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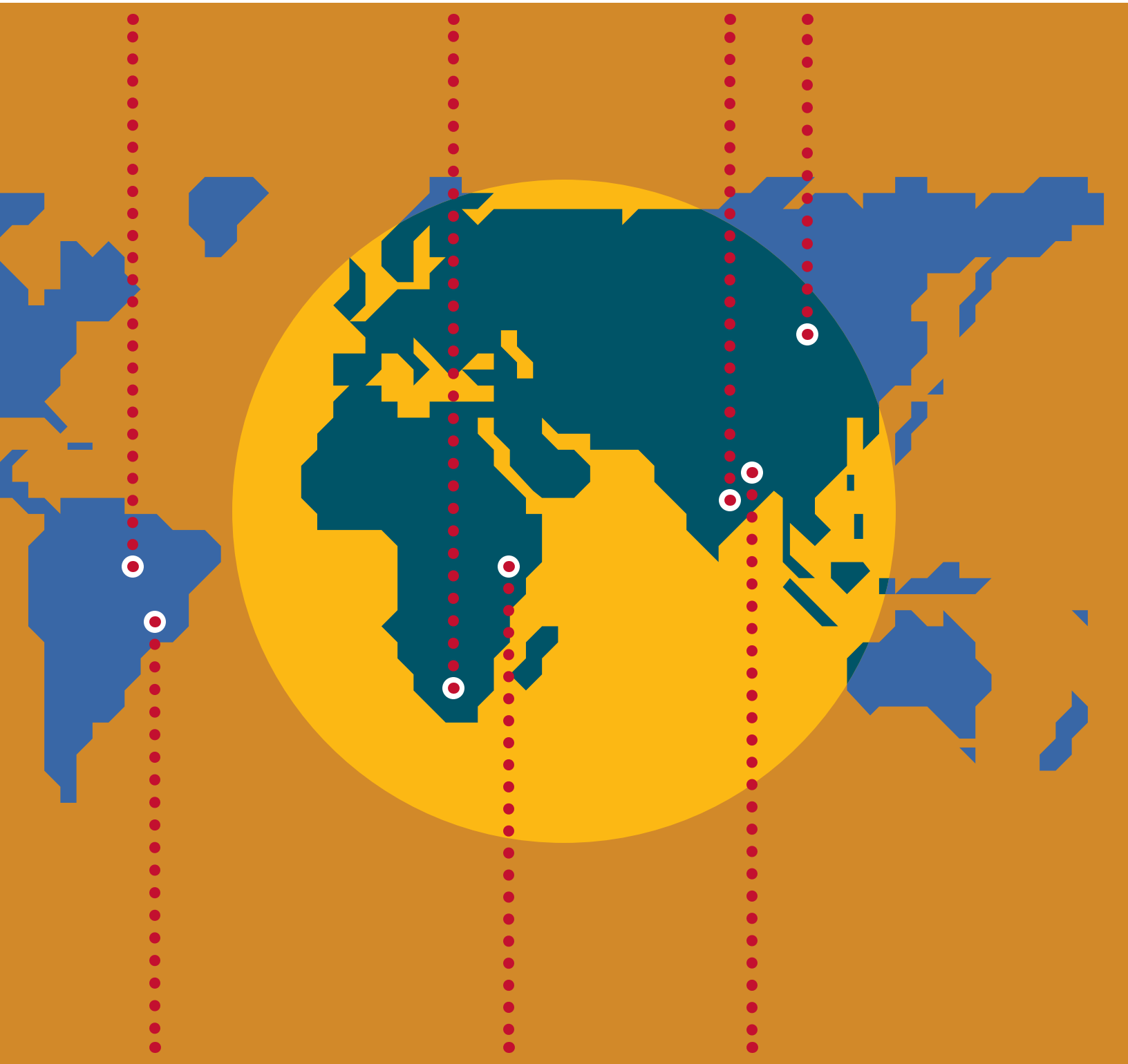
Learning from the Extremes

Charles Leadbeater and Annika Wong



Foreword

Forthcoming

Executive Summary

Meeting Hope

In the next few decades, hundreds of millions of young, poor families will migrate to cities in the developing world in search of work and opportunity. Education provides them with a shared sense of hope. Many will be the first generation in their families to go to school. It is vital that the hopes they invest are not disappointed.

Ingrained Failure

Yet even in the developed world, education systems that were established more than a century ago still under-perform, mainly because they fail to reach and motivate large portions of the population. These ingrained problems of low aspiration and achievement among the most disinvested communities in the developed world are proving resistant to traditional treatment.

The Four Strategies

This report outlines four basic strategies governments in the developing and developed world can pursue to meet these challenges: improve, reinvent, supplement, and transform schools and learning.

Improve School: Essential But Not Enough

The most obvious strategy is to spread and **improve** schools. By 2015 most eligible children will have a place at a primary school. The lesson of high-performing schools systems such as Finland's is that to get good results, you have to attract, train, and motivate good teachers and provide them with good facilities to work in.

Too much schooling in the developing world delivers too little learning as measured by high rates of teacher absence, high dropout rates among poorer children, pupils repeating years in large numbers, high failure rates in final exams, and low progression to further education and training. More children are going to school for longer but too many are not learning enough. Even in parts of the developed world, sustained investment in schools and teachers has not led to expected improvements in educational outcomes.

School improvement on its own will not be enough to meet the need for learning. Relying solely on this route will take too long. Governments must turn to more innovative strategies that will come from outside the traditional school system.

Reinventing School: Cracking the Code

Different kinds of schools are needed to teach new skills in new ways. Around the world, innovators such as the Lumiar Institute in Brazil, charter schools in the U.S., and independent schools in Sweden are **reinventing** school by using technology more creatively and providing more personalized, collaborative, creative, and problem-solving learning, in schools that have many informal spaces for learning as well as classrooms.

Supplement School: Invest in Families and Communities

Even reinvented schools, however, may not be enough to change cultures in communities where learning is not valued. Families and communities have a huge bearing on whether children are ready to learn at school.

That is why innovation beyond the classroom is vital to **supplement** schools. The Harlem Children's Zone and the preschool play groups run by Pratham in India are prime examples of social innovation to promote learning in communities, outside schools and often without formal teachers.

Transformational Innovation: A New Logic to Learning

However, to get learning at scale to the hundreds of millions who will want it in the developing world, **transformational** innovation will be needed. Transformational innovation will create new ways to learn, new skills, in new ways, outside formal school.

Transformational innovation is being pioneered by social entrepreneurs such as Sugata Mitra's Hole in the Wall and the Barefoot College in India, the Sistema in Venezuela, the Centre for Digital Inclusion in Brazil, and many others.

These programs:

- Pull families and children to learning by making it attractive, productive, and relevant
- Rely on peer-to-peer learning rather than formal teachers
- Create spaces for learning where they are needed, rather than just using schools
- Start learning from challenges that people face rather than from a formal curriculum

The test of these approaches is whether they get useful knowledge into the hands of people who need it. It is not measured by exam pass rates.

From Improvement to Innovation

To make learning effective in the future, to teach the skills children will need, on the scale they will be needed (especially in the developing world), will require disruptive innovation to create new, low-cost, mass models for learning. Even relying on good schools will not be enough.

This means there will have to be a wholesale shift of emphasis in education policies.

School improvement is still a vital goal. But more emphasis will need to be put on innovation that supplements school, reinvents it, and transforms learning by making it available in new ways, often using technology.

The chief policy aim in the 20th century was to spread access to and improve the quality of schooling. In the future, it will be vital to encourage entrepreneurship and disruptive innovation in education, to find new and more effective approaches to learning.

Learning from the Extremes

That kind of disruptive innovation may not come from the best schools. It is much more likely to come from social entrepreneurs who often seek to meet huge need without the resources for traditional solutions: teachers, text books and schools. Disruptive innovation frequently starts in the margins rather than the mainstream.

Governments should continue to look to the very best school systems to guide improvement strategies. But increasingly they should also look to social entrepreneurs working at the extremes who may well create the low-cost, mass, participatory models of learning that will be needed in future.

Acknowledgements

This project—exploring how social entrepreneurs are creating radically different approaches to learning in the extreme conditions of slums and *favelas* of fast-growing cities in the developing world—has taken the best part of a year.

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The Authors

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Our Research

Our research focused on social entrepreneurs in education in India, Brazil, and Kenya. Through web and desk research, particularly by examining grants and awards made by organizations such as Ashoka, the Schwab Foundation, the Skoll Foundation, the MacArthur Foundation, and others, we identified more than 100 examples of socially entrepreneurial organizations providing education and learning to underserved and poor communities and to people living in extreme environments, in cities and in rural areas. To our knowledge, this is the first time the work of these social entrepreneurs has been brought together. Our case studies are just the tip of an iceberg of many more projects that are underway.

A list of links to further material on the case studies in this report is in the appendix.

We followed up our desk and web research with field study trips to Brazil (Rio de Janiero, Belo Horizonte and São Paulo), India (Hyderabad, New Delhi, and Pune), and Nairobi, the capital of Kenya, to follow up the work of these social entrepreneurs in more detail. Our field work focused mainly on city slums. We visited several favelas in Brazil including Rocinha, the largest in Latin America. In India we visited slums in all several major cities, including Madangir in Delhi and Hakimpet in Hyderabad, which are two of the most established slums in Indian cities. In Nairobi, we made several visits to Kibera, one of the largest slums in Africa, as well as a number of other slums in the city, including Mukuru, Mathare, and Dandora.

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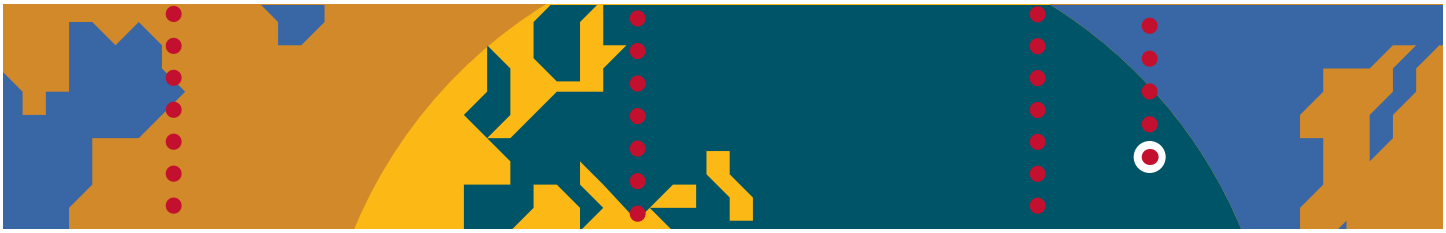

Part I:
How to Spell "Hope"

Rubinha has just turned 16. Vivacious and intelligent, like many girls of her age who have just finished secondary school, Rubinha is planning to study at college. Rubinha's barely literate mother was already married at her age. Had Rubinha been born 10 years earlier, she would have been expected to work in the family business or look after her siblings, rather than go to college. Rubinha's ambitions are just one sign of the social revolution spread across the developing world as millions of children from poor backgrounds become the first generation in their families to go to school.

Rubinha lives in Madangir Resettlement Colony, a dusty, densely packed slum. The recently refurbished primary school in Madangir that Rubinha attended, which is about a 25-minutes drive from the center of New Delhi, helped her get started. On paper, the school does not seem too bad: the 320 pupils have 11 teachers. In reality, in this and many other Indian schools, there are often more than 50 pupils in a class because perhaps a quarter of teachers are absent on any one day. In Rubinha's old school, children sit in rows, copying from the blackboard, parroting their teachers. School bored and frustrated Rubinha as much as it inspired her.

