
SECTOR FOCUS 2

Education

Educational policy makers and planners face a persistent challenge related to the potential use of information and communication technologies (ICTs) in remote, low-income communities around the world: most products, services, usage models, expertise, and research related to ICT use in education come from high-income contexts and environments. One consequence is that “solutions” enabled by technology are imported and “made to fit” in environments that are often much more challenging. Sometimes this works; sometimes it doesn’t. The One Laptop per Child project in Peru provided hundreds of thousands of pieces of low-cost computing equipment to students in rural schools. But early research found no evidence of increased learning in math or language.¹ This is one high-profile example of the difficulties faced in introducing hardware-centric educational technology projects conceived in highly developed environments into less developed places without sufficient attention to local contexts.

An alternate approach would consider how to innovate using existing technology that is already available in a local environment. In addition to exploring the uses of new technologies, it might also be useful to ask, *How can we innovate using what is already available?* In many low-resource communities, the best technology is the one that people already have, know how to use, and can afford. In most circumstances, this is the mobile phone. The SMS Story project in rural Papua New Guinea is one example of an innovative approach to using a “new” technology in ways that meet local needs and that the original designers of the technologies may not have dreamed of.

Few educational environments are more challenging than those found in remote locales in the Pacific

island nation of Papua New Guinea. These areas are characterized by poverty, low levels of literacy, geographic remoteness, linguistic diversity (over 800 languages are spoken across the island nation), low teacher quality, and a lack of teaching and learning materials. Many rural classrooms have few books—and some none at all. Few students read at grade level, and teachers often do not know what materials they are meant to cover in a given week—or how to teach them effectively. Most of them do, however, have mobile phones.

The SMS Story project demonstrates that it is possible to orient and motivate teachers in useful ways using technologies already at hand. It sent daily text message stories and teaching tips to teachers as an aid to help improve student reading. The result? Teachers were reminded and motivated to teach reading every single day. While reading comprehension did not noticeably improve, the intervention halved the number of children who could not read anything. While this was hardly a “silver bullet” solution, SMS Story offers one model for using connected technologies in simple ways to help address some long-standing, seemingly intractable challenges facing educators in rural schools in Papua New Guinea. While no one would suggest that these results imply that these schools do not need books, such simple interventions can be modestly transformative in ways that are inclusive, efficient, and scalable.²

The evidence base for investments in educational technologies in middle- and low-income countries is weak—but growing. Until recently, there were few rigorous randomized studies on the impact of investments in educational technologies that could inform related policy decisions; now there are almost two dozen. In addition, a significant body of practical evidence has also been collected based on experiences

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in middle- and low-income countries. Characteristics of many successful technology-enabled educational projects in such places include:

- A focus on the “guided use” of technology, and not just providing tools for general use;
- Providing relevant curricular materials;
- The shared use of devices in school settings;
- Attention to pedagogy, teacher support, and development;
- Using technologies in ways that are supplemental and practical; and
- Using evaluation mechanisms that go beyond outputs.³

A number of key challenges remain that inhibit the potential positive impact of new technologies on teaching and learning. Foremost among these are a pernicious focus on providing technology alone, and a related belief that educational challenges can be overcome simply by providing more and better devices and connectivity. The so-called Matthew Effect of educational technology holds that those most likely to benefit from the use of new technologies in educational settings are those who already enjoy many privileges related to wealth, existing levels of education, and prior exposure to technology in other contexts. Policies that neglect to consider this phenomenon may result in projects that exacerbate existing divides within an education system, and indeed within larger society.

Education challenges cannot be overcome simply by providing more and better ICT devices and connectivity. There is sometimes talk that technology will replace teachers. In reality, experience from around the world demonstrates that, over time, the role of teachers becomes more central—and not peripheral—as a result of the introduction of new technologies.⁴ That said, *while technology will not replace teachers, teachers who use technology will replace those who do not.* These teachers, in addition to having a suite of basic technology-related skills, will be asked to take on new, often more sophisticated duties and responsibilities in ways that will challenge the existing capacity of many educational systems to prepare and support teachers over time.

Understanding the local education challenge and context before proposing a technology-driven solution is a critical first step. A number of recent articles in the popular press have proclaimed many high-profile efforts to use new technologies within educational systems, including variations of the One Laptop per Child initiative in countries around the world, as “failed experiments.” The speed of technological change almost always outpaces the ability of

educational planners to keep up. When it comes to the use of technology in education, educational systems may therefore be fated to exist effectively in a state of permanent experimentation. That said, experiments should, by definition, teach something. A sad fact of too many experiments in educational technology use around the world remains that they have implemented technological “solutions” to problems that have not been well understood. If you are pointed in the wrong direction, technology may help you get there more quickly. At a fundamental level, many of these efforts are not really failures of technology, but rather a result of poor planning and an inability to learn from failure and adapt. As such, they are not a result of technology failures, but rather human ones.

Notes

1. Cristia and others 2012.
2. Kaleebu and others 2013.
3. Drawn from Arias Ortiz and Cristia (2014).
4. McEwan 2014; Trucano 2015.

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