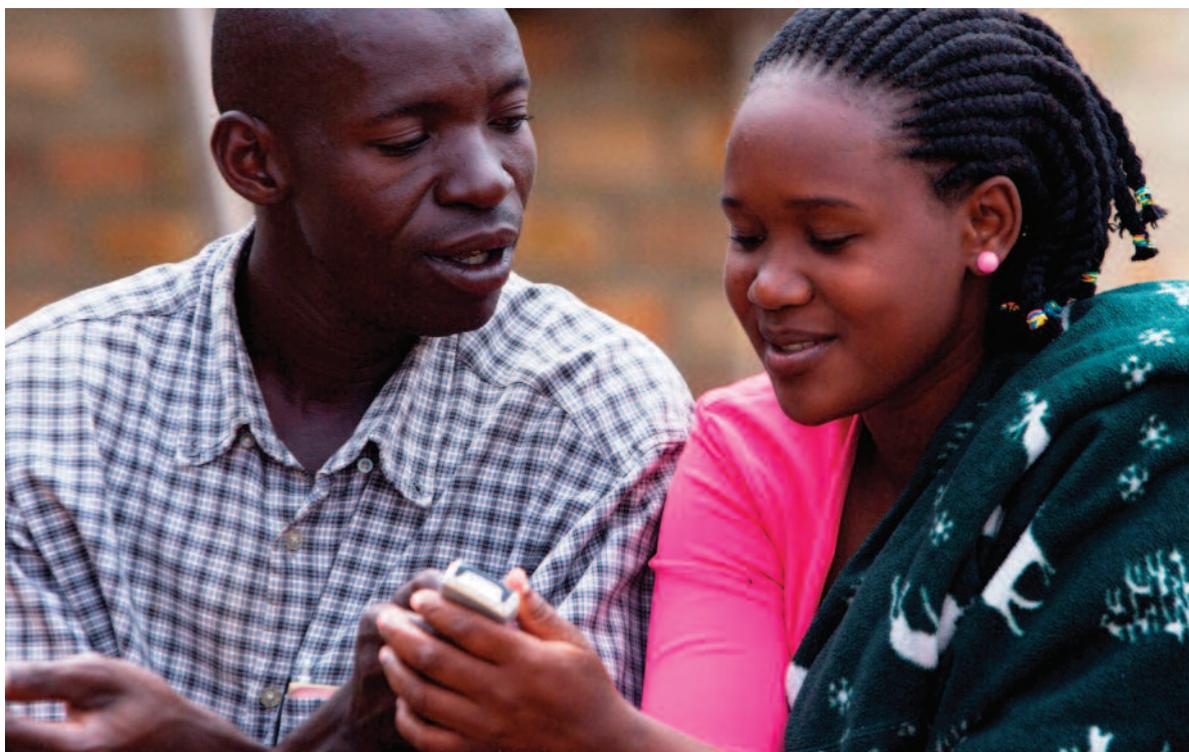


Photo: GSMA

¹³ Wireless Intelligence

¹⁴ Wireless Intelligence

¹⁵ InfoDev: <http://www.infodev.org/en/Project.116.html>

¹⁶ Sebusang S., Masupe S., Chumai J. Botswana. In: Gillwald A., editor. Towards an African e-index; household and individual ICT access and usage across 10 countries in Africa. Johannesburg, South Africa: The Link Centre, Witwatersrand University; 2005.

Case Study

BBC World Service Trust – Janala

English lessons delivered via voice and SMS in Bangladesh

In November 2009, the BBC World Service Trust launched BBC Janala ('Window'), a groundbreaking multi-platform project using mobile phones, the internet and television to provide English language teaching to millions of people in Bangladesh for the first time. **In just nine months, Janala has attracted almost three million calls with a high rate of repeat users.** The service could not be simpler. All customers need to do is dial 3000 to access hundreds of three minute audio lessons, which range from 'Essential English' to 'English for Work'. Learners can then assess their progress with interactive audio quizzes, or even record their own stories in English.

With a tariff of just 1 Taka (1 pence) per minute BBC Janala is affordable to many of the 50 million plus mobile users in Bangladesh. Partnership with the mobile sector has been critical, with all six of the country's operators - Banglalink, Citycell, Grameenphone, TeleTalk, Robi and Warid - joining forces to offer a service across all networks at half the cost of typical value added service tariffs.

Speaking English is no longer just an ambition of the wealthy. 84% of Bangladeshis surveyed by the BBC proclaimed learning English was a top priority for their future and a staggering 99% want their children to learn. Over half are in socioeconomic group D living on less than £2 a day. In countries like Bangladesh, English has lost its colonial baggage and become a vocational skill for anyone who wants to compete in the job market, or has the aspiration to connect with the wider world.

The mobile service is also supported by other platforms. Substantial text-based lessons, as well as audio content and more than 100,000 audio lessons have been downloaded from the mobile internet site for high and low-handset users. The country's biggest newspaper Prothom Alo offers print lessons - linked to mobile and web content - three times a week.



