

Appropriate technology and the humble mobile phone

Ken Banks, IDG News

It's not often you read a book and find that, ten years on, it remains central to your thinking. Ideas come and go, paradigms shift and many books – particularly in the rapidly evolving “ICT for Development” (ICT4D) space – become dated and surpassed by new innovation, new models and new ways of thinking. Many earlier studies gather dust, becoming windows to a history of amazing success, glorious failure or a series of what-might-have-been's. Hindsight is a wonderful thing.

In the spring of 1998 I was introduced to the work of E. F. Schumacher. Up until then, my development studies degree had been interesting, but at the same time rather ‘cold’, filled with critiques on the failure of western development efforts. Almost everyone was a critic, and every man and his dog had a theory on what had gone wrong and what continued to go wrong. This sea of depression and gloom was largely routed in GDP's, FDI's, economic theory and theories of dependency, and although interesting never really struck a chord with me. A chance introduction to the concept of “appropriate technology” was to change all that. It was soon to become an increasing focus of my university studies and, several years later, my own work.

Appropriate technology is broadly defined as anything which is suited to the environment in which it is used. So, for example, a solar-powered radio in the middle of a Finnish winter would not be considered by many to be an appropriate technology. Although he was not the first person to study or write about it, it is widely recognised that the publication of Schumacher's *“Small Is Beautiful: The Study of Economics as if People Mattered”* in 1973 was a landmark event in the birth of the appropriate technology movement, a book which I finally got to read 25 years later. It was borne out of what he and many perceived as the irrational technology practices of Western societies, and a frustration at the perceived failings of large scale, top-down development projects applied by development agencies, NGOs and governments at the time. To appreciate this you need to look back to the 1970's, where hydro-electric dam and other grand, expensive, mega-infrastructure high-tech projects were a favourite of the World Bank and others. (You could also argue that, today, many of our own technological solutions are not appropriate when you consider their reliance on one commodity – oil – which continues its steady climb to the dizzy heights of \$150 a barrel).

Development projects based on straight-forward technology transfer are always contentious. Taking something which may well work in places like the United States or Europe and dumping them in rural Kenya or downtown Kampala is, in most cases, asking for trouble. I remember seeing fields of broken tractors in Zambia as late as 1993, tractors donated by a Western government without any infrastructure put in place to repair or maintain them. Clearly, with no local engineering skills or access to spare parts, these tractors were not an appropriate technology solution to whatever agriculture problem they were trying to solve. It's easy to see that now, and it begs the question why no-one saw it all those years ago. Hindsight is a wonderful thing.

Looking back today, it's obvious that interventions such as these put themselves on the back foot before they even start. The recent emergence of the One Laptop Per Child project (OLPC), which is designing a new laptop to meet the specific needs, issues and challenges of developing country users, is a perfect example of how attitudes have changed for the better. Of course, whether or not a Western organisation should be doing this work in the first place is another question altogether when there are possible local alternatives in the target countries themselves.

Schumacher believed that an appropriate technology should be immensely more productive than the indigenous technology, but immensely cheaper than the sophisticated, high capital-intensive technology of modern industry. Others added that they should also contribute to meeting basic needs, overcome economic dependence, promote self-reliance and lead to creative participation. There are many definitions, but the underlying ethos is the same – that any technology solution should be either low-cost, use local materials wherever possible, create local jobs, be understood by local populations, be flexible and adaptable, or be able to be maintained and repaired locally. Looking more closely at these criteria, it is clear that understanding the *local* context is key, whether that be economic, geographic or cultural. Fail to understand these at your peril.

When we think about mobile technology in these terms, things are pretty interesting. Mobile phones have had a massive impact in the developing world, despite being a 'Western' invention (although one with no, apparent, local alternative). Communities are getting hold of them left right and centre, and are seen by many as their best chance of a passport out of poverty. Interestingly, appropriate technology-wise the mobile phone does not present us with a perfect fit. Until recently they were prohibitively expensive (an issue for people earning only a few dollars-a-day) and for many today's \$20 handset is still a step too far. Their need to be charged regularly is also a real challenge if there's no access to reliable mains electricity, heat, dust and humidity can put a strain on fragile electronic components, and with additional issues of literacy and usability, for some even getting past the initial physical barriers is not enough. But regardless, these devices are out there, and they're out there in their billions. Crucially, the "appropriate technology challenge" has now shifted from the third world community – who are using local solutions to solve their own problems – to the developer community.

"Unlocking the potential of the mobile phone in developing regions" is a popular topic on the conference circuit, and that's where I tend to spend my time talking about what I call the developer-practitioner divide, and how we can help further understanding and appreciation of the cultural, geographical and economic issues which govern the usefulness of mobile phones – and the applications that run on them – in the developing world. Mobile solutions for this 'market' cannot be built in isolation, but many of them still are. For a start, many of the phones you come across in the field are more likely to be either older models, or lower-end handsets with limited functionality. Developing solutions based on Java technology, or mobile internet access, will present many users with a problem. A message as simple as this is still missed by well-intentioned organisations seeking to solve some of the more pressing problems in the developing world.

Our challenge is ensure that solutions are culturally and technologically appropriate for the audiences which they are designed and built for. We can do this by helping spread the word among ourselves on the conference circuit, or we can work to empower the people who understand the problem best. To me and you, that's the users. As the well-quoted saying goes, "teach a man to fish"...

Ken Banks devotes himself to the application of mobile technology for positive social and environmental change in the developing world, and has spent the last 15 years working on projects in Africa. Recently, his research resulted in the development of FrontlineSMS, a field communication system designed to empower grassroots non-profit organisations. Ken graduated from Sussex University with honours in Social Anthropology with Development Studies and currently divides his time between Cambridge (UK) and Stanford University in California on a MacArthur Foundation-funded Fellowship. Further details of Ken's wider work are available on his website at www.kiwanja.net