Two other factors fuelled Rubinha's ambition to learn. The encouragement she got from her parents and brothers was far more important than that of her teachers. Just as critical was the appearance at the entrance to her slum, when she was eight years old, of some computers on which she played educational games after school. The computers, encased in yellow metal, which were specially adapted to withstand the dust, heat, and thousands of little fingers, were brought to Madangir by Hole in the Wall, the organization created by Sugata Mitra, the visionary educationalist. Mitra wanted to show that the poorest children could learn by using computers with minimal adult supervision. Standing in a crowd of her friends on the waste ground they call their park, opposite the alley house where her mother sat in the doorway sifting seeds, Rubinha explained: "We kept coming back to the computers because, unlike school, learning on them was fun. It was like a game."[1]

For Rubinha, education plus technology equals hope because it makes learning attractive and playful.

That equation also worked for Wanderson, who dropped out of school in Rio de Janiero at 14 because in the *favela* where he grew up, life in the drug trade was far more compelling. Working for a drug gang brought Wanderson money, guns, girls, jewellery, and motorbikes. There was no homework. He learned on the job. The gang quickly spotted his potential and accelerated his career. When he should have been sitting school exit exams, Wanderson was overseeing the drug trade in 13 favelas, employing about 200 people and handling more than $100,000 a week. The downside was he was likely to be dead before the age of 25.

When he was 18, however, Wanderson had a lucky break: he was arrested on a minor offence and sent to a young offenders' institution. There he saw his first computer. It had been installed by CDI, a nonprofit organization now known as the Center for Digital Inclusion, which was set up by Rodrigo Baggio, a young social entrepreneur, who wanted to promote learning in favelas, prisons, and mental hospitals by creating free computer learning centers, using equipment donated by multinational companies.

Wanderson soon became hooked, making music and films with the computers. On leaving prison, he told his gang he was going back to school. Now he coordinates CDI's work in the prison where he was an inmate. Education plus technology has brought Wanderson hope because it made learning creative in ways school did not.[2]

1 Interview during field research in New Delhi, India, 21 April, 2009.

2 Interview during field research in Rio de Janiero, Brazil, 18 March, 2009.

What lessons can Rubinha and Wanderson teach us about how education needs to change to meet the needs of millions of young people hungry to learn but starved of opportunity?

Around the world, education is a powerful source of hope, especially for young people living in difficult circumstances. The spread of schools around the world, combined with efforts to improve them, should be cause for celebration. In the century to come, more children than ever will be in schools for longer. Improving those schools is a vital priority for governments.

However, school did not excite Rubinha and Wanderson to want to learn more. In Rubinha's case, it was the support of her parents and brothers, combined with subtle changes in attitudes to girls' education in urban India, and Hole in the Wall's computers, that propelled her to learn. For Wanderson, the spark was a different experience of learning provided by computers. Technology was the only thing compelling enough to break the spell of the drug trade. Learning is not just the outcome of teaching in schools. Family, culture, and community have a huge bearing on whether people want to learn.

Wanderson and Rubinha wanted different ways to learn. Technology made learning available in different places and times, and more importantly, made it an enjoyable and engaging process of discovery and creativity, in which they were the protagonists. Self-organized learning using computers can unlock an appetite for learning that schools often do not reach. That potential was not brought to life by the school system but by social entrepreneurs, working on the fringes of the mainstream, devising new approaches.

Wanderson and Rubinha provide us with a glimpse of the kinds of innovation needed to meet the aspirations of hundreds of millions of young people around the world keen to learn but turned off by school. They learned in formal settings—schools, classrooms, college—but as importantly in informal settings: at home, in their community, in prison. Innovation is needed in both formal and informal settings.

Innovation can be either sustaining or disruptive. A sustaining innovation improves an existing organization or product by making it more effective. There has been a great deal of sustaining innovation in education: exercise books and pens replaced slates and chalk; interactive whiteboards are replacing blackboards.

Disruptive innovation comes in many forms as well. One is to radically simplify how a service is delivered to cut prices and so to expand the potential market. Self-service restaurants and low-cost airlines are disruptive innovations: they disrupt established ways of working. A different form of disruptive innovation is a new product that creates a market that was not there before: for example, the Sony Walkman created the possibility of listening to music on the move. Disruptive innovation does not just reorganize a market, shifting consumers from one kind of product to another, like shifting people from traditional restaurants to self-service. Invariably it expands the market by attracting new consumers to buy a product or service they have never tried before. For example, many more people now fly because low-cost airlines have made it affordable. The Open University's distance learning programs are a prime example of disruptive innovation in learning. The technology programs that excited Wanderson and Rubinha are disruptive innovations because they made different kinds of learning available in different ways.

These four categories—sustaining and disruptive innovation, in formal and informal settings for learning— can be visualized through the simple grid shown in Table 1. The scheme shown in Table 1 helps us understand the different strategies available to governments, schools, and families for innovation in learning.

Table 1: The Education Innovation Grid

	Formal Learning	Informal Learning
Sustaining Innovation		
Disruptive Innovation		

The first cell points us to the most familiar category: **sustaining innovation in formal learning,** such as schools and colleges. The school improvement agenda pursued by governments around the world—to get more children into better schools, with better teachers, facilities and equipment—fits into this category.

Moving to the right brings us to **sustaining innovation in informal learning**—that is, outside school, at home, and in the community. This quadrant is attracting growing attention from policymakers. Family and community exert a profound influence on attitudes to and capabilities for learning. In deprived communities, children often have to overcome considerable social and emotional barriers to learning, in addition to facing economic and material constraints. Innovation in this quadrant is focused on working in communities, with families and parents, to enable more children to make more of school.

The third cell is **disruptive innovation in formal learning**—the mandate to reinvent school. Reinvented schools might have teachers, assessments, and classes, but they are radically different from the traditional school in a number of ways:

- They have personalized timetables.
- Assessment in this setting often does not involve traditional exams..
- Classes are organized by ability and interest rather than age.
- There is more peer-to-peer teaching and learning.

Disaffection with school, evident in high dropout rates and exam failure, suggests there is a pent-up demand for a different kind of school experience—an experience that is more engaging, rewarding and relevant to the skills people will need in the century to come. Governments and educational entrepreneurs around the world are making growing investments in this area to create schools fit for the 21st century.

The bottom right-hand cell is **disruptive innovation in informal learning** outside school: not alternative types of school but *alternatives to school,* which make learning available without a school structure, classroom, teacher, timetable, or exam. Most of Hole in the Wall's activities fit in this category.

As Table 2 illustrates, each category in the innovation grid represents a different innovation strategy to meet the growing demand for better outcomes from public and private investment in learning: **improve, supplement, reinvent,** and **transform.**

Table 2: Innovation Grid: Improve, Supplement, Reinvent, and Transform

	Formal Learning	Informal Learning
Sustaining Innovation	IMPROVE	SUPPLEMENT
Disruptive Innovation	REINVENT	TRANSFORM

- **Improve** schools through better facilities, teachers, and leadership.
- **Supplement** schools by working with families and communities.
- **Reinvent** schools to create an education better fit for the times.
- **Transform** learning by making it available in radically new ways.

The innovation grid is at the heart of this report's argument.

- Improvement in our current schools, on its own, will not be enough to meet the growing and changing demands of governments, parents, and children.
- That is true in the established school systems of the developed world and in the much more recently created mass school systems in the developing world.
- Strategies that supplement and support learning at school by working with families and in communities—to change habits, culture, values and aspirations —will become increasingly important.
- However, in addition, education needs more powerful sources of disruptive innovation, to create different kinds of schools and to create alternatives to school—in other words, to create entirely new ways to learn.
- Disruptive innovation in education is too weak because state regulation, teacher union power, parental conservatism, and political micromanagement create high barriers to new entry. Creating diverse new ways for people to learn is still too difficult. Disruptive innovation needs more support and encouragement.
- A band of disruptive innovators is emerging from within school systems in many parts of the developing world. Yet radical innovation rarely comes from the mainstream. Most often it comes from renegades, mavericks, and outsiders working in the margins. This report focuses on a potent source of such innovation: social entrepreneurs promoting learning in the slums of the fast-growing cities of the developing world.
- These disruptive innovators are creating a new logic to learning that often does without traditional teachers, schools, classes, timetables, and exams.
- These approaches may emerge from the developing world, and may apply just as much in the developed world, especially where schools seem to be failing to crack ingrained cultures of low aspiration, ambition, and achievement, which are main causes of the underperformance of whole education systems.

Let us first examine the big challenges facing education in the developed and developing world—the challenges that innovation strategies need to be designed to tackle.

Part II:
Two Big Challenges

Education provides hope for societies seeking to become more productive, innovative, civil, and democratic. In the last century, Germany, the United States, South Korea, Finland, Singapore, and Japan provided lessons in education's power to remake societies and fuel development.[3] Information and knowledge are not just vital economic inputs. They help to combat disease, hunger, and environmental degradation. Education vastly enhances but does not guarantee our collective capacity for social problem solving, democratic decision making, and productive work.

Around the world, among people of different religious faiths, the rich and the poor, in democratic and authoritarian states, East and West, in market- and state-run economies, education is a source of hope. Meeting those hopes is the challenge facing education policymakers. There are many aspects to this challenge, but two stand out.

The Developing World: Low-Cost, High-Quality Learning at Scale

The biggest educational challenge in the next 50 years will be in the turbulent cities of the developing world, which will teem with young people wanting to learn. The poorest and most disconnected parts of these cities—slums, informal settlements, low income housing, ghettoes—will grow fastest. This is where education is most needed and will have the greatest payoffs, and so it is where innovation will pay dividends.

Urbanization, perhaps the chief demographic force of the 20th century, will be even more powerful in the 21st century.[4] In 1950, there were 86 cities with more than 1 million inhabitants. By 2015, there will be at least 550. The world's urban population will grow by the equivalent of six new megacities of 12 million people per year.

Cites in the developing world will grow fastest. Between 1990 and 2000, the urban population of the developing world rose by half a billion people to 1.96 billion.[5] The combined urban population of China, India, and Brazil is greater than the total population of Europe and the United States. China has 97 city-regions with a million plus inhabitants, and India has 40, while the United States has 39. China added more urban dwellers in the 1980s than all of Europe in the 19th century. Thirty years ago, nine out of ten people in China lived in the countryside. By 2020, almost two thirds of China's population will be urban. In 1950, developing countries accounted for 40 percent of the world's urban population. By 2030, it will be eight out of ten.

Most new arrivals to these cities will live in informal settlements, bereft of public services. In the year 2000, there were 869 million slum dwellers in the developing world.[6] In sub-Saharan Africa, 72 percent of the urban population lives in slums, with 59 percent in South Central Asia. Some slums count as mega-cities in their own right: Mumbai has 10 to 12 million slum dwellers; Mexico City and Dhaka 9 to 10 million; Lagos, Cairo, Karachi, Kinshasa, São Paulo, Shanghai, and Delhi each have 6 to 8 million. Slums will grow phenomenally in the next half century. India's slums are growing 250 percent faster than the population as a whole. In Kenya, 85 percent of the population growth between 1989 and 1999 was in slums. By 2015, sub-Saharan Africa will have 332 million slum dwellers, and 15 years later 660 million, by which time there could be more than 2 billion slum dwellers in the world.[7]

3 Miller, R. (2008) "Education and Economic Growth: from the 19th to the 21st Century." Cisco White paper on Education and Economic Growth; see also Cohen, J. and Bloom, D. (2005) Cultivating Minds. *Finance and Development.* IMF, Vol. 42, No. 2. Available at: www.imf.org/external/pubs/ft/fandd/2005/06/cohen.htm; also Maddison, A. (2001) "The World Economy: A Millennial Perspective." Paris: OECD Development Centre.

4 For an overview of trends in urbanization and case studies from cities around the world, see Burdett, R. and Sudjic, D. (Eds) (2007) "The Endless City." The Urban Age Project by The London School of Economics and Deutsche Bank's Alfred Herrhausen Society. London: Phaidon.