Photo courtesy of BBC

Further platforms will emerge in the near future. In October 2010 Bishaash ('Believe') will be launched, the first ever bilingual drama to be set between Bangladesh and the UK. This will be accompanied by an English language teaching programme: BBC Janala - Mojay Mojay Skekha ('Learning is Fun'), which will build on the English language used in the drama. Appearing on state broadcaster BTV, it is likely to be watched by tens of millions, and additionally drive traffic to related lessons and quizzes on mobile, as well as lessons on bbcjanala.com and in print.

The BBC World Service Trust has attracted significant interest from outside of Bangladesh with many others in the mobile sector interested in setting up equivalent services in Asia and the Middle East. The development community is paying attention too in what could be one of the first economically viable models using mobile to help deliver education to some of the poorest and hard to reach in the developing world.

BBC Janala is funded by the UK Government's Department for International Development through English in Action, a major educational initiative launched to raise the language skills of 25 million people in Bangladesh by 2017.

Case Study

Ericsson – Education Programme

Using ICT based solutions to improve education across the developing world

Ericsson is championing the use of mobile broadband technology to support education initiatives around the world. Information sharing using mobile networks and access to the internet via the mobile phone, known as mLearning (mobile learning) brings education to geographical areas where people may not have access to teachers, schools and educational resources.

In the Millennium Villages across Sub Saharan Africa, Community Health Workers are using the mobile phone as a learning tool. As an extension of Ericsson's involvement in the Millennium Villages Project, they have co-founded Connect To Learn, an education initiative supporting secondary education especially for girls through scholarships and the use of ICT in classrooms. In China, Ericsson is working with the Ministry of Education to support students in rural communities. And as a member of the Broadband Commission for Digital Development, Ericsson is committed to promoting the use of mobile networks to help accelerate the achievement of universal education around the globe.

Millennium Villages in Sub Saharan Africa

Community Health Workers (CHW) in the Millennium Villages in Kenya, Uganda and Rwanda are using mLearning modules on their mobile phones. Reproductive health and care for newborns are two of the subjects CHWs can download from a central database to their mobile phone. Mobile networks provide the privacy, quality of service and interoperability required to deliver this learning application.

Education program in China

In China 70% of the population live in rural areas with limited access to educational resources. Ericsson in China is working with the Ministry of Education and a major service provider to develop a complete ecosystem to manage the development and distribution of interactive learning content via low-cost basic

mobile phones. The current program is aimed at two distinct target audiences within the vast rural population; secondary school students and farmers.

Connect To Learn

The Earth Institute, Ericsson and Millennium Promise have launched a global effort to promote universal access and quality in secondary education in developing countries, with an emphasis on girls' education. This will be achieved by coordinating scholarships and using information and communications technology ("ICT") to enhance the quality of the education and connecting school children globally through the use of ICT.

On September 19, 2010, the Broadband Commission report "A 2010 leadership imperative: The future built on broadband" was delivered to the UN Secretary-General with recommendations and the proposed plan of action to deliver "Broadband Inclusion for All".

Around the world, mLearning – as well as access to traditional eLearning - via mobile broadband is already appearing in various guises. Ericsson CEO and President and Broadband Commissioner, Hans Vestberg, says "It's time for the classroom to go global and go mobile, since mobile networks have started to surpass fixed in many parts of the world." Mr Vestberg suggests that in addition to simple lesson delivery, interactive discussion, social networking, curriculum design and implementation are also already possible – and valuable.

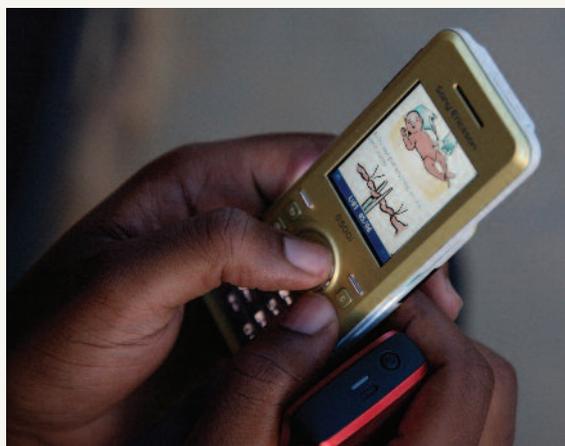


Photo courtesy of Ericsson

b. Current Market

Current trends are largely driven by the adoption of mLearning across 2G networks in developing regions with literacy, health education and life skills based initiatives primarily launched by NGOs, carriers, device makers and governments. These programmes are aimed at rural teachers, healthcare workers and self-motivated users who are being provided with professional development, procedural support and decision support via mobile devices¹⁷. Initiatives such as Nokia's OVI Life Tools, a subscription based service that supplies Educational, Agricultural and Entertainment services was rolled out in India and Indonesia and has attracted over one million subscribers. The programme has since been launched in China and now incorporates Health services.

mHealth and mLearning have seen a convergence with health education services becoming a large market in its own right. Reliance Communications, MTN and Zain have all helped to launch health education and awareness initiatives in their respective markets.

