

ONE LAPTOP PER DIGITAL DIVIDE?

By Erhardt Graeff

When I first heard about the One Laptop per Child [OLPC] programme—the goal of distributing inexpensively produced laptops to every child in the world for education—my immediate reaction was: what a great idea! When faced with OLPC's cute, little green XO laptops, the problem of 'The Digital Divide' seems so simple and so solvable.

But that was my first alarm bell: simple. It *seemed* so simple. Solutions can often be simple—but development problems are rarely simple. They are usually historical, culturally specific and inherently complex. And while the XO laptop may have an expertly-designed-to-be-simple interface, it is anything but a simple solution.

The second alarm bell went off when I found an OLPC promotional video on YouTube. In the video, Nicholas Negroponte, the founder of OLPC, is 'interviewed' about OLPC's mission:

"Why would a kid in the developing world need a laptop of all things, when they might not have food, they probably, in some cases, don't live beyond the age of five, they don't have drinking water, and the parents earn a dollar a day or less? . . . Take the word 'laptop' and substitute the word 'education' and nobody would say that. This is probably the only hope . . . if I really have to look at . . . how to eliminate poverty, and create peace, and work on the environment, I can't think of a better way to do it."

And so I ask, even with all of the necessary support structures, can we simply drop a bunch of green and white game machines into the hands of primary schoolers and expect them to type their way into a developing world renaissance? I argue that the answer to that question is: no. This may seem like an obvious answer. But allow me to offer a series of questions with less obvious answers, and I will explain how I arrived at two further conclusions: 1) that there really is no such thing as *the* Digital Divide and 2) OLPC is actually not a *bad idea*.

To begin breaking down *the* Digital Divide, we must break down the term. We need context; in development especially, context is key.

When theorising, we can achieve contextuality through 'pluralisation'. For instance, Africa is too often referred to as simply: Africa. We could ask, "How's the economy doing in Africa?" But the answer would not be very helpful. We really need to be asking about *Africas*, like sub-Saharan Africa, or even better: Zimbabwe. Now we could ask, "How's the economy in Zimbabwe?" And the answer might be bleak, but the whole process would be considerably more helpful.

Seeking specific contexts for our questions leads to defining a plurality of specific *inequalities*, which will compose a significantly more helpful plurality of digital *divides*. And

this leads to my first plumbing question: Inequality of What?

Inequality of What?

In the introduction to his edited volume *Inequalities of the World*, Cambridge's own Göran Therborn offers two types of inequality to get us started: 1) 'resource inequality' and 2) 'existential inequality'. In media reportage of *The Digital Divide*, analysis often stops with resource inequality—'the haves' and 'the have nots'. "Do they have computers? Do they have Internet connections? No? Digital Divide!"

Therborn starts me running on my main argument by writing, "resources would be better seen as just one rather than the only dimension of (in)equality". His second type of inequality, existential inequality, stems from resources taking on personal, symbolic meaning. The interpretation of this symbolic meaning, in relation to others, results in perceived freedoms or 'unfreedoms'. Existential inequality stems from experiences like the embarrassment parents might feel if they cannot open the text messages their children send to their mobiles.

But we needn't stop at two types of inequality. A third, incredibly relevant inequality, comes from Peter Weingart, also in Therborn's edited volume. Weingart offers us 'knowledge inequality'. This represents the varying performance of 'knowledge-importing' societies, who need to be able to acquire, absorb, understand, interpret and adapt knowledge to their local needs. In basic terms, knowledge inequality is an extension of (il)literacy. And according to Weingart, knowledge inequality can only be sustainably 'equalised' with endogenous knowledge production—that is, a society must create a self-sustaining cycle of knowledge production and use.

With three different types of inequalities—resource, existential, and knowledge—we can start to define *a* digital divide. Thus my next question is: Which Digital Divide?

Which Digital Divide?

US Vice President Al Gore delivered a speech to the people of Knoxville, Tennessee in 1996, which first brought public attention to the possibility of a domestic digital divide in the United States. Gore was renewing a challenge to America to connect all schools in the country, ensure teachers and students had access to modern computers and education software and provide training and support for teachers to make the most of "these wonderful new technologies". He wanted to make sure that America's "children will never be separated by a digital divide". So for Al Gore at least, *The Digital Divide* was always a complex education issue.

However, when Clinton and Gore's own National Telecommunications and Information Administration [NTIA]

released their infamously entitled report, *Falling through the Net*, things became unhelpfully simpler. The NTIA's definition of the digital divide was "the disparities in access to telephones, personal computers, and the Internet across certain demographic groups". Of course, popular media picked up this *published* sound bite of a definition. From a nuanced educational issue with implications for resource, existential, and knowledge inequalities, we were left focusing myopically on the technology 'haves' and 'have nots'.

Fortunately, academics like Pippa Norris and Mark Warschauer have been working to *re-nuance* the idea of digital divide. In her book *Digital Divide*, Norris splits The Digital Divide into three different divides: 1) 'the global divide', 2) 'the social divide' and 3) 'the democratic divide'. The global divide refers to the divergence of Internet access between developed and developing countries. The social divide splits citizens into the information rich versus the information poor. And the democratic divide separates those who do, and do not, use digital resources "to engage, mobilize, and participate in public life."

In his book *Technology and Social Inclusion*, Mark Warschauer enables an even more penetrating analysis with a tripartite model of resource inequality, translating the digital divide into *inequalities* of access. These are based on 'devices', 'conduits' and 'literacy'. Devices refer to the ownership of a device such as a computer. Conduits are device-based connections to information such as Internet service. And literacy—the more abstract model of access—is the device owner and conduit user's ability to make use of available

information and produce new information.