5 Burdett, R. and Sudjic, D. (Eds) (2007) "The Endless City." The Urban Age Project by The London School of Economics and Deutsche Bank's Alfred Herrhausen Society. London: Phaidon.

6 For data on the growth of slums, see United Nations (2003) "The Challenge of Slums, Global Report on Human Settlements 2003." United Nations Human Settlements Programme. London and Stirling, VA: UN Habitat and Earthscan.

7 Davies, M. (2006) "Planet of Slums." London: Verso.

Slums embrace a huge diversity of people, places, and living conditions.[8] Many of Rio's favelas are well-ordered communities, very different from the ramshackle slums in the outlying districts of African cities. Slums can exhibit impressive social solidarity and at the same time seem on the verge of breakdown.[9] Yet a common characteristic is their lack of basic public services: water, electricity, sewage service, healthcare, and education. Slums are not just inhospitable to these industrial era infrastructures, they are largely ignored by politicians, beyond the scope of government and often unrecognized by city councils with few resources to cope with the influx the next decades will bring.

What's more, slums are not the only challenge in the developing world. The rural poverty that migrants to cities are leaving behind may be even worse. Children are being uprooted by conflict, civil war, and migration. Yet the scale of the challenge facing cities in the developing world dwarfs all these.

In Europe and the United States, urbanization in the 19th century gave rise to social innovations that made cities bearable: public libraries, parks, public transport, and mass schooling. The cities of the developing world will need radical social innovation on a similar scale. Education will be vital for these cities to provide people with a better life. People's health improves once they can read instructions and understand medical advice. Options for work expand with better basic skills. People are more able to use democratic rights if they are educated. Our biggest challenge is how to provide learning at scale to millions of poor people in places that are ill-served by traditional public services, including schools.

The Developed World: Cracking the Culture of Failure

The established education systems of the United States, Europe, and parts of Asia face different challenges. Enrollment and access is not the issue. Delivering reliable quality at scale is a challenge for even the best-performing systems.

Perhaps the most intractable challenge is the failure of mass schooling to deliver on its promise of social mobility and economic improvement for significant numbers of children. After investing huge hopes in schools in the first half of the 20th century, educational underperformance has become a perpetual source of anxiety in many advanced societies.

In the United States and United Kingdom, for example, more than a century after mass education systems were created, there are still deep pockets of educational inequality and underperformance, especially in run-down, inner city neighbourhoods and former industrial towns in decline, places where aspirations for learning are low and the cultural landscape barren.[10] In the United States, spending per child in education has risen by 70 percent in the past 25 years but has produced no appreciable improvement in literacy rates.[11] In the United States, one measure is the very high numbers of African American high school graduates who do not complete college courses. In the United Kingdom, 30,000 children a year leave the school system with few or any qualifications. In France, the failures of mass schooling are most evident in the high rates of grade repetitions and dropping out among children from poorer, ethnic minority suburbs. These failings are costly and ingrained.

Governments also face a challenge of whether schools systems derived from the industrial era provide the capabilities—for curiosity, collaboration, and creativity—that are needed in modern, innovation-driven economies. There is a danger that schools are teaching children to get through tests and exams, but not imparting the social and entrepreneurial skills they will need to prosper. Schools might be hitting the target but missing the point.[12]

On the face of it, these challenges are quite different. The challenge in the developing world is to get effective learning at low cost, on a vast scale, to hundreds of millions of poor families in societies where mass education systems are still developing. The challenge in the developed world is to tackle ingrained underperformance and inequality, as well as to make learning fit for the times.

However, tackling both these challenges will require social innovation to create new ways for people to learn. In both the developing and the developed world, societies have four main options in response: **improve, supplement, reinvent,** and **transform.** Let us examine each in turn.

8 Neuwirth, R. (2005) "Shadow Cities: A Billion Squatters, A New Urban World." London: Routledge.

9 For insight into the living conditions in slums, see Banerjee, A. and Duflo, E. (2006) "The Economic Lives of the Poor." MIT Mimeo. Cambridge, MA: MIT; also Faruque, C. and Samad, D. (2009) "The Invisible People, Poverty and Resiliency in the Dhaka Slums." Public America; also Sharma, K. (2000) "Rediscovering Dharavi: Stories from Asia's Largest Slum." New Delhi: Penguin; also Kramer, M. (2006) "Dispossessed: Life In Our World's Urban Slums." New York: Orbis Books; for a case study of education in slums, see Chugh, S. (2004) "Why Do Children Drop Out? Case Study of a Metropolitan Slum." New Delhi: Bookwell.

10 Barber, M. and Mourshed, M. (2007) "How the World's Best Performing School Systems Come Out on Top." McKinsey & Co.

11 Cisco (2008) "Equipping Every Learner for the 21st Century." Cisco White Paper; also Hanushek, E. (1998) "The Evidence on Class Size." Occasional Paper. 98:1. Rochester, NY: W. Allen Wallis Institute of Political Economy, University of Rochester.

12 See for example Wagner, T. (2008) "The Global Achievement Gap: Why Even Our Best Schools Don't Teach The New Survival Skills Our Children Need – And What We Can Do About It." New York: Basic Books; also Perkins, D. (2009) "Making Learning Whole." New York: Jossey-Bass; also Claxton, C. (2008) "What's The Point of School? Rediscovering the Heart of Education." Oxford: OneWorld; also Postman, N. (1996) "The End of Education: Redefining the Value of School." New York: Vintage Books.

Part III:
Improve: Essential But Not Enough

	Formal Learning	Informal Learning
Sustaining Innovation	IMPROVE	SUPPLEMENT
Disruptive Innovation	REINVENT	TRANSFORM

Start from School

Schools are the natural starting point for educational innovation. The contemporary ideal of universal education through mass schooling was a creation of late 19th century Europe and the United States. In the United Kingdom in the 1830s, it was easy for a reasonably literate man to set up a school in his front room and attract fee-paying pupils, while unmarried women set up "dame schools" in their homes and gardens. Most elementary education was unregulated.[13]

The roots of the modern British school system lie in Sunday schools, which taught reading to promote Bible study. By the mid 19th century, the Newcastle Commission found that schooling was the norm for most of the young in England. The Elementary Education Act of 1870 redefined schooling as a compulsory, age-specific, school-based exercise, directed by professional teachers, aimed at the mastery of prescribed school subjects grouped around a central core of basic literacy. By 1900, compulsory elementary education was established in most of Western Europe (Belgium, the laggard, followed suit in 1920). In Europe the proportion of children attending school went from about 25 percent in 1870 to 75 percent in 1900.

The United States started the 19th century with children being educated in church basements, private houses, and one-room rural schoolhouses.[14] By 1850 all U.S. states had government-funded primary education, but only 50 percent of American children attended school. By 1900 all states required attendance at elementary school and about 10 percent of U.S. 14 to 17 year olds went to high school. By 1980, nine in ten attended high school and 70 percent graduated. Schools became larger, more complex, and systematized. Between 1930 and 1980, the number of high schools in the United States barely changed, but the number of students enrolled rose from 592,000 to 2,743,000. The number of days students spent at school rose from 99 in 1900 to almost 160 in 1958. Spending per pupil tripled between 1920 and 1950, and then tripled again over the following three decades.

In 1850 most education in Europe and the United States was provided by private, voluntary and church groups, in loosely regulated schools, that relied on independent funding. A century later most children were attending publicly funded schools that were more specialized, complex, and sophisticated institutions.

Yet through this transformation, the underlying logic of schooling has remained remarkably tenacious. As David Tyack and Larry Cuban put it: "The basic grammar of schooling, like the shape of classrooms, has remained remarkably stable over the decades. Little has changed in the ways that schools divide time and space, classify students and allocate them to classes, splinter knowledge into 'subjects' and award grades and credits as evidence of learning."[14]

13 For history of the development of schooling in Europe, see Aldrich, R. (1982) "An Introduction to the History of Education." London: Hodder and Stoughton; also Aldrich, R. (2006) "Lessons from the History of Education: The Selected Works of Richard Aldrich." London: Routledge; also Sanderson, M. (1999) "Education and Economic Decline in Britain, 1870 to the 1990s." Cambridge: Cambridge University Press.

14 For history of U.S. schooling, see Tyack, D. and Cuban, L. (1995) "Tinkering Toward Utopia: A Century of Public School Reform." Cambridge, MA: Harvard University Press.

School has spread because the formula is reasonably easy to copy: school buildings, classrooms, teachers, blackboards, tables and chairs. The evidence suggests that good schooling underpins economic growth, higher productivity, and incomes.[15]

The Developing World: The Early Stages of a Marathon

There are very good school systems in the developing world—for instance, in Cuba, Shanghai, and the Indian state of Kerala.[16] South Korea and Finland transformed themselves into knowledge-rich societies through sustained investment in education. So it is not difficult to see why so many developing countries are attempting to follow in their footsteps by expanding schools.

Not enough children are enrolled in education, especially girls. About 115 million children of primary school age are not enrolled in schools, and 264 million secondary- school-aged children. Yet the trend is at least going in the right direction: from 1990 to 2000, primary school enrollments increased from below 40 percent in many regions to close to 85 percent globally. The U.N. estimates that by 2015, almost all children of primary age should be enrolled in a school.[17] Over the past 50 years, the number of students enrolled in secondary school increased tenfold to 500 million. Improving the schools these children attend is the obvious starting point for delivering better education to more people.[18]

Unfortunately, some of the school systems spreading across the developing world are rapidly becoming part of the problem. They provide the equivalents of dirty drinking water to thirsty children. Far too many children in the developing world sit in rows listening to teachers, copying from blackboards, and learning by rote in schools the Victorians would instantly recognize. India, Brazil, and Kenya exemplify why mass schooling is failing to deliver on its promise and is creating a near insurmountable task for improvement strategies.

India

India has taken huge strides towards universal basic education. About 94 percent of children are enrolled in primary school and attendance is running at about 80 percent, encouraged recently by the provision of free midday meals, which has particularly attracted girls in rural areas. In the 1990s the literacy rate among 6 to 10 year olds improved by 14 percent. School facilities have improved thanks to a donor-assisted program, the District Primary Education Project, to build better schools in areas with low literacy rates. In 1996, almost six out of ten primary schools had no drinking water; by 2006, that was down to four in ten.[19]

However, the quality of education these schools provide leaves a lot to be desired. A 2006 survey by Pratham, the leading educational NGO, found that 47 percent of children in grade 5 could not read a story designed for grade 2. About 55 percent of those in grade 5 could not divide a three-digit number by a single digit, and this percentage rose to 75 percent in poorer states.[20] The main problem is the poor quality, attendance, motivation, and management of the highly unionized Indian teaching workforce. One study, based on random visits to Indian schools, found that 25 percent of teachers were absent at any one time. In only half the schools was teaching actually in progress. About 90 percent of the Indian education budget goes to teacher salaries.[21]

The poor quality of basic primary education helps to explain the high dropout rates in Indian secondary schools. In West Bengal, for example, only 17 of 100 students starting primary education will reach their school exit exams. Nationally, only about 30 percent of children pass through grade 5. India produces more engineers than any other country in the world; it also produces more school dropouts.[22]

Brazil

At first sight, Brazil seems to do better than India, with more children in primary schools for longer and more passing on to secondary education. Yet Brazil is bedevilled by many of the same problems: too many children from the poorest areas find themselves in weak schools, learning by rote from teachers with little motivation and few resources to do more.

By the turn of the 20th century, all Brazilian children eligible had a place at school. The illiteracy rate among 14 year olds had fallen to 2.5 percent.[23] Girls had access to education on the same basis as boys. The trouble is that vast numbers of children learn too little while they are at school. In 2003, for example, almost 44 million Brazilian children were enrolled in basic education designed for ages 7–14,

15 Miller, R. (2008) "Education and Economic Growth: from the 19th to the 21st Century." Cisco White paper on Education and Economic Growth.