Text to Change

Zain Kenya partnered with Text To Change (TTC), a non-profit organization to use mobile phone technology to make life saving knowledge easily available to the general public and especially to community and family level caregivers. TTC is specialised in interactive and incentive based SMS programs addressing a wide range of health issues such as HIV / AIDS, Malaria and Reproductive Health. By 2009, TTC had reached over 200,000 people with low-tech mobile phone based health messages.

"Zain Kenya is very committed to working with Text to Change. The TTC SMS quiz has really proven to be a simple and very successful way to transfer HIV/AIDS sensitisation and other health related messages to our staff members and to many people in the African communities."

Rene Meza, Zain Kenya, Managing Director

"Mobile phones are a unique and ubiquitous way to disseminate health education and educational messages to rural areas in developing countries that wouldn't ordinarily be reached. The mobile phone has challenged the regular way of disseminating healthcare information, because of its omni-presence, bottom-up growth and usability."

Hajo van Beijma, Text To Change, Partnership Director

In China, as of July 2010, the top selling app across all categories was an mLearning app that supplied detailed instructions on how to survive a range of natural disasters. China Mobile, China Telecom and China Unicom have all opened app stores with mLearning accounting for 15-17% of their inventory¹⁸.

In the more developed world, despite the current global financial crisis, the US market alone for mLearning products and services is growing at a five-year compound annual growth rate (CAGR) of 21.7% with revenues reaching US\$538 million in 2007. To compare numbers, the US market for eLearning products and services is growing by a five-year CAGR 7.4%¹⁹. In Japan, local textbook manufacturer ALC Press took part in an evaluation on the use of English language lessons formatted differently for computers and cell phones. Even in a country where internet penetration is at 78%, results showed that 90% of cell phone users were still accessing the lessons after 15 days, compared to only 50% of computer users²⁰. The Apple store has thousands of educational apps helping to transform the way teachers teach and students learn by providing on-the-go learning²¹.

These numbers include the growing trend of mLearning products on handheld gaming consoles, for example Sony PSP or Nintendo DS. Whilst these devices are not widespread in developing countries, educational games have proved to be an innovative method to encourage and motivate both children and adults to learn.

17 Sam S. Adkins, Chief Research Officer, Ambient Insight Research, 2010

18 Sam S. Adkins, Chief Research Officer, Ambient Insight Research, 2010

19 Ambient Insight Research, 2010: <http://www.ambientinsight.com/Reports/MobileLearning.aspx>

20 The Mobile-based Learning (MBL) in Japan, Masayasu Morita, Research Center for Advanced Science and Technology, University of Tokyo, Japan, 2003

21 <http://www.apple.com/education/ipodtouch-iphone/#apps>

Case Study

Carnegie Mellon University and University of California, Berkeley – MILLEE

Mobile games for children in rural India

The MILLEE project at Carnegie Mellon University and the University of California, Berkeley aims to improve “power language” literacy among low-income children in developing countries through mLearning. MILLEE, which stands for Mobile and Immersive Learning for Literacy in Emerging Economies, revolves around the idea that immersive, engaging and yet educational games on mobile phones that target language literacy can make high-quality learning more accessible to low-income children in underdeveloped regions who lack access to high quality schooling. Recently the team has ran semester-length deployments of MILLEE in two settings, namely, an after-school program at a village school and a naturalistic study of how rural children used MILLEE games in out-of-school settings which included their homes, workplaces and elsewhere the pilot studies did not only demonstrate learning benefits, but also uncovered the social rituals that emerged when rural children have access to MILLEE games in their everyday environments.

The MILLEE team is designing and developing a new suite of more than ten educational mobile games which incorporate the lessons learned in previous studies. In such a multidisciplinary endeavour, the team comprises computer scientists, human-computer interaction specialists, second language and reading acquisition specialists, as well as videogame designers.

The team includes members who, through their experiences growing up in India and/or volunteering with humanitarian organisations working to improve education there, possess a deep knowledge of the local cultural context. The MILLEE team have designed and developed a new suite of MILLEE games which aims to teach English as a Second Language (ESL) as mandated by the state government of Andhra Pradesh in India.

The MILLEE team is also working with academic collaborators who are experimenting with similar design knowledge to improve Mandarin literacy among low-income children in non-coastal regions in China as well as ESL literacy in Sub-Saharan Africa.



Photo courtesy of MILLEE

Case Study

Shuttleworth Foundation – M4Lit

Exploring the viability of using mobile phones to support reading and writing by youth in South Africa

The m4Lit project began in 2009 as a pilot initiative to explore whether and how teens in South Africa would read stories on their mobile phones. Most of the reading and writing that happens on mobile phones is of very short texts, e.g. SMS and chat messages on MXit. The Shuttleworth Foundation published a story called Kontax in September last year– twenty pages in length – and actively invited reader participation through this longer content; mobile phones are interactive after all. Readers could leave comments on chapters, vote in opinion polls related to the story and enter a writing competition. By the end of May 2010 another Kontax story had been published.

