

Mobile Learning: Key Principles for Success

Contributing to a learning experience that is tracked, adaptive, and personalized

In recent years the field of mobile learning has grown significantly. The practice of using mobile technology, either by itself or in complement with other information and communications technology (ICT), to enable learning anytime and anywhere, has moved from being largely pilot-based to now including a range of large-scale implementations at schools and universities around the world. From the USA to Uruguay, Thailand to Turkey, governments and institutions have introduced tablets and netbooks to learners in the hope of reaping the many benefits associated with 1:1 computing in education.

South Africa (SA) is no different: initiatives utilise the power of mobile technology to support education in a range of ways. [The School Communicator](#) improves communication between schools and parents. [Mindset Learn](#) has employed mobiles to increase access to learning materials and expert tutors. [Obami](#) and [ukuFunda](#) offer opportunities for teachers to connect with each other in peer-to-peer networks. Each of these initiatives is described in greater detail below.

The move to mobile technology is not surprising for two reasons: firstly, it is informed by the dramatic uptake of such technology throughout society. Since 2011, SA has had more mobile-cellular subscriptions than inhabitants (ITU, 2012) and a full third (34%) of the population now owns a smartphone (Pew Research Centre, 2015).

Secondly, mobile learning is arguably the next evolutionary step in the e-learning journey. As a [UNESCO Thematic Think Piece \(2012\)](#) on education and skills beyond 2015 predicted, there will be a shift in education away from a focus on teaching in the classroom to an increased focus on learning, which happens both formally and informally throughout the day. This concept of a learning experience that both institutional and at-home settings, where both learners and learning content are untethered from the fixed time and space of classroom-only teaching, is enabled by mobile technology.

Mobile usage outside the four walls of the classroom has far outpaced its adoption within education systems, which are now playing catch-up. Mobile learning thus represents a tension when seen as “no longer an innovation within institutional learning but a reflection of the world in which institutional learning takes place” (Traxler and Vosloo, 2014). Outside the school system, people are connected and mobile, using devices that they have bought and manage by their own volition. Inside the institution, the “computer and e-learning projects have historically been constrained by hardware that is expensive, fragile, heavy and kept in tightly

controlled settings” (West & Vosloo, 2013). The former is bottom-up; the latter is top-down, driven by higher-level decision making. When conceived in this way, as the UNESCO Policy Guidelines for Mobile Learning describes, mobile learning does not only extend e-learning, it also disrupts it.

It is now interesting to see this disruption play out in the context of government- and institution-led mobile learning: a bottom-up learning experience, implemented from the top. Perhaps it is due to this fundamental tension, coupled with the reality that education systems are resistant to change, that the implementation of mobile learning has been so fraught with challenges. “Key lessons learned” is a common theme at mobile learning conferences.

A successful mobile learning intervention is a veritable ecosystem of intersecting factors. It comprises hardware and software (and their on-going support), internet connectivity (or at least a localised offline solution), digital content and electricity. Training is needed, as well as a change in pedagogy, institutional policy reviews, and buy-in from the administration and wider community - including parents. Many school districts in the USA have taken five years to get to a point where they feel their mobile learning implementations have stabilised, although even they concede that there are still challenges, such as not having enough bandwidth to serve the seemingly insatiable needs of students.

The key to success is to have a strategy that considers all of the issues and to move forward in incremental steps, adapting the plan as needed. While mobile learning represents a significant change from traditional education practices, it has to be implemented at a pace that stakeholders can absorb.

Three principles, explored below, stand out from a number of South African education initiatives that have included a mobile component in recent years: creating a holistic and complementary learning offering; following a user-centred design approach that is responsive; and comprehensive teacher training and engagement.

Seeking holistic and complementary learning

Today there are many technologies that can be employed in the service of teaching and learning, each with their own strengths and weaknesses. For example, mobile phones are always on and close-at-hand, ideal to reach users immediately and cost-effectively. Their small screens are not ideal for certain types of content though, such as illustrated e-books. Here tablets are more appropriate; their larger displays also support easier input and interactivity. Digital content is not always the only, or most adequate solution however, print books, while not interactive, still retain some of their value by being highly durable so familiar to use that they do not require training, and do not have batteries that need to be charged.

The point is to consider the particular teaching and learning needs, the range of technologies that are available, and to combine them in a holistic and

complementary learning offering where each is used for what it does best. When schools “go mobile” in a wholesale fashion, and try to make tablets do everything, the result is an inferior educational experience at best, or an outright project failure at worst.

[SMILE](#) (Stanford Mobile Inquiry-Learning Environment) is an interactive learning management solution, with a strong mobile component, designed to promote higher-order learning experiences and generate instant learning analytics for teachers. The solution, implemented around the world including in SA, requires that learners create subject-specific questions that are then exchanged – either with other learners in the same class or globally across schools – and jointly solved and evaluated.

The inquiry-based learning exchange is powered by a low-cost mobile wireless learning environment, consisting of a small wifi-enabled computer that serves tablets or netbooks, for low-resource settings where access to electricity or the internet is not reliable or available.

SMILE generates real-time learning analytics on user performance, including overall group or individual achievement grades, results of the peer-evaluation of the questions, and rankings. Because teachers do not have to manually score or review learning outcomes, SMILE not only alleviates their workload and frees up more time-on-task for teaching, the instant analytics also inform their teaching practice to focus on problem areas within subjects. Lastly, by involving the creation, exchange and review of questions, SMILE improves engagement with students that is often a challenge for traditional memorisation-based classrooms.