16 Barber, M. and Mourshed, M. (2007) "How the World's Best Performing School Systems Come Out on Top." McKinsey & Co; also Whelan, F. (2009) "Lessons Learned: How Good Policies Produce Better Schools." Fenton Whelan; also Yong Zhao et al. (2009) "Why Not The Best Schools? The China Report." Canberra: Acer Press.

17 UNESCO (2008) "Education for All: Global Monitoring Report 2008." Paris: UNESCO.

18 Cisco (2008) "Equipping Every Learner for the 21st Century." Cisco White Paper.

19 Gandhi Kingdon, G. (2007) "The Progress of School Education in India." GPRG-WPS-071. Oxford and Swindon: Global Poverty Research Group and Economics and Social Research Council. See www.gprg.org

20 Pratham (2005) "Annual Status of Education Report, Pratham Resource Centre, Mumbai, 2005 and other years." Mumbai: Pratham.

21 Chaudhury, N. et al. (2005) Provider Absence in Schools and Health Clinics. *Journal of Economic Perspectives.*

22 For further reading on the state of education in India, see Banerjee, A. and Duflo, E. (2008) "Addressing Absence." Working Paper, MIT Poverty Lab. Cambridge, MA: MIT; Ramachandran, V. et al. (2005) "Teacher Motivation in India." Discussion paper. Bangalore: Azim Premji Foundation; Gandhi Kingdon, G. (1999) "School Participation in Rural India." DEDPS No 18. London: Suntory and Toyota International Centres for Economics and Related Disciplines, London School of Economics.

23 For an overview of contemporary education in Brazil, see Schwartzman, S. (2003) "The Challenges of Education in Brazil." Occasional Paper. Oxford: Centre for Brazilian Studies, Oxford University; also Neri, M. and Buchmann, G. (2007) "Brazil Country Case Study." Prepared for the Education for All Global Monitoring Report 2008. Paris: UNESCO. (2008/ED/EFA/MRT/PI/27); also Ireland, T. (2007) "Brazil Non Formal Education." Paris: UNESCO; also UNESCO (2007) "Early Childhood Care and Education in Brazil." Policy Review Report, Early Childhood and Family Policy Series. No. 13. Paris: UNESCO.

about 7 million more children than there were in the target population, because millions were repeating years. About half the resources of Brazilian education are spent on pupils repeating grades. Half the students in secondary education, which stops at 17, are more than 18 years old. A UNESCO review in 2007 found that the average pupil spends 10 years in school but only completes 7.6 levels. Of the 1000 pupils entering 1st grade in basic education in 2004, only 457 would complete the course and only 71 would do so in the time allotted. Those falling behind and dropping out come disproportionately from the poorer sections of society.

The UNESCO review concluded: "The quality of public education in the country, in almost all its dimensions, is very bad, which of itself favors dropping out and repetition; the latter also leads to further dropping out. Even those pupils who persevere to the end do not build up the human capital consistent with the level of instruction reached and sufficient to measure up to the needs of the labour market, in an open economy featuring growing competition which requires an ever more skilled workforce. We are faced with a big vicious circle mainly engendered by the low quality of education."

Kenya

Sadly, much the same is true in sub-Saharan Africa where enrollments in primary education have increased as countries and aid donors have striven to meet the Millennium Development Goal that primary education should be universal by 2015. In Kenya, following the phased abolition of school entrance fees, enrollments reached 100 percent in 2003. Between 2002 and 2005, enrollment in primary schools rose from 5.9 million to 7.6 million. Other African states have recorded similar surges.[24]

Rising enrollment has, however, dramatically increased class sizes in resource-constrained state systems. A study of 210 primary schools in Western Kenya in 2007 found the average class size was 83, and 28 percent of first grade classes had more than 100 pupils. Many students are being left behind, repeating grades and dropping out.[25] Kenyan education, still strongly influenced by the British imperial system, proceeds to a relentless drumbeat of tests in 13 subjects every six weeks. A UNESCO review in 2006 found that less than half of those that enroll in primary school complete all eight years. The review concluded: "Large proportions of Kenyan children are not acquiring sustainable literacy levels either because they are not staying in school long enough to do so or because of the poor quality of education."[26]

It is difficult for a society to be educated at scale without a good school system. That is why across much of the developing world, mass education systems are being created to enroll almost all children. Yet many of these education systems are delivering alarmingly poor education, as evidenced by high rates of failure—children repeating years and dropping out. Millions of children are enduring substandard, factory-farm education systems that may be as much a blight as a blessing.

These school systems would improve with better teachers who were better managed. One sign of what is possible is India's private school sector, which has expanded enormously in recent years largely thanks to dissatisfaction with government schools. About 20 percent of rural primary age schoolchildren attend private schools and 45 percent of children in urban areas. Geeta Gandhi Kingdon, an Oxford University expert on education policy in the developing world, estimates that 96 percent of the increased enrollments in Indian primary schools between 1993 and 2000 were in often ramshackle private schools. Teachers in private schools are paid a fifth as much as their colleagues in the state sector and yet generally produce better results. The difference is that school owners make sure the teachers turn up every day and teach.[27]

The key to improving the quality of school education is the recruitment, training, motivation, and management of teachers.[28] Over time, low-quality, substandard school systems can improve to deliver the kind of learning people yearn for. Yet that improvement will take decades of patient and frustrating effort. Unionized school systems are resistant to reform. The political appetite to make contested reforms is limited. The scale of the task is daunting. McKinsey estimates that in China, India, Indonesia, and Nigeria alone, 10 million more teachers will be needed to bring an additional 260 million children into education systems where class sizes are already large. Recruitment of good quality teachers on that scale will take many years. That is why relying solely on improving schools to meet demand for learning in the developing world will be a long and painful haul.

24 For an overview of contemporary education in Kenya, see Bunyi, G. (2006) "Real Options for Literacy Policy and Practice in Kenya." Literacy for Life, Education for All Global Monitoring Report. Paris: UNESCO; also Abagi, O. and Odipo, G. (1997) "Efficiency of Primary Education in Kenya: Situational Analysis and Implications for Educational Reform." Discussion Paper DP 004/97. Nairobi: Institute of Policy Analysis and Research.

25 Duflo, E., Dupas, P. and Kremer, M. (2004) "Peer Effects, Pupil Teacher Ratios and Teacher Incentives: Evidence from a Randomized Evaluation in Kenya." MIT Mimeo. Cambridge, MA: MIT.

26 Bunyi, G. (2006) "Real Options for Literacy Policy and Practice in Kenya." Literacy for Life, Education for All Global Monitoring Report. Paris: UNESCO.

27 Gandhi Kingdon, G. (2007) "The Progress of School Education in India." GPRG-WPS-071. Oxford and Swindon: Global Poverty Research Group and Economics and Social Research Council. See www.gprg.org

28 See Barber, M. and Mourshed, M. (2007) "How the World's Best Performing School Systems Come Out on Top." McKinsey & Co; also Whelan, F. (2009) "Lessons Learned: How Good Policies Produce Better Schools." Fenton Whelan.

The Developed World: Tackling Ingrained Failure

The most inspiring story of sustained educational improvement is Finland, which regularly figures in the top three in most subjects covered by the most authoritative Programme for International Student Assessment (PISA) rankings of educational performance. About 96 percent of Finnish school students complete their education; only 2 percent repeat a year and only 0.5 percent drop out. Yet Finland only spends the average of the world's most developed economies represented in the Organisation of Economic Cooperation and Development on education—about 6 percent of GDP—and Finnish children spend less time in school than their peers in other countries: school does not start until the age of seven, and even then children spend at most 190 days at school, for between 4 and 7 hours, lower than many other OECD countries. The Finnish system is both highly equitable—there is no streaming or selection—and very high-quality.[29]

The key to this sustained high performance is that Finland attracts good people into teaching, which is a highly regarded profession: only 10 percent of applicants for teacher training are accepted. At school, teachers devote additional time to students who need extra help, and there is enough flexibility in a broad curriculum to provide for different styles of learning. Teachers have a strong professional commitment to collaborative, interactive forms of learning, promoting problem solving and critical thinking, as well as basic skills such as reading, which has a high priority.[30] Other successful schools and education systems have these ingredients: good people attracted into teaching are well trained, and they are supported and managed to be creative, problem-solving professionals working with children.[31]

Yet for many countries, this Finnish recipe remains just an aspiration. Following Finland would mean doing more than investing in better teachers. Finland is a small, socially and culturally homogenous, and consensual society. Finnish culture cannot be replicated easily. The Finnish approach would take many years to work.

Impatience with the pace of teacher-focused improvement strategies has led countries to put more emphasis on centrally driven targets and national standards. England has led the way in driving educational change from the center of government by introducing a national curriculum, tests at key stages, league tables that rank school performance, more rigorous inspection, and measures to root out underperforming schools and teachers.[32] The trouble is that these efforts seem to be running out of steam:

Improvements in educational attainments seem to have hit a plateau. In England[33] sharp increases in attainment between 1995 and 2000 in Key Stage tests in English and Math seem to have petered out.[34] Every year, 6 to 7 percent of children leave primary school with poor literacy and numeracy skills, and about 10 percent of young people leave school with fewer than five General Certificates of Secondary Education (The GCSE is an exam most young people in England and Wales take at the age of 16) of any grade. National targets, strategies and systems of inspection to drive systemwide improvements in quality have the downside of driving out initiative, discretion, and local innovation.

The plateau in attainment is due in large part to ingrained low engagement in and aspirations for education in some communities. The links between deprivation and educational attainment are complex. Schools serving communities with similar levels of deprivation can deliver very different outcomes. Yet nationally the achievement gap between pupils from different social backgrounds remains at much the same level as in 1996. About three-quarters of 16 year olds leave school with useful qualifications. Many fall below that level, and a minority— about 90,000—leave with little or nothing to show for their time at school. Only 19.5 percent of those eligible for free school meals get five good GCSEs including English and Math.[35] About two-fifths of young people now go on to university, but only 17 percent of those whose parents are in the bottom income quartile do. It is proving difficult to continue to raise attainment because it is proving difficult to change deep-seated cultural differences in attitudes to learning.

29 Timo Lankinen, Director General, Finnish National Board of Education, Presentation to Innovation in Education Conference, Guardian/Innovation Unit, November 9, 2009.

30 For further background on the Finnish system, see Aho, E., Pitkänen, K. and Salhlberg, P. (2006) "Policy Development and Reform Principles of Basic and Secondary Education in Finland since 1968." Working Paper Series: Education 2. Washington, DC: World Bank; also Hautamäki, J. (2008) "PISA 06 Finland. Analyses, reÐections and explanations." Ministry of Education publications 2008:44; also Välijärvi, J. (2007) "The Finnish success in PISA – and some reasons behind it." Jyväskylä: Institute for Educational Research. Sirkku Kupiainen, Centre for Educational Assessment, University of Helsinki.

31 Whelan, F. (2009) "Lessons Learned: How Good Policies Produce Better Schools." Fenton Whelan.

32 See for example Barber, M. (2008) "Instruction to Deliver." London: Politicos.

33 Richard Brooks' presentation to GTC Seminar on Personalised Learning, July 2006. Available at: http://www.gtce.org.uk/newsfeatures/features/personalised_learning_july07

34 Marshall, P. (2007) "Tackling Educational Inequality." CentreForum Policy Paper. London: CentreForum.

35 Marshall, P. (2007) "Tackling Educational Inequality." CentreForum Policy Paper. London: CentreForum.

A good education might hit central targets and yet not provide children with the skills they need for a modern economy driven by innovation, the constant recombination of ideas, skills, and resources. That puts a premium on people with the social and cognitive skills to work together flexibly and creatively. The spread of the web and the mobile phone is allowing people to search for information from many sources and share it in many directions. Young people increasingly see themselves as participants in creating knowledge and ideas, not merely spectators. An education system designed to impart a body of knowledge that is decided upon in a top-down way seems hopelessly cumbersome for a world in which new information is emerging the whole time on the web. This puts a premium on capabilities people develop to search and sift information for themselves, rather than memorizing what they are told. The current system seems to reward teachers who get children through national tests rather than develop these wider capabilities. A focus on test scores may particularly disadvantage children turned off by academic subjects and traditional teaching styles.[36]

As a result of these three factors, even in the developed world, which is rich with resources, educational improvement programs are often protracted, politically painful, and costly. Replicating the success of Finland is difficult. Accelerating change through central initiatives can generate its own downsides. Innovation to improve schools is essential. But it is a long struggle. To improve overall outcomes, we need to look to other innovation strategies as well as improvement.