The uptake was tremendous. **Since launch, the two stories have been read over 34,000 times on mobile phones.** Over 4,000 entries have been received in the writing competitions and over 4,000 comments have been left by readers on individual chapters. Many of the readers asked for more stories and in different genres. Encouraged by the high uptake of the stories and by these reader requests, the Shuttleworth Foundation decided to launch Yoza. Within the first month, Yoza had more than 60,000 unique visitors and over 8,500 user comments.

Yoza's goal is to get young people reading and writing, and in the 'book-poor' but 'mobile phone-rich' context of South Africa, the phone is a viable complement and sometimes alternative to a printed book. If, as a country, South Africa wants our youth to read, then both books printed on paper and books on mobile phones are needed. The paper versus pixels debate consistently takes up a lot of page space, but in a country with a severe literacy problem, it is necessary to move beyond that and focus on reading and writing, whatever the medium.

There is a growing awareness around the impact that a lack of books has on literacy levels in South Africa.



Photo courtesy of Shuttleworth Foundation

Books are scarce and prohibitively expensive for most South Africans. Statistics show that 51% of households in South Africa do not own a single leisure book, while an elite 6% of households own 40 books or more. Only 7% of schools have functioning libraries.

What South Africa's teens do have access to are mobile phones, with statistics indicating that 90% of urban youth have access to a mobile phone. The take up and interaction with the first two Kontax stories published in English and isiXhosa clearly demonstrates that mobile phones are a viable platform for local teen reading and writing. There is no charge for the actual stories, but users do pay their mobile network operator for mobile data traffic. Images have been kept to a minimum to keep the mobile data charges low – these data charges on local mobile phones range from 5c to 9c per chapter (USD0.01c), making Yoza m-novels a very affordable option for great reading material for teens.

6. Conclusions on the mLearning Landscape Today

If the uptake of mobiles and mLearning is growing so rapidly, what are the opportunities for mLearning businesses and consumers? Unlike internet penetration, mobile penetration is quickly catching that of the more developed countries, so it's easier to speculate the potential for mLearning services to follow the growing revenues of those countries. The increasing enthusiasm around mLearning services and products has incited much interest around this and further research is being conducted on the mLearning trends in developing markets.

Four recurrent challenges to mLearning uptake by MNOs were identified when investigating the mLearning landscape:

a. The Business Case is Still Under Debate

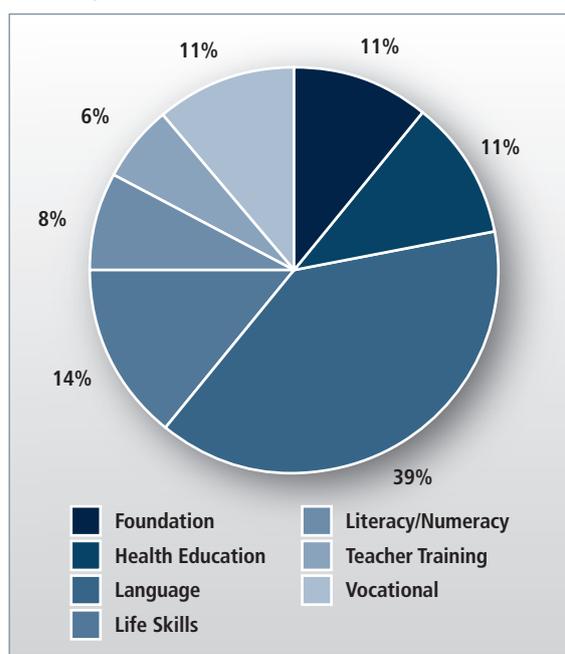
Whilst eBooks, tablets and apps have taken off in the developed world and show promise for continued sustainability, it becomes more difficult to develop a robust business case for mLearning in developing countries where lower end handsets and lesser incomes prevail. Content and the provision of it costs money and it is not yet clear who should pay – governments, local authorities, the consumer or other. There are also costs associated with handsets and the use of mobile networks that need to be sustained. This can again prove a challenge, in particular when looking at the use of mobile handsets in classrooms.

The global goal set by the UN Millennium Development Goals is for universal primary education for all, however who pays for education beyond this point is widely debated and varies from one country or region to the next. Likewise vocational learning is

sometimes paid for by individuals looking to further their careers and sometimes by employers looking to build employees' skills. Beyond this, learning for personal development is commonly paid for by the consumer, so it is possibly this area where there is the greatest potential for a sustainable business to evolve. Subscription based Apps are seen as the most sustainable model within developing markets, however these do not necessarily cater for the lowest end handsets that are still widely used.