Between Norris and Warschauer, a much richer definition of a digital divide can be discerned offering the potential for a contextualized assessment of underlying inequalities. Now we are able to start asking: Can we Equalise?

Can we Equalise?

In his seminal treatise "Equality of What?" the development economist Amartya Sen writes that, "there is evidence that the conversion of goods to capabilities varies from person to person substantially, and the equality of the former may still be far from the equality of the latter". Essentially, Sen is saying that we cannot simply address a resource inequality and assume the other connected inequalities will correct themselves.

The basic resource inequality of a digital divide seems simple to equalise: provide access to computers and the Internet. But this only covers two of Warschauer's three models of access. Literacy requires a different means of equalisation.

In his white paper *Confronting the Challenges of Participatory Culture*, Henry Jenkins looks to education to combat what he sees as the future of digital divide: 'the participation gap'. The participation gap is the ability or inability, characterised by 'new media literacy', to interact in a technology-enabled 'participatory culture'. Jenkins offers a set of 11 "core social skills" to define new media literacy. Two



of these skills are “appropriation” and “negotiation”, which suggests that some form of Jenkins’ new media literacy is required for Weingart’s endogenous knowledge production.

But such skills are not the only requirement. Weingart argues that, “without firms that provide a demand for the educated and an opportunity for them to put their knowledge to work, there will be little motivation to acquire that knowledge or stay in the country”. This suggests that the ideal equalisation policy involves a combination of two things: 1) universal education involving new media literacy and 2) state promotion of a domestic knowledge economy to complete the full “absorptive capacity” cycle. With this ideal in mind, I now ask: What can One Laptop per Child offer?

What can One Laptop per Child offer?

At the beginning of this article, Nicholas Negroponte’s rather optimistic quotation expressed pretty clearly why some critics label him a ‘techno-utopist’. But there is *some* sense behind his crusade of saving the world laptop by laptop. Negroponte stresses that OLPC is an “education project”, and the digital divide is a “learning divide”.

One of Negroponte’s collaborators is Seymour Papert, who devised an educational approach called ‘constructionism’. This approach was the inspiration for OLPC’s education project. Essentially, his thesis is that, “learning is most effective when part of an activity the learner experiences as constructing a meaningful product.”

Papert’s idea coincides well with Jenkins’ core social skills for new media literacy. In fact, video game maker Electronic Arts recently announced that they would be providing the original SimCity game to be loaded on all new XO laptops. Jenkins lauds this city planning simulation in his white paper, detailing how players must engage in a “bottom-up process” of manipulating zoning and land prices. He suggests that this forces players to become familiar “with all parts of the system, and how they interact”, which can hone “mandatory” skills “for understanding complex systems”.

Papert’s constructionism also feeds into what Warschauer terms ‘communities of practice’ and ‘social reproduction’. Communities of practice operate in terms of “learning how” and “learning to be” via interaction with other similar learners. To be effective as an educational framework, Warschauer argues that learning must be supported through organised *yet interactive* ‘scaffolding’. OLPC’s XO laptops can establish ad hoc wireless computer networks, which can enable students to create ad hoc educational relationships with one another. The beauty of this scenario is that not only the teachers, but also the laptops themselves, work as scaffolding.

Warschauer defines social reproduction as when “educational institutions are structured in ways that reflect and contribute to the broader social, economic, political, and cultural relationships”. If OLPC laptops can enable equal social reproduction, like new media literacy, this would have a direct impact on existential and knowledge inequalities, and

hopefully social and democratic divides.

This style of education is exactly what Weingart wants for endogenous knowledge production. In fact, he argues specifically that “wherever education systems are in place they have provided the basis for further development and, ultimately, for the stability of the respective social systems and for securing an acceptable standard of living.” Here is the explicitly stated potential for social and economic development via equalising digital divides

It seems that OLPC can *theoretically* make the leap from laptop to education to development. Unfortunately, an obvious criticism remains. What country is going to bend-over-backwards to radically transform its education systems and purchase millions of XO laptops to test out the ideas of Jenkins, Papert, Warschauer and Weingart? We must ask in the end: Will It Work?

Will It Work?

Warschauer writes, “the deployment of technology toward greater equality, inclusion, and access is in no way guaranteed but will depend in large part on the mobilization of learners, educators, and communities to demand that technology be used in ways that serve their interests”. Herein, we find the fundamental caveat capable of undermining OLPC’s mission—adoption and mobilisation.

In practice, Negroponte’s utopian vision of flooding the world with poverty-alleviating laptops is not within his control. Developing countries must themselves embrace

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specific technologies and innovative education systems, while also facilitating a domestic knowledge economy to engage a newly educated population. Without this, there is little hope that OLPC can overcome

a country’s systemic knowledge inequality and bridge their particular digital divide(s). As it stands now, the select few individuals in developing countries, who enjoy an education via ‘super-cool laptop communities of practice’, will likely find themselves statistics of globalisation. Unequal distribution of OLPC-based education and the lack of a domestic knowledge economy will lead to ‘brain drain’ rather than sustainable development.

So I conclude that OLPC is not a bad *idea* at all. But the transformation of developing societies is most definitely out of Negroponte’s laptop-wielding hands. Given the need for endogenous growth and systemic change, digital divides represent another problem that demands rigorous coordination between international development organisations, governments of developing countries and, most importantly, the unique local populations.