36 See for example Wagner, T. (2008) "The Global Achievement Gap: Why Even Our Best Schools Don't Teach The New Survival Skills Our Children Need – And What We Can Do About It." New York: Basic Books.

Part IV:
Reinvent: Alternative Forms of School

	Formal Learning	Informal Learning
Sustaining Innovation	IMPROVE	SUPPLEMENT
Disruptive Innovation	REINVENT	TRANSFORM

The Developed World: Cracking the Code

For as long as there have been schools, there have been attempts to radically remake them. These efforts gathered pace in the 1960s in the United States and Europe— for example, through more child-centred education, the open-air school movement, and efforts to create more open plan schools, which felt more like communities and less like factories.[37]

Schools catering for children with special needs, often operating at the margins of the mainstream system, have pioneered more personalized approaches to learning—for example, using individualized timetables and one-to-one tutoring.[38] Schools influenced by alternative pedagogies—Montessori and Steiner schools, liberal arts schools such as Dartington and Summerhill in the United Kingdom, and Big Picture schools in the United States and Australia—focus on creativity, social skills, and student-led learning. Schools in special circumstances, such as the Djarragun in Northern Queensland, which serves an isolated, indigenous community, organize learning around real-world, practical, problem-solving learning, which starts from questions the children want to answer. Learning in all these schools is more personalized and fluid, driven by questions rather than a rigid curriculum.

These experiments have tended to be the exception that proves the rule. However, in the past decade, more systematic efforts have been made to introduce disruptive innovation into schooling. In the United States, some charter schools have developed more creative and personalized approaches to learning. A prime example is the High Tech High network of schools, which offers a wide range of project-based approaches to creative learning. In Sweden, parents have been given the power to set up state-funded "free" schools by pooling the budgets allocated to their children.[39] This has led to a wave of new, smaller schools being set up. Every child in the Kunskapsskolan chain of schools in Sweden has a personalized curriculum and a timetable assembled from different modules. Children are taught in groups according to the stage they have reached rather than the age they are. At the start of each of five terms, every child agrees on learning goals with their personal tutor and their parents. Kunskapsskolan's 14 schools are housed in reused offices, hospitals, and stables; only one is in a dedicated school building.

In the United Kingdom, new kinds of schools are being created by: academies, which are sponsored by a company and often specialize in a field such as media, arts, or business; schools created by groups of parents; Studio Schools, which are small schools in shopping centers, for children disaffected from standard school; and cooperative schools, which are owned by staff and the community. The spread of more personalized approaches to learning—tailoring how, when, and where children learn to their requirements—has transformed schools such as Cramlington Community College in Northumberland.[40]

37 For a review of how school architecture has reflected different educational philosophies, see Burke, C. and Grosvenor, I. (2008) "School." London: Reaktion Books.

38 See for example case study of St Christopher's special school in Chichester, England in Leadbeater, C. (2005) "Shape of Things to Come." London: Innovation Unit.

39 Cowen, N. (2008) "Swedish Lessons: How schools with more freedom can deliver better education." London: Civitas.

40 See case studies in Leadbeater, C. (2008) "What's Next: 21 Ideas for 21st Century Learning." London: Innovation Unit.

The Orstad Gymnasium in Hellerup, Denmark, has been designed so that there are not enough classrooms for lessons, thus forcing students and teachers to use many of the other informal learning spaces in the school, including the canteen, and so to learn in different ways. Schools all over the world are experimenting with virtual and distance learning environments.[41]

Across the world, policymakers are starting to open up routes for new entrants to create new kinds of schools. In New Orleans, the city is remaking its education system based on commissioning services from a range of independent providers, thus giving it scope to continually stimulate the school system with new approaches.

The Developing World: Can a Mango Tree Be a School?

There are fewer examples of this kind of disruptive innovation in the developing world. The Lumiar Institute in Brazil, founded by the visionary business leader Ricardo Semler, has created two model schools, one in São Paulo, the other in a remote village high in the mountains outside the city. In Lumiar Institute schools, learning is organized around key questions and themes, agreed with the children at the start of the term, rather than around a set curriculum. Teachers are supported by adults who bring specialist, non-teaching skills, like video production. Children are grouped by the stage they have reached rather than their age. They acquire literacy and numeracy skills through their projects. The schools are modelled as self-regulating learning communities. Modern technology, especially the web and video, is woven into the way children learn, even in the rural school where many of the children do not have electricity at home.

Another Brazilian social entrepreneur, Taio Rocha, the founder of the Center for Popular Cultural Development (CPCD) and a disciple of the radical educational philosopher Paulo Freire, started out by trying to create schools under mango trees in rural villages.[42] One of CPCD's many innovations is a walking school, which goes to a different house of a person in the class each day for lessons, based on materials in the house.

Social entrepreneurs are creating schools that are productive centers rather than simply places of instruction. They are places where children learn by producing rather than sitting and listening, and often they work to earn money. Fundación Paraguaya is a self-sufficient agricultural school in which students from poor homes learn vocational skills, grow food, and make products that make the money needed to employ teachers. Baraka Agricultural College in Kenya aims to do something similar, and Fundación Origen, a rural school in Chile, aims to raise 30 percent of its budget through sales of its produce.

Social entrepreneurs are often ahead of where state school systems need to be. A good example is the Sisters of Mercy, an organization of Catholic nuns with a mission to work among the poor, which set up the first school in Mukuru, a Nairobi slum. The Sisters of Mercy now support five schools in Mukuru, serving more than 4000 children. As primary education has spread, these nuns have developed new services. For example, they have created a free computer training program and a skills center to teach marketable skills, such as weaving. The Sisters of Mercy are creating a community of learning, which has schools at its heart, to provide a wide range of useful and marketable skills.

These different efforts at radical innovation have common ingredients because all are responding to shortcomings in the standard school-operating model. All these radical innovators want:

- Children to become protagonists in learning.
- Learning to be a collaborative activity, the outcome of interaction between teachers and pupils, and among pupils, rather than being a transfer of knowledge.
- Teachers to be supported and even supplanted by other specialists and peer-to-peer learning.
- Learning to be more clearly related to real-world questions and problems and to also be a productive activity, in which children make things and even earn money from their work.

Indeed, it is striking that the approaches of these schools overlap to a considerable extent with the long-term aims of policymakers in some of the world's best performing education systems. As Timo Lankinen, director general of education in Finland, put it: "We want more problem-based instruction and learning. More ubiquitous technology and opportunities for participation. A sense that children are on a progressive inquiry, with lots of peer feedback and collaboration, with a variety of learning methods, more learning in real-life situations, and public-private partnerships for learning. Of course, we want

41 Breslin, S., Dykes, G., Goodman, L., Llewellyn-Jones, C., Pearson, W. and Sutch, D. (2009) "Mapping the current and future landscapes of technology in education." Unpublished study for Cisco by Futurelab.

42 Friere, P. (2007) "The Pedagogy of the Oppressed." London: Penguin Books; and Friere, P. (2007) "Education for Critical Consciousness." New York: Continuum.

children to learn how to master information and communicate it well, but we also want them to be able to collaborate, empathize, and be agile."[43]

To provide for children's differing needs, the school-operating model inherited from the 19th century needs to be challenged and rewritten. Greater diversity of types of school and learning are needed. Disruptive innovation can emerge from within the mainstream system, as Cramlington in the United Kingdom, Djarragun in Australia, and Ørestad in Denmark attest. But disruptive innovations are usually brought by outsiders, and in education these are almost always socially motivated entrepreneurs.

There are signs that more disruptive innovation is starting to emerge: for example, from charter schools in the United States and parent-created schools in Sweden. However, it would be wrong to overstate how far this trend has gone and how easy it has become.

It is extremely difficult to shift schools—and even more difficult to shift entire school systems—toward radical and disruptive innovation to create new kinds of school. Parents are easily worried about standards dropping and the impact on children. Concerns like this put an end to Queensland's efforts in the 1990s to implement a new curriculum based on "rich tasks" and capabilities rather than traditional subjects. In addition to parents, traditional teachers can be hostile to innovation that makes their jobs more difficult and demanding.[44] What's more, successful innovations in a few outstanding schools do not transform entire systems. The United States, for example, has charter schools but not entire charter districts. For all these reasons, radically innovative schools may remain the rare exception rather than the norm: interesting but marginal counterpoints to the mainstream system.

Even radical innovation to create a wider range of schools may not transform outcomes. The biggest influences on aspiration and attainment may be family and community rather than schools and teaching. The keys to better outcomes might lie outside school. The big innovation challenge might be to change how entire communities regard learning. Rather than reinvent school, it might be wiser to look for innovation beyond the classroom.

43 Timo Lankinen, Director General, Finnish National Board of Education, Presentation to Innovation in Education Conference, Guardian/Innovation Unit, November 9, 2009.

44 Tyack, D. and Cuban, L. (1995) "Tinkering Toward Utopia: A Century of Public School Reform." Cambridge, MA: Harvard University Press.

Part V:
Supplement: Families and Communities

	Formal Learning	Informal Learning
Sustaining Innovation	IMPROVE	SUPPLEMENT
Disruptive Innovation	REINVENT	TRANSFORM

Learning Beyond the Classroom

Schools are not the only, nor necessarily the most important, place where children learn.[45] Children learn first in their homes, families, and communities.

A child's home background crucially affects their capacity and resources for learning. The first three years of a child's life help to shape their later development. Economist James Heckman's work shows that children deprived of opportunities to learn in their early years are very difficult to reach as teenagers. In Harlem, the poorest children arrive in school having had an average of 25 hours of independent reading behind them. The average middle-class child in America has 1700 hours of when at the start of school and their vocabulary is twice as large. Middle-class children are six times more likely to be praised than the poorest children.[46]

The development of literacy and numeracy skills in childhood are good predictors of later educational attainment and subsequent earnings. A substantial body of research shows that children from middle class families are far more likely to develop both cognitive skills, like literacy, and social and emotional capacities—for example, the ability to apply yourself to work and get along with others.[47] Children from poorer backgrounds who score highly in tests at 22 months are overtaken by lower-scoring children from affluent backgrounds by the age of six or seven.[48]

A U.S. study found that half the gap between affluent and deprived children's educational performance could be explained by their home environment. Poorer parents are likely to have fewer material resources for learning, including books and writing material. Poverty also puts people under pressure, and so the emotional stress of living in a poor household can also have an impact on parenting and learning.[49]

The connections between these factors and learning is complex. Studies of mothers in the United States, for example, found that poverty and maternal depression were closely related. Poverty had a pronounced impact on children's cognitive development while maternal depression was strongly related to behavioral problems that subsequently might affect access to learning.[50]

Children of engaged and committed parents earning low incomes can do well at school. But poverty makes that kind of parenting more difficult. A child's ability to learn is affected by their sense of social and emotional well-being. Parental support and encouragement is vital once they attend school, to deepen and extend what they learn. Sibling and peer role models can play a critical role in shaping attitudes towards learning. That is why schools need to be supplemented with initiatives to promote learning in families, at home, and in communities.