For a government to pay, the benefits must outweigh the costs in comparison to the traditional method of teaching. Learning outcomes (i.e. students' results) should be at least on a par with those achieved through the classroom approach for the vast majority of students and delivery via a mobile network and handset should be cheaper than the resources currently used. To date, there have been no substantial trials to prove this is the case hence mLearning, as a replacement for primary, secondary and tertiary education, remains branded "unsustainable".

Figure 2. Breakdown of Types of mLearning Programmes Involving MNOs to Date



Using the framework the Development Fund devised to categorise mLearning, some of the programmes and services found in developing countries that were either led or supported by MNOs were assessed. The results showed the most common learning area rolled out or supported by an MNO was language lessons with 39%. These were generally English lessons and which were found in Bangladesh, Brazil, Chile, India and Venezuela.

Vocational training, health education and literacy/numeracy services were also popular which falls in line with the theory that where content is seen of value to either raise living standards or employment opportunities, end users will pay. Teacher training and foundation learning were less popular models possibly because of the belief that this should be paid for by governments.

Figure 3: Possible Investors

Investor	Motivation	Return
Government/School	Currently funding educational resources. Increase reach to those without access.	Investment in to country's future sustainability, economy and growth.
Foundation/NGO	In line with current strategies, ie. working towards MDGs or UNESCO Six Goals of Education for All.	Meet strategic and developmental goals.
Vendor	Able to develop handset specific content to create competitive edge.	Increase sales/revenues.
MNO	Creating social and economical impact and value. Ability to develop and manage in-house and offer as VAS.	increase network traffic/customers. Increase ARPU.
Parents/Self	Content is of value and will lead to increase in income. Content is readily accessible and current.	Investment in their future and increased employment/financial opportunities.
Content Provider	Keep in line with worldwide trend to digitalise content. Digitalised content cheaper and easier to update.	Increase reach and as a result, increased user base.

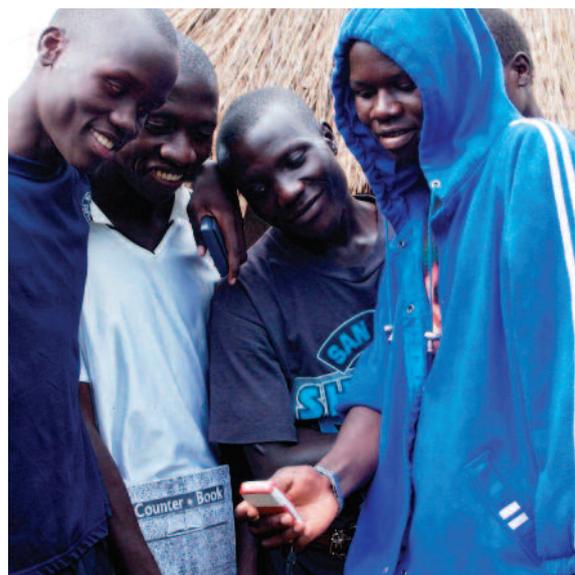


Photo: GSMA

b. Scalability and Replicability are a Challenge

Most pilots that have taken place to date have been designed to test an mLearning hypothesis but without scale or sustainability in mind. They have been limited to small control groups and have been implemented as a classroom ‘experiment’ or a research trial with the aim of testing a theory around usability.

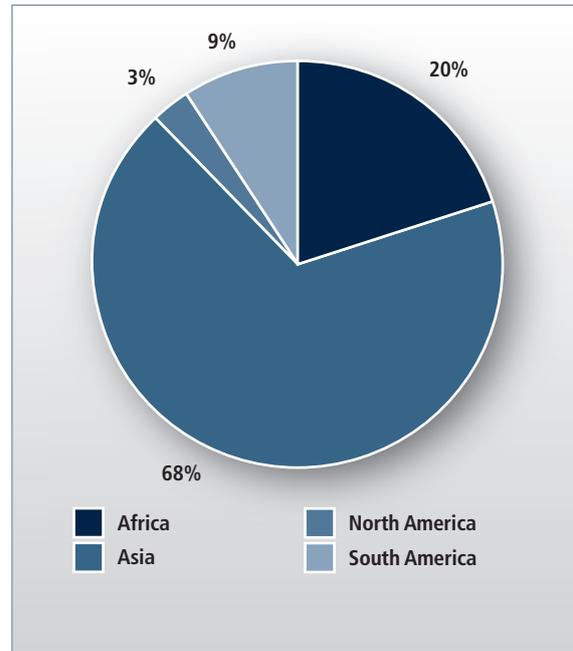
Furthermore, small scale pilots are also difficult to measure and evaluate. Funding is a major issue here with much of the backing going behind ‘good projects that are not sustainable’²². mLearning trials that focus on scalability can be costly due to the amount of research and development required and funding for such research has generally been relied upon from NGOs.

A key challenge with replication of mLearning services is the need for content to be locally specific and current. For example, educational agriculture voice messages sent to farmers in India by IKSL is provided at a district and zone level (smaller area than state). Messages are sent in the local language and provide information on crops, animals and news specific to that region. Furthermore, local cultural norms prevent the wide dissemination of content, for instance, pregnancy advice varies from country to country, especially where local myths need to be dispelled.