Another example where digital technology is used to get school children excited about learning is by the [Good Work Foundation](#). In order to improve the English, mathematics and digital literacies of primary school learners the Foundation has established *Open Learning Academies*, stocked with tablets – loaded with the latest education apps – and staffed by competent digital facilitators. Learners in rural communities can now engage with start-of-the-art facilities to study at their own pace. Their horizons are expanded as the Academies allow them “access to the world” for the first time.

An example of this project’s impact was demonstrated when the Open Learning Academy in Hazyview, SA first offered classes after normal school hours. Soon, these separate classes were incorporated into the school day by local primary schools, which basically “outsourced” the development of English, mathematics and digital literacies to the Academy. This is perhaps a practical demonstration of how mobile-based learning is particularly engaging in a less formal environment.

The [School Communicator](#) is an integrated communications solution that allows schools to communicate with parents using a variety of digital tools. It started with desktop-based software to share news, calendar events, photographs, homework



and links to useful resources. However, to ensure that it quickly and efficiently reached parents on the move, it now publishes to mobile applications for iPhone, Android and BlackBerry. There is also a mobile site, accessible by virtually any internet-enabled phone, and alerts can be sent via SMS. The overall solution thus includes multiple distribution channels for maximum reach.

A final example, also utilising multiple channels to increase reach, is [Mindset Learn](#). The programme creates and distributes high quality, curriculum-aligned digital content over television and the internet. Its videos, which are also available on Mindset's [Youtube channel](#), are supplemented with PDF notes and computer-based interactive resources. Materials are additionally available in DVD or book format.

On its [Facebook page](#), primarily accessed via mobile phones, Mindset Learn takes questions from learners that are answered by experts within 48 hours. The same helpdesk feature is available on Mxit, the popular mobile instant messaging platform in SA. The overall offering provides materials in multiple formats and allows learners and teachers to engage with it in various ways and over different media.

In each of the above examples, the mobile components address a real need in a way that could not be solved through other technologies. Mobile technology complements desktop, print and video formats to offer a more holistic and appropriate learning experience.

User-centred design

Taking a user-centred approach to the design of educational products and services puts the needs, wants and limitations of the actual user – the learner, teacher, administrator or parent, for example – at the very heart of the process. In an age where users appropriate technology into their daily lives, as opposed to using it in the controlled environment of the college computer lab only, it is essential that products are designed around the user and that any design assumptions are constantly validated. Such an approach is underpinned by an iterative development cycle that expects a dynamic and changing usage landscape, and responds accordingly.

[Obami](#) is a secure, social learning platform where communities of educators and learners can connect, create, share, and learn from each other. Since its launch in 2009, Obami has developed from a simple social networking tool to include content, assignments, and administrative capabilities. By constantly reviewing its evolving users' needs and being open to exploring new opportunities, it has significantly adapted its educational focus and included additional features and distribution channels – such as SMS and mobile access.

[FundZa](#)'s mission is to get teens and young South African adults reading for pleasure via their mobile phones. Because it offers reading material of high interest, it needs to listen carefully to the likes of its audience – and thanks to digital tracking

and analysis, it can. FunDza constantly monitors key usage statistics, such as the number of readers per day, week and month as well as the number of pages viewed and the time users spend reading.

By encouraging and monitoring user comments, including evaluations of the stories themselves, the analysis is both qualitative and quantitative. FunDza also surveys users regarding their reading habits in order to understand whether its content positively affects those reading habits. Beyond just adjusting content, since 2013 FunDza has also tweaked the interface to its mobisite to make it responsive, as well as improved site categorisation, search, and sharing capability.

Teacher training and engagement

Mobile learning demands a rethinking of pedagogical practice, where educators are no longer the single source of knowledge in an information-rich classroom. While they need to teach, they also need to facilitate learning via other channels. Without this change, teachers run the risk of simply doing old things in new ways; what Professor John Traxler refers to as pouring new wine into old skins (Galley, 2010).

[ukuFunda](#), an initiative of UNICEF South Africa, the South African Department of Basic Education, and the mobile service provider Mxit, aims to facilitate equitable learning opportunities for children through mobile technology. It recognizes that this cannot be achieved without including a heavy focus on teachers. A section of the mobile learning application is dedicated to teacher guides and lesson plans as well as facilitating peer-to-peer exchange among teachers. The mobile initiative is complemented by a major offline advocacy and training drive amongst teachers.

Beyond providing materials and training for teachers, [Siyavula](#) actively engages teachers to get them to create and contribute their own teaching and learning materials to its online repository and free, openly-licensed textbooks. It delivers the content to mobile and web users, as well as through Mxit.

The promise of mobile learning

There are a number of initiatives that demonstrate the importance of complementarity in the changing nature of education offerings, the power of user-centred design, and the centrality of teachers – even as some see technology as replacing them.

These principles lay the foundation for the continued growth of mobile learning, even as it simultaneously extends and disrupts education practices. Today it is necessary to take “baby steps”; tomorrow the future promises a joined-up learning experience that is **tracked, adaptive and personalised**. The real power of mobile learning will lie in its ability to deliver such promises at school, on the playground and at home – the full realisation of learning anytime, anywhere.



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