45 See Bentley, T. (1998) "Learning Beyond the Classroom: Education for a Changing World." London: Demos.

46 See for example the extensive work of James Heckman, Professor of Economics, Chicago University, on the interactive formation of cognitive and non-cognitive skills and their impact on future earnings, including: Lessons from the Bell Curve. *Journal of Political Economics.* Vol. 103, No. 5, Oct 1995; The Effects of Cognitive and Non-cognitive Abilities on Labor Market Outcomes and Social Behavior. *Journal of Labor Economics.* 2006, Vol. 24, No. 3 (with Jora Stixrud and Sergio Urzua).

47 Lexmond, J. and Reeves, R. (2009) "Building Character: Parents are the architects of a fairer society." London: Demos.

48 Feinstein, L. (2003) "How Early Can We Predict Future Educational Achievement? Very Early." CentrePiece, Summer 2003. Based on Discussion paper 404. London: Centre for Economic Performance, London School of Economics.

49 Becker, G. (1981) "A Treatise on the Family." Cambridge, MA: Harvard University Press; also Becker, G. and Tomes, N. (1986) Human Capital and the Rise and Fall of Families. *Journal of Labor Economics.* Vol. 4, No. 3; also Blau, D. (2008) The effect of income on child development. *Review of Economics and Statistics.* Vol. 81, No. 2; also Elder, G. and Caspi, A. (1998) Economic Stress in Lives: developmental perspectives. *Journal of Social Issues.* Vol. 44, No. 4; also Conger, R. et al. (1999) The role of economics pressure in the lives of parents and their adolescents: the family stress model. In "Negotiating Adolescence in Times of Social Change." Cambridge: Cambridge University Press.

50 Kiernan, K. and Huerta, M. (2008) Economic deprivation, maternal depression, parenting and children's cognitive and emotional development in early childhood. *British Journal of*

The Developed World: Frontier Thinking Needed

Spreading learning is not just a question of providing more teachers and schools. A parallel process of social and cultural change is critical, so that learning is taken more seriously at home and in society. An educated society does not just have an effective school system; it has a culture that values learning.

Finland's excellent educational performance is partly the product of its excellent schools but also the product of a culture that promotes reading through heavy use of local public libraries. Finland provides families with high-quality childcare and family support services. Few children live in poverty in Finland compared with the United States and the United Kingdom. Finland's very good schools sit within a set of supports for families and opportunities to learn in the community.

Families are vital to learning and yet family life in much of the developed world is in the midst of flux. In the United Kingdom, children are far more likely than they were 40 years ago to experience parental separation, lone parenting, step families, half siblings, being an only child, or moving between different homes. In the United Kingdom, a significant minority of children live in deeply chaotic families. These are the children most likely to drop out of school early. In response, policymakers are putting more resources into strategies to supplement schools.

One focus has been on improved provision for preschools, especially ones targeted on early years. In the United Kingdom, the government has invested heavily to create more comprehensive early-years provision based around Sure Start preschools and Children's Centers. The government's 2007 Children's Plan set up integrated children's services departments to focus on improving outcomes for children rather just on school achievement.

A model for these initiatives is the community-based, integrated child development approach pioneered in the city of Reggio Emilia in Italy after World War II. Amidst the destruction of the war, Reggio Emilia parents realized they needed a fast and effective way to promote learning, even while the school system was reestablishing itself. The Reggio Emilia approach is based on the idea that children should guide their own learning; parents are partners in the process; and teachers are more like guides. Learning has to be holistic and integrated, about social and emotional well-being as well as cognitive development.[51]

More schools are seeking to develop their pupils' social and emotional skills and to compensate for social and emotional deficits in their home life. In England, the Social and Emotional Aspects of Learning program was launched in 2006 to provide a national framework covering seven key themes in the school year.[52] Several United U.K. school districts are piloting a version of the Penn Resiliency Program designed to promote emotional resilience.[53] The idea that home and school should form an alliance to provide more stability and consistency for children has become increasingly central to rhetoric and practice.[54] Reviews of efforts to help families support learning suggest that extended schools, which offer social support workers for families, can improve attendance, reduce exclusions, and engage families more in learning.[55] Schools in Hull are pioneering an approach known as the Family Learning Signature, in which schools help parents self-assess how children learn at home.[56]

More areas are running programs to help vulnerable parents to build up their parenting skills, to improve their relationships with their children at home, and to stimulate learning. The Family Nurse Partnership is a British version of the successful Nurse-Family Partnership early childhood program in the United States. This program provides intensive home visiting by healthcare professionals and midwives for vulnerable, first-time mothers.[57] The U.S. scheme has led to better health outcomes, less reliance on welfare, greater engagement in education, more paid employment, and stronger families. Manchester's city council is spending about £1 million— about $1.6 million U.S. dollars at 2010 exchange rates— a year on intensive parenting programs for parents whose children face a high risk of being excluded from school or being taken into care. The Halesowen Partnership in Dudley is creating a network of NVQ-accredited Community Learning Partners to support family learning, especially among the hardest to reach families.[58]

In some places, these attempts to support families are turning into transformational programs to change culture across an entire community. One is Winsford, in Cheshire, which in the 1960s and 1970s served as an "overspill town" for Liverpool. The Winsford Partnership, a network of two secondary schools, two special schools, and a primary school, aims to raise aspirations and ambitions, using learning to regenerate the town. The partnership aims to serve the most deprived wards with an all-age

Sociology. Vol. 59, No. 4; Kiernan, K. and Mensah, F. (2008) "Poverty, Maternal Depression, Family Status and Children's Cognitive and Emotional Development in Early Childhood: A longitudinal study." London: Centre for Longitudinal Studies.

51 For a basic introduction with suggestions for further reading, visit http://www.reggioemiliaapproach.net/about.php

52 DfES (2006) "The Primary National Strategy: Excellence and Enjoyment." London: DfES.

53 Gillham, J. et al. (2006) School-based prevention of depression and anxiety symptoms in early adolescence: a pilot of a parent intervention component. *School Psychology Quarterly.* 21.

54 Muschamp, Y. et al. (1999) "Parenting, Caring and Educating." Primary Review Research Briefings, 7/1. Cambridge: Cambridge University Press.

55 Cummings, C. et al. (2007) "Evaluation of the full service extended schools project: End of the first year report." Nottingham: DfES; also Webb, R. and Vulliamy, G. (2004) "Meeting need and challenging crime in partnership with schools." London: DfES; also Wilkin, A. et al. (2003) "Towards Extended Schools: A Literature Review." London: DfES.

56 For more, visit http://www.signature-academy.com/page-20091023-092555.html

57 Barnes, J. et al. (2008) "Nurse-Family Partnership Programme: First year pilot sites implementation in England: pregnancy and the post partum period." London: DfES.

58 Leadbeater, C. (2008) "What's Next: 21 Ideas for 21st Century Learning." London: Innovation Unit.

school, with children from 2 to 19 in a variety of settings. There is a strong emphasis on vocational routes to learning. The main barriers to learning in places like Winsford are not the quality of teaching and learning in schools, but a range of social factors that hold children back early in life. Disinvested communities such as Winsford need something akin to a cultural revolution. As one school head in Winsford put it: "What's needed here is something more like a frontier mentality."

Integrated approaches to family and community-based learning, however, will require organizational innovation. Teachers and schools will not necessarily be central to this. The Reggio Emilia approach created children's centers for learning that did not exist before. The Family Nurse Partnership uses nurses, midwives, and healthcare as a way into families and learning.

A prime example of the scale of innovation required is the Harlem Children's Zone (HCZ), which aims to transform the aspirations and achievements of a whole generation of 10,000 children living in 97 blocks in one of the most devastated urban communities in America.[59] An eight year old boy in Harlem has a 33 percent chance of ending up in prison. A third of students drop out of high school. Three-quarters of Harlem children cannot pass the grade exams for their age. The HCZ, inspired by community activist Geoffrey Canada, set out to mobilize family and peer support to encourage learning: to make going to college the norm and to break the culture of low aspirations. HCZ starts work with parents before their children are born. It offers pre-kindergartens, personal tutoring, dance and sports classes, food coops, and social services help with housing and health issues.

Five years after Canada opened his first academy, a Harvard University review found the HCZ was "enormously effective at raising the achievement level of the poorest minority of children." About 97 percent of Geoffrey Canada's Promise academy eighth-graders are performing at or above their level. The Harlem Children's Zone is a model of social entrepreneurship and innovation: it has driven improvements in educational performance by linking what happens at school to what goes on outside it.

The Developing World: Mothers and Children First

In the developing world, millions of families will be in a state of flux in the next few decades as they move from the countryside into vast and inhospitable cities. Many of those parents will have their first experience of school through their children becoming first-generation learners. Parents who may well be illiterate will be asked to support children doing homework and studying for exams. Schools in the developing world will be far more effective if families can support children to learn.

Yet state resources to support learning outside school are even more limited than resources for schools. That is why this area has provided such fertile ground for social entrepreneurs who—like the families who created the Reggio Emilia model in Italy in the wake of war—are devising ways to support learning at school by working with families, in communities. These socially entrepreneurial supplements to school include preschool groups, support for students struggling at school, programs to catch dropouts and reintegrate them into school, informal learning opportunities, and vocational programs that complement what children learn at school.

Poorer children who are ill-prepared for school can quickly fall behind, become dispirited, and so drop out. That is why social entrepreneurs have led the way in creating preschool childcare services. Pratham, set up in India in 1994, is perhaps the most impressive example.

Pratham has helped to create thousands of informal, low-cost preschool *balwadis* in poor communities, employing and training school-educated young women to provide basic education for about 21 million children. Pratham provides short training courses to young women with a school exit certificate and pays them a small sum a week to run a *balwadi* in the front room of their house. Pratham's preschool program has been shown to significantly decrease the danger of children from poor families falling behind and dropping out.[60]

Elsewhere in India, Satya Bharti has created a network of preschools in Rajasthan employing qualified and nonqualified teachers recruited from the community. Satya Bharti has 158 preschools and primary schools reaching 18,000 children. The Afghan Institute of Learning, a pioneering program to promote education in Afghanistan, especially among girls, runs the country's first pre-primary school network. In Bogota, Colombia, the social organization Fundac has created 17 community centers where women are given basic training in skills need to work in a nursery school so they can set up their own local nurseries.

59 Dobbie, W. and Fryer, R. (2009) "Are High-Quality Schools Enough to Close the Achievement Gap? Evidence from a Bold Social Experiment in Harlem." Harvard University Working Paper, April 2009. Cambridge, MA: Harvard University; see also http://www.hcz.org; also Jenni Russell, The Guardian, August 5th, 2009. Available at: http://www.guardian.co.uk/commentisfree/2009/aug/05/harlem-poverty-children-schools

60 For an independent review of Pratham's work, see Banerjee, A. et al. (2005) "Remedying Education: Evidence from Two Randomised Experiments in India." MIT Mimeo. Cambridge, MA: MIT. For more information on the project, visit: http://www.bbc.co.uk/worldservice/trust/whatwedo/where/asia/bangladesh/2009/11/091118_bangladesh_janala.shtml

Seto Gurans National Child Development Services in Nepal trains groups of women so that as a group, some can work while others look after their children. Mothers are taught how to deliver a preschool program that provides intellectual stimulation, using materials designed by the mothers from local materials. The women take turns providing the service and going out to work. El Abrojo is a scheme in Uruguay that connects parents to one another in networks designed to support mothers who are having their first experience as a parent of a child at school. Women are trained as "community teachers" for other women.

Social entrepreneurs are also developing schemes to support children from poorer backgrounds to keep up at school, thus reducing the likelihood of dropping out. A study of Pratham's informal support for children while they are at school found it was one of the most effective interventions to date to help reduce the dropout rate. Pratham employs about 6000 learning support workers in government schools to give extra support to children at risk of falling behind and dropping out. Bodh Shiksha Samiti also runs informal education sessions to support children in Indian state schools. Bodh adopts schools serving slums as well as setting up its own schools. Bodh's teachers are community members trained to provide informal education.