Photo: GSMA

Figure 4. MNO mLearning Initiatives by Continent



When looking at the geographic spread of mLearning services, Asia is currently leading the market with 68% of the MNO programmes in developing countries existing here and of these, 47% being language lessons.

22 John Traxler, Professor Mobile Learning, Director Learning Lab, University of Wolverhampton

Figure 5. Types of MNO mLearning Programmes in Asia

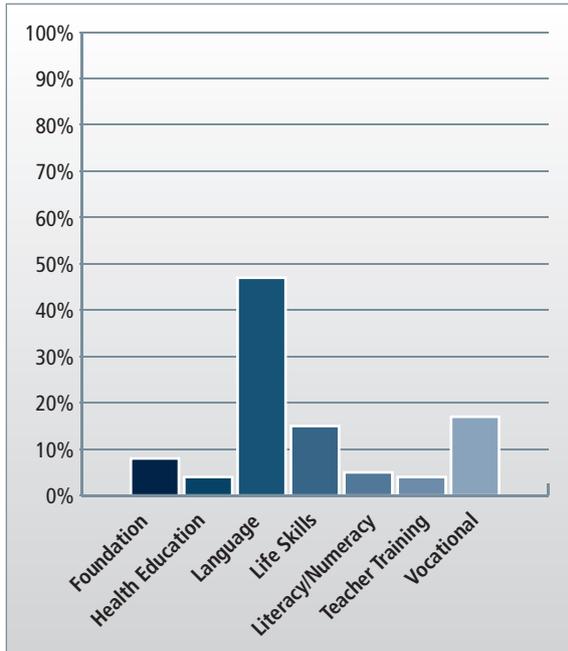
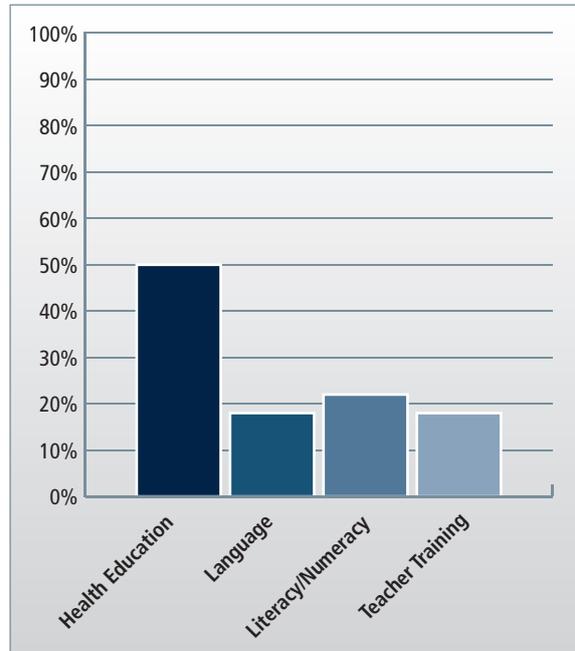


Figure 6. Types of MNO mLearning Programmes in Africa



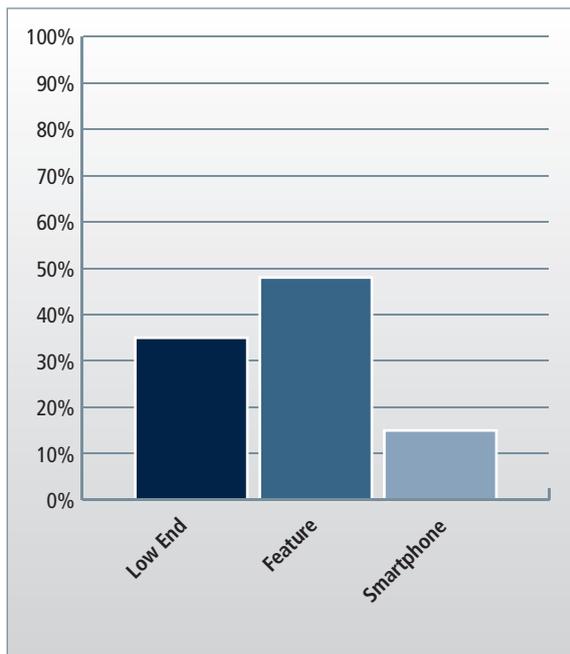
In countries such as India and Bangladesh, English is seen as hugely valuable in both study and the workforce and therefore a service worth paying for. However, most countries in Asia and Africa have a plethora of dialects and languages making replication of content difficult. This challenge has been identified and the growing demand for mLearning products and services has seen a surge in the number of companies who now specialise in developing and rolling out content. Some examples of these are Enterux solutions, La Mark Vision Ltd, EnableM and OnPoint Digital.