Social entrepreneurs are devising ways to make education systems work more effectively by supplementing what schools do. Yet innovation outside school is far from straightforward.

- As Reggio Emilia, HCZ, and Pratham show, organizational innovation is required to create more integrated, intensive, home- and community-based services. Schools are too regulated and closed to undertake much of this work.
- Work with families and in communities requires the skills of motivation, empathy, and engagement. Often this work is done best by health visitors, nurses, para-professionals, and peers rather than teachers.
- The payoffs tend to be long-term. Programs such as HCZ and Reggio Emilia's children's centers are investments that can be assessed only over several years. They are not a quick fix.
- In the developed world, this approach will require the integration of different services around families and more integrated budgets.
- In the developing world, schemes like Pratham rely on low-cost models and mobilize support in kind from within communities. The line between education and community development is blurred.
- Schools are measured on their test scores. These schemes need to measure their success in terms of happiness, well-being, emotional resilience, confidence, and social capital. Good social and emotional outcomes lead to better learning outcomes.

For all these reasons, innovation to supplement schools is unlikely to come from incumbents. It may prove unwise to ask schools to get too deeply involved in this work for which they are ill-equipped and which may distract from their core task of teaching and learning. The social innovation that is needed is much more likely to come from outside—from social entrepreneurs—as well as from integrating learning with other public services, such as healthcare.

Part VI:
Transform: Alternatives to School

	Formal Learning	Informal Learning
Sustaining Innovation	IMPROVE	SUPPLEMENT
Disruptive Innovation	REINVENT	TRANSFORM

The Case for Transformational Innovation

Transformational innovation does not create alternative kinds of school but alternatives *to* school—entirely new ways of learning.

In the developed world, a range of critics argue that traditional schools are designed for an era when most jobs were in hierarchical, industrial-era corporations that needed compliant, punctual, diligent workers who were good at following written instructions. In the modern economy, jobs will require more collaboration and entrepreneurship, creativity and problem-solving. Workers will need the ability to ask, recognize, and explore interesting questions rather than looking for pat answers. Education tailored to the needs of mass production industry is out of kilter with the times.

In the developing world, schools do not work well in many of the most challenging social contexts where education is most needed. A social innovation created in response to industrialization and urbanization in Europe and the United States in the 19th century may not be the best answer to the needs of sprawling developing world cities in the 21st century, where most people will earn their livings in small, entrepreneurial businesses. The developing world needs low-cost, high-quality forms of mass learning to reach the millions of families who are coming to cities and who want to learn. Schools are a cumbersome and often ineffective way to meet this need.

The means are now becoming available to produce transformational innovation of this kind. The spread of the web, particularly through mobile phones, will allow more people than ever to access information, knowledge, and advice from skilled teachers and their peers, to participate in discussion, and to learn by their own discovery and through playing games. We have only just begun to explore how the web might be used to promote learning.

Already there are signs of the potential. In 2010, Google will enable 1 trillion free searches. Wikipedia contains 13 million free articles. About 20 hours of content is uploaded to YouTube every minute. Educational talks, such as the TED (a non-profit that organises conferences and talks on new ideas around the world) lectures, reach a mass global audience. Virtual worlds and games that involve collaborative learning engage millions of people—for example, 100 million young people are members of the virtual world Habbo. The potential for learning through mobile phones is only just beginning to emerge. A BBC service to teach English in Bangladesh through mini-lessons on mobile phones attracted 300,000 plus calls in a month.[61]

61 For approaches to disruptive innovation and how it could apply to education, see Christensen, C. (1997) "The Innovators' Dilemma." Cambridge, MA: Harvard Business Press; also Christensen with Horn, M. and Johnson, C. (2008) "Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns." Clayton: McGraw Hill.

In the next decade, developments on the web are likely to make it even more powerful as a platform for learning. These developments include:

- Better tools to present data in visual ways
- More effective spaces for collaboration
- Seamless connection to multiple devices with software and data increasingly held in third-party clouds to cut costs and ease access

The web may yet disappoint these hopes. In their day, television, radio, film, and computers were all heralded as disruptive technologies but were incorporated into standard schooling. However, web may prove to be more elusive and less easily absorbed into the establishment, not least because it puts power in the hands of users and takes control of information out of the hands of established hierarchies, such as schools. That is why this technology's disruptive potential is likely to be brought to life by social entrepreneurs and innovators, working outside the school system.

The Sources of Transformational Innovation

Radical innovation rarely comes from the mainstream. Usually it comes from new entrants to a market seeking to make an expensive product available to populations of poorer consumers. That is why creating mass learning in the developing world is a radical innovation challenge.[62]

To find transformational innovation, we need to look not so much to the very best schools in the world (for example, in Finland and South Korea) but to outsiders, often working in difficult conditions that make it easier to take the risks associated with radical innovation. Some of the most telling lessons in transformational, radical innovation will come from the bottom of the pyramid, not the top. That is why our research has focused on social entrepreneurs working in extreme social conditions in slums and informal settlements in developing-world cities.

Defining Social Entrepreneurship

Social entrepreneurs find innovative ways to address social needs that are underserved by the market, because there is no obvious profit to be made, and by the state, because there is not enough political will to tackle the issue. Social entrepreneurs mobilize resources that are beyond their immediate control and use resources, including people, buildings, land, equipment, that have been written off or overlooked by the mainstream.[63] Social entrepreneurs rarely provide just a service. They also mobilize mutual self-help, so people are better able to take control of their lives. Social entrepreneurs aim to get useful knowledge into the right hands, so that people can tackle the challenges they face in their lives.

Educational social entrepreneurs are pioneering novel approaches to learning in these impoverished communities by:

- Adopting more flexible, open, peer-to-peer forms of learning. Attracting people to learning by making learning enjoyable, engaging, and useful—for example by delivering an economic payoff.
- Providing their services without school buildings and instead adapting facilities used for other purposes, such as people's homes, public spaces, community centers.
- Doing without formally qualified teachers and instead employing a range of people with relevant skills and enough training to allow them to become para-teachers.
- Deploying a range of technologies for learning, including computers, the web, and mobile phones, but also other more basic technologies, especially technologies that are well suited to the conditions they work in.

These are the main ingredients of the transformational innovation being pioneered by these social entrepreneurs.

62 For definitions of social entrepreneurship and overviews, see Nicholls, A. (Ed.) "Social Entrepreneurship: New Models of Sustainable Social Change." Oxford: Oxford University Press; also Leadbeater, C. (1997) "The Rise of the Social Entrepreneur." London: Demos; also Dees, G. (2001) "The Meaning of 'Social Entrepreneurship'." Working Paper. Palo Alto: Stanford Graduate School of Business, Stanford University.

63 For example, see Adler, R. and Uppal, M. (2008) "M-Powering India: Mobile Communications for Inclusive Growth." Aspen Institute India, Report of the Third Annual Roundtable on Communications Policy. Haryana: Aspen Institute India.

Pull Not Push

In the developed world, schooling is a *push* system: attendance at school is mandatory, as are tests and in some countries a national curriculum. In slums, schooling has to compete with many other ways older children can spend their time. Boys often need to work in the family business, to boost meagre family incomes. Girls are required to do housework, to look after younger siblings, or to get married. Children and parents have to be attracted to learning: it has to be a *pull* system.

Social entrepreneurs are pulling children into learning by making education intrinsically more interesting—for example, by building pedagogy around play and by making it extrinsically more rewarding, by making it pay and solve the problems people face.

Learning Through

Social entrepreneurs run initiatives in which learning is delivered *through* another attractive activity, whether it is sport, dance, arts, photography, music, or even circus arts. School usually starts from a curriculum to be learned. Activities such as drama and sport are often seen as interesting add-ons. Social entrepreneurs start the other way around. They devise an activity that will attract and motivate children and then build structured learning into that activity. Consider these examples:

- The most famous example is El Sistema in Venezuela, which has produced a world-class orchestra consisting of children brought up in poor communities. La Fundación del Estado para el Sistema Nacional de las Orquestas Juveniles e Infantiles de Venezuela uses classical music training to break down the cycle of poverty in the country. [[is the following another example? Relationship to the last is not clear.]] About 70 teachers—musicians trained to teach rather than being trained as teachers—instruct about 1000 students in the Mantalbán Children's Academic Center. The education revolves around music and play. The best go on to the Simon Bolivar Conservatory. Linked to El Sistema is the Center for Social Action through Music, which promotes special needs training and education. Sistema also runs a network of centers supporting 250,000 children in six classes a week from 2 p.m. to 6 p.m.
- In Paraguay, Sonidos de la Tierra provides classical music training in slums so that young people have a source of stimulation in their free time, with the goal of making it less likely they will get involved in drugs and gangs. Luis Szarán, its founder, says: "The young person who plays Mozart by day does not break shop windows at night."
- Children enrolled in the Escola Pernambucana de Circo circus school in Brazil have to attend formal school as a *quid pro quo* for learning circus skills.
  The Instituto Ayrton Senna in Brazil funds a wide range of programs to promote learning through sport, dance, and art.
- The Tigers Club Project run by Retrak in Uganda is just one of many working with street children that use sport—in this case football—to draw them into learning. Grassroot Soccer is an African HIV and sport scheme which has engaged 230,000 young people since 2003. The program's mottos are: "Children learn best from people they respect"; "Learning is not a spectator sport"; and "It takes a village to provide lifelong opportunities for learning."

Learning as Play

Play forms a central part of the social entrepreneur's pedagogy.

- The most comprehensive learning system based on play has been developed by Taio Rocha at CPCD based in Belo Horizonte, Brazil's third-largest city. Rocha has devised more than 2000 learning games, of which about 200 are used in the local schools. Rocha's games cover all aspects of the curriculum. Rigorous assessment shows that his games have a significant impact on the effectiveness of learning. This pedagogy of play is just one aspect of Rocha's work over more than 25 years. He has also developed new tools for learning to be organized around questions rather than knowledge, as well as an alternative assessment system called "the index of human potential."
- The Program for Active and Creative Mathematics has developed new games-based ways to promote math teaching in Costa Rica, where children falling behind in math are one of the main reasons for high dropout rates and grade repetitions.

Learning as Problem Solving

Learning as problem solving is neither an abstract nor trendy idea in poor communities. Sometimes people need to solve problems that are matters of life and death: preventing the spread of HIV or finding enough food for their family. In distressed communities, learning has to deliver tangible payoffs to sustain engagement. That is why social entrepreneurs often devise learning around pressing needs. One of the most pressing is to find a way to earn a living, which people often do through creating a small business. For social entrepreneurs, education is about getting knowledge into people's hands so they can solve the challenges they face in their lives.

- In Bangladesh, the Center for Mass Education in Science provides micro-credit loans to young people and their families, so that they can pay for secondary education. The loan creates an incentive for them to develop marketable skills. Income-generating skills include soap making, candle making, and mechanics.
- Fundación Gente Nueva in Argentina runs primary and secondary schools and education and daycare centers, as well as 10 community-managed schools. Its technical schools run enterprise development programs, and it invests in the businesses that students propose. It is a school that acts as a seed investor in businesses that its graduates create.
- The Mann Deshi Mahila Business School for Rural Women in India runs business startup courses, including basic sewing, fast-food making, and dressmaking. It is the world's only business school for women with no formal education. The Business School on Wheels takes this service to rural villages.
- The Foundation for Education with Production aims to do the same in Africa, with a program of informal education based on learning skills that will raise people's incomes and health.
- CESDER in rural Mexico teaches a curriculum linked to the challenges of rural life and agricultural production. Escuela Nueva does much the same in Colombia. In Escuela Nueva schools, all learning starts from a discussion among pupils in a circle to decide what questions to pursue.