Africa shows an entirely different trend, and in a continent where the number of AIDS or HIV infected persons is estimated to be around 22m²³, it's encouraging to observe that 50% of programmes are focused around health education. In South America, Language Apps and programmes dominated the mLearning market with almost 70% delivering 'Learn English' services.

23 UNAIDS and World Health Organisation: http://data.unaids.org/pub/GlobalReport/2008/jc1510_2008_global_report_pp211_234_en.pdf

c. Handset and Technology Limitations

Figure 7. Types of Handsets Used in MNO mLearning Projects



Current trends show that 50% of mLearning programmes in developing countries are designed and rolled out to be compliant with feature phone technologies. Although the permeation of tablets, Smartphones and laptops brings a richer and more contextualised experience to the learner, it should be born in mind that in developing markets, Smartphone penetration is only expected to reach around 17% by 2014²⁴. Therefore low end or feature phones still need to be considered a viable and valuable tool for mLearning.

The key handset and technology limitations to mLearning have been identified as:

- (a) Mobile coverage – despite GSM covering 90% of the global population, this still leaves in excess of half a billion people without a mobile connection and therefore unable to access mLearning. Furthermore, network coverage is often skewed towards urban environments where more traditional methods of learning are more effective.
- (b) Handset availability – whilst nearly 5 billion people are believed to be connected to a mobile device, this still leaves 1.5 billion without. Many will utilise a shared village or family mobile phone (often for a fee), but one of the key benefits of mLearning is having personal content, anytime and anywhere which is lost through using a shared device. Furthermore, mobile devices are often banned in classrooms.
- (c) Handset literacy – many people might have access to a mobile phone but they lack an understanding of how the phone works. However, studies have shown that the basic functions of a handset can be mastered relatively quickly. Perhaps the greater issue lies with the users lack of knowledge and understanding as to the functions their handset is capable of.
- (d) Screen size – low-end handsets have the smallest screens today which prohibits certain types of content from being displayed and relies on the user having adequate eye sight (approximately 87% of the world's visually impaired live in developing countries²⁵). Low resolution means content provided will not be as rich as what can be received on Smartphones, PDAs, tablets or other more advanced devices.

24 International Data Corporation (IDC), 2010

25 World Health Organisation May 2009, <http://www.who.int/mediacentre/factsheets/fs282/en/>

(e) Smartphones – these devices offer the most user-friendly mLearning experience today yet are not affordable for the vast majority of those living in the developing world (prices start at US\$100). Smartphone prices are predicted to fall considerably over the next few years but it is still unclear when they will become commonplace at the base of the pyramid, if ever.

(f) Charging – 1.6 billion people live off the electricity grid and a further 1 billion live where the grid is inconsistent. Mobile phones require regular charging and hence this is a significant impediment to those interested in mLearning.

Debunking Small Screen Size Myth

“The key is to embrace what mobile devices were meant to do: be mobile! Is the screen smaller than a desktop monitor or a laptop LCD? Are there fewer pixels and less resolution? Of course, but that doesn't necessarily imply a disadvantage or limitation. When thinking about mobile learning, we cannot forget the 'mobile' part.”

John Feser, Managing Partner, Float Mobile Learning

d. Still an Emerging and Fragmented Market

mLearning has been examined and projects piloted for the past ten years, yet it remains a nascent market. Reasons for this include:

(a) The key players required to catalyse the uptake of mobile learning are often working independently of each other. There are many pilot projects that have been implemented but our research shows that most of these exist in disparity among various organisations without best practises, results and learnings being properly documented or shared. The educationists, academics and researchers have a greater understanding on what mLearning methods are most effective, but not necessarily the experience to transform them into sustainable or commercial projects.

(b) There has been no major, large scale project that has exposed mLearning into the mainstream market. Whilst there have been significant trials and a jump in recent uptake, mLearning remains unknown to many involved in the mobile industry and just what role they can play.



Photo: GSMA

7. Recommendations for MNOs on mLearning

The successful roll-out of an mLearning project relies on a number of factors:

(a) **Invest in Specific Community Needs**

The more successful examples of mLearning have been developed to meet the specific needs of a community or were in response to a government request. For example, BBC WST's Janala programme was developed to roll out English lessons in Bangladesh after the government identified the need for improved English skills. The BBC WST carried out substantial R&D before rolling out Janala and has since marketed their product via a range of different mediums. Good branding and marketing targeted at your specific market will increase your potential for greater return.

(b) **Hyper-Local, Relevant and Entertaining Content is Critical**

Although it makes good business sense to reproduce content whenever feasible; keeping it local and relevant is essential for success. Consider the use of local legends and heroes to help promote services and appeal to customers. Investment in R&D of a new mLearning product establishes the effective use of mobile pedagogy, along with content that is relevant and stimulating.

(c) **mLearning is a Business, not just CSR Activity**

There is greater and more immediate value in vocational forms of mLearning where the end user is paying for the service. Health education, language lessons and general life skills are seen by mobile customers as valuable and worth paying for. Many MNOs have CSR activities surrounding education, for example donating funds and resources to help build schools or sponsoring scholarships. Whilst this type of activity often falls in line with company's strategic social responsibilities and is an altruistic contribution to society, MNOs should consider the benefits of their own networks. By merely conducting 'business as usual', implementing and growing their network coverage, they are increasing the opportunities for those in rural and ultra regions to 'get connected' and use mLearning services, thus increasing customer base and revenues.

(d) **Don't wait for Smartphones, the mLearning Opportunity Exists Now**

Examine the technology and capabilities of the prevalent devices your customers are using. It is apparent that the adoption of mLearning is not directly related to technical readiness, but rather to user readiness. Therefore solutions should ideally be device agnostic in order to reach as many people as possible. For example, implementing content designed purely for smart devices in South Africa where their penetration is only about 12% would effectively be cutting out 88% of the market and potential profits. Without considering the lower end device customers, those often in greatest need of education due to extreme poverty or lack of access will continue to be deprived of the opportunity.

Final Call to the mLearning Community at Large

There is a great necessity for a convening of the thought leaders and experts in order to work towards growing the mLearning industry in a structured way. Best practices and learnings should be shared among key players in order to determine what an mLearning industry should look like and determine the value chain.

Looking beyond Apps and subscription based services, there needs to be a convergence between the social and commercial side of mLearning to commit to using this powerful and ubiquitous technology to its fullest potential. Even for governments and NGOs, it is not just enough to put money behind small pilot projects to see what happens. The time for experiments and small scale pilots is coming to an end.

MNOs and vendors have the networks and hardware to deliver content, and experience developing sustainable and commercial enterprises around this. However, pedagogues, researchers, content providers and governments all have vital roles to play, ensuring relevance of learning materials and best practices in delivering educational resources via mobile devices. A meeting of all these industries could facilitate and catalyse the expansion of a robust and sustainable mLearning model and help alleviate the extensive educational challenges that affect all demographics and regions of the world.

Figure 8: mLearning Initiatives involving MNOs

Project	MNO (Implementing/ Supporting)	Partners (Implementing/ Supporting)	Learning Area	Location
A Wonderful World/ Mobile Learning Solutions	Zain	King Abdulaziz University	Foundation	Saudi Arabia
BridgelT	Vodacom Foundation	Ayala Foundation, International Youth Foundation, Nokia, Pearson, United Nations Development Programme, Philippines Department of Education , USAID	Teacher Training	Tanzania
Education Programme	Multiple	Ericsson	Multiple	Worldwide
Edutainment Service	Etisalat	Rubicon Group Holding	Vocational	Afghanistan, Egypt, Sri Lanka
English Class	Bharti Airtel		Language	India
Executive Diploma Accounting	Mobitel	Chartered Institute of Management Accountants	Vocational	Sri Lanka
Executive Diploma in Marketing	Mobitel	University of Colombo	Vocational	Sri Lanka
Executive Diploma in Marketing	Wataniya	University of Colombo	Vocational	Maldives
Freedom HIV/AIDS Project	Reliance Communications	Multi-Stakeholder	Health Education	India
Janala	Aktel, Banglalink, Citycell, GrameenPhone, Teletalk, Warid	DFID, BBC WST	Language	Bangladesh
Kantoo English	Movistar	La Mark Vision Ltd	Language	Venezuela, Chile
Kantoo English	Vivo	La Mark Vision Ltd	Language	Brazil
Learn English	BSNL	OnMobile, EnableM Technologies	Language	India
Learning About Living	MTN (Foundation)	Multi-Stakeholder	Health Education	Nigeria
Maxis Academy	Maxis		Vocational (Employee training)	Malaysia
Mgurujee	Aircel	Mgurujee	Language	India
MILLEE	Verizon	Carnegie Mellon University	Literacy/Numeracy	India
Mobile Math (Pilot)	bmoblie	St Augustine's Department of Mathematics and Computer Science	Foundation	Trinidad and Tobago
MoMaths	Cell C , MTN	Nokia, Department of Education (Western Cape Province), MML	Literacy/Numeracy	South Africa
OVI Life Tools	Multiple	Nokia	Life Skills	China
OVI Life Tools	Bharti	Nokia	Life Skills	India,
OVI Life Tools	Idea	Nokia	Life Skills	Indonesia
Seekho	Tata Teleservices	Seekho	Language	India
SMS for Literacy	Mobilink	UNESCO	Literacy/Numeracy	Pakistan
Text to Change	MTN , Zain	Text to Change	Health Education	Multiple- Africa
Text2Teach	Globe Telecom	Ayala Foundation, International Youth Foundation, Nokia, Pearson, United Nations Development Programme, Philippines Department of Education , USAID	Teacher Training	Philippines
Uexaminer	Ufone		Foundation	Pakistan

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The GSMA Development Fund is interested to hear from any organisations, and in particular Mobile Network Operators, that have any experience in mLearning programmes or future plans to launch services. Please contact the mLearning Team at mlearning@gsm.org.



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