Many Places for Learning

Social entrepreneurs are enabling learning to happen in places that are not schools. CDI, the Centre for Digital Inclusion (an educational non-profit based in Brazil with operations across Latin America and the Middle East) piggybacks on community centers, prisons, and hospitals. It does not own its own centers. Pratham's *balwadis* are run in houses. Bodh's *bodhshalas* do much the same. Learning does not have to take place in specially designed school buildings.

Many social entrepreneurs are taking learning to where the children are:

- The Doorstep School (DSS) provides education for the many thousands of children on construction sites in India. In Pune alone, where the DSS was formed, there were 5000 construction sites in 2009 and about 30,000 children in families working on the sites. DSS works with construction companies to provide temporary schools on the site, sometimes in the DSS bus and sometimes in tin sheds, often as part of the construction site.

  At the most extreme, six mobile boat schools provide education to the Bede community, which live on Bangladesh's canals, using noncertified but trained teachers.
- The Ruchika Social Service Organization runs schools on railway platforms for the many thousands of children who live and work in and around Indian railways. The schools-on-a-platform use games and music to attract children. Their aim is to get children to a level III standard in literacy and numeracy. Ruchika also runs 35 informal education centers in slums.
- CID Consulting, created by Laila Iskandar Kamel, brings education to the Zabbaleen, a Coptic Christian community, which collects 14,000 tons of Cairo's waste every day. The 60,000 Zabbaleen are among the lowest of the low in Cairo, living among the waste they collect. Kamel established a school for Zabbaleen children, as well as informal and vocational education courses centered around recycling waste.
- Working in the most extreme circumstances imaginable, the Afghan Institute of Learning (AIL) is run by Afghan women to increase women's participation in education. Only 13 percent of Afghan girls finish primary school, compared to 32 percent of boys. Eight out of ten women are illiterate. AIL provides formal and informal education and vocational training. When the Taliban were in power, AIL ran a network of 80 underground home schools for girls. AIL has trained about 13,000 teachers.

Learning without Teachers

Good teachers are central to learning in schools. Yet in much of the developing world, communities do not have enough money to employ enough good teachers. Slums, refugee camps, building sites, and rural villages often lack government schools. Some environments are so extreme—poor, disconnected, remote, and in dangerous regions —that it is impossible to attract teachers to work there. Even when they do, their formal skills may be inappropriate to the challenges people face. That is why social entrepreneurs are finding ways to provide learning, despite a lack of formally qualified teachers.

Often innovative education projects make use of para-teachers—that is, teachers who are qualified enough to do some of the job that might be done by a school teacher. These are the educational equivalents of extension workers familiar in successful healthcare and agriculture projects in the developing world. Time and again, social entrepreneurs start with people motivated to reinvest in their communities and then provide them with the skills to start teaching.

These are just some of the examples of social entrepreneurs working to promote learning, even when there are no teachers to teach:

- Pratham set up its network of balwadis by recruiting young women who have completed their secondary education and providing them with a minimal wage —about $100 a month—and a few weeks training to set up and run a preschool group.
- Bal Jyothi runs a network of 200 preschools and primary schools in Hyderabad's slums, with local members of the community selected by mothers' committees to become teachers. They have 15 days of training to get up and running; after that, they learn on the job.
- The Barefoot College in Bihar, one of the most powerful models of educational self-help, has trained thousands of local people to become barefoot engineers, water mechanics, solar engineers, and health workers. People who have been trained train other people in turn to increase the supply of skills. Bunker Roy, Barefoot's founder, argues that qualified teachers lack the skills needed for rural settings, where people need more immediate and practical solutions to the problems they face.
- The Centro de Estudios para el Desarrollo Rural provides education in rural communities in Mexico focused on agriculture and indigenous culture. The teachers are not formally qualified but trained in CESDER's curriculum.
- Drishtee, which runs a network of franchise shops in rural India, provides basic computer and English training. Drishtee franchisees are trained to deliver these programs to very poor communities in which most people earn less than $2 a day.
- The Makhi Welfare Association operates in a network of 57 locally owned and run primary schools in 184 isolated and rural areas of Pakistan. Makhi schools find ways for community members with an education level of no more than fifth grade to become teachers. In Makhi schools, adults with sixth grade education might be teaching children in the third grade. Teachers are trained through a correspondence course to teach for three hours a day, six days a week, with limited materials.

Learning from Peers

Many schemes get round a lack of formally qualified teachers by using current and former students to lead peer-to-peer learning.

- CDI provides courses in nine Latin American countries for about 70,000 people a year, mainly from centers it has set up in community buildings, with donated equipment. CDI trainees become mentors, then teachers, and finally supervisors. The staff in CDI programs are all former students.
- Bugrado Edutrade in South Africa creates mentor groups within schools, from which ten students are trained to act as mentors teaching other children a skill in which they excel. Mentors create after-school programs to help provide an alternative to living in the slums and streets. Bugrado has a proven model for transforming learners into peer mentors and part-time teachers, multiplying the teaching resources available.

Critics will argue that para-teachers and peer teachers are a poor second-best. Much of the informal learning and daycare provided by noncertified teachers in slums is no doubt of poor quality. Nevertheless, social entrepreneurs are devising ways to get learning to families even when qualified teachers are not available, and when the formal teaching they provide might not be what people most need.

Learning as Production

Public investment in schooling, especially in poorer areas, is rarely a priority for governments. Many of the fastest growing cities in the world have chronically weak tax bases. Mobilizing additional investment, both public and private, is thus critical to expanding education. Social entrepreneurs have responded by developing new business models to support education—schools that pay for themselves by being productive enterprises.

The separation of learning from work defines the modern school. Children are freed from work in order to learn, before entering the labor market later in life. Social entrepreneurs are breaking this line, turning school into a productive, income-earning enterprise that can fund itself. Often this is the only way poor communities can fund education.

- Karatara is a South African business school that aims to pay for itself by spinning off businesses that will allow students for pay for their education.
- The Revolving Micro Credit Fund in Peru allows the young and their families to borrow to pay tuition fees for their secondary education. It marries micro-credit to learning.
- Bansofe School in Somalia pays the teacher in the form of goats. Each parent contributes a goat to the school. At the last count, the head teacher had a flock of 156.
- The Centre for Mass Education in Science (CMES) in Bangladesh reaches about 20,000 students annually, half of them girls, through a network of 400 schools. Products made in the school's practical programs help to fund the program.
- In several countries agricultural schools grow produce to sell in markets in order to pay for teachers' salaries, the model pioneered by Fundación Paraguaya.

Old and New Technologies for Learning

Social entrepreneurs are leading the exploration of how technology can make new forms of learning possible. They are deeply pragmatic about technology. They are happy to use old and new technologies in whichever combination makes sense. The Sistema in Venezuela and Sonidos la Tierra in Paraguay use the violin as a technology for learning. Taio Rocha at CPCD in Brazil has developed programs involving soap making as learning. Virtually anything can be a technology for learning.

Social entrepreneurs are seeing radical potential in technologies that are mature in the developed world. Some have been around for a long time. For example:

- **Television:** One of the most impressive education initiatives using distance learning is Soul City, set up in 1994 in South Africa, which uses television edutainment to educate people about HIV and to promote behavior change. Soul City produces weekly TV drama, daily radio drama, books, and advertising. About 3 million booklets are distributed per series. Soul City reaches 67 percent of South Africans, draws an audience of 16 million and is partly responsible for the decline in the incidence of HIV among the young. Makutano Junction is a Kenyan-produced TV educational soap opera with about 7 million viewers. In 2008, the producers Mediae received more than 30,000 texts requesting more information based on the program.
- **Post:** The Digital Study Hall creates video content of good teachers teaching the national curriculum in India, which it then distributes to rural schools by pos—the so called Postmanet—where teachers are often in short supply. DSH has videos for about 150 lessons and is serving 30 schools in Lucknow, Calcutta, Pune, and Dhaka. It is a small-scale model of what might become possible with the advent of mass broadband and services such as Skype.
- **Radio:** In Zambia, the Freeplay Foundation is using radio to promote education, through the Learning at Taonga Market (LATM) program. Lifeline radios are powered by hand or solar energy and so do not need batteries or electricity mains. A noncertified teacher—for example, a literate villager trained to use the radio as a teaching tool—sets up a makeshift classroom with a blackboard to teach literacy and numeracy based on the program. In tests, children who attend LATM classes do as well as those attending formal school and often reach grade 4 in the national curriculum faster than those in formal school.

Other technologies are new: Social entrepreneurs are leading the way in exploring the transformative potential of the web. One of the most powerful programs is Sugata Mitra's Hole in the Wall, which is showing how, with the help of a non-teacher mediator, computers can promote self-organized learning, especially in places where teachers are hard to recruit.

Mitra started by putting a computer in a hole in the wall of his office, which backed onto a slum to see how children would use it. Within four hours, without any help, they were surfing the net. When Mitra took computers to a remote rural area renowned for its singing, the children, who had never seen a computer before, needed just 24 hours to start recording their songs. Mitra's most ambitious scheme was to show that children in an Indian fishing village could teach themselves the equivalent of GCSE biotechnology, in English and without the help of teachers, just with free computers. After six months, they got scores almost on a par with those of children in India's best private schools. Mitra is developing a scheme to provide English lessons over Skype with retired teachers in the United Kingdom to read stories to children in India.

Hole in the Wall computers operate in about 500 locations across India; some are in schools, while others on the edge of schools or based in communities. They provide an adjunct to school education and an alternative to it. Hole in the Wall's programs show that children can learn without teachers through self-organized and self-motivated learning using computers designed to make learning fun. As the mobile phone spreads around the world and becomes the main point of access to the web, its potential to promote low-cost learning will also spread.

A New Logic for Learning

A thriving body of social entrepreneurs will be as important to the future of education in the developing world as good formal school systems are. Social entrepreneurs are promoting disruptive innovation outside school by developing a very different logic from learning. These are the main ingredients:

- Children are compelled to attend school in the developed world. Social entrepreneurs are devising approaches that attract children to school by making it interesting, engaging, and worthwhile. "Pull not push" is the signature of socially entrepreneurial education.
- Schools employ teachers to deliver instruction. Social entrepreneurs work in places that do not have enough teachers. Instead they are using para-teachers, non-teacher specialists, peers, and informal learning mentors.
- School buildings are no guarantee that learning is taking place, as many Indian state schools attest. Social entrepreneurs promote learning outside schools, in homes, workplaces and other public spaces, wherever learning is possible.
- Instead of following a curriculum to impart knowledge of academic subjects, social entrepreneurs get relevant knowledge to people so that they can tackle challenges they face in their lives. The "pull" curriculum starts from the problems people need to solve and the questions that interest them. At school, playtime provides a respite from lessons. Social entrepreneurs organize learning through play. It is not a diversion from learning but a medium for it.
- Schools incorporate new technologies—television, radio, film, and computers —to reinforce how teachers work. Social entrepreneurs are exploring how technology can create more open ways for children to learn, on their own, with their peers and mentors, and often without formal teachers. The disruptive potential of technology is much more likely to be unlocked by social entrepreneurs.

Social entrepreneurs are not a complete solution to all educational challenges. The evidence base for their work is still evolving. Critics worry that informal and unregulated approaches to education are a recipe for inferior, second-class education for the poorest people. Yet schools systems in many poorer societies will remain weak for years to come. The poorest people in those societies are the least able to gain from school and so the most disadvantaged. That is why it is vital that social entrepreneurs are encouraged to supplement school and to provide alternatives to it.

Social entrepreneurs have always provided novel approaches that state systems have learned from. Social entrepreneurs often identify new needs, tools, and organizational models long before the state. That is why even in the developed world, education systems should learn from the transformational innovation being pioneered by social entrepreneurs working at the bottom of the pyramid.

Scaling Social Change

In addition to providing radically new models for learning, some social entrepreneurs are providing new approaches to creating impact at scale.

Mass education started in the 19th century with social entrepreneurs. In the course of the 20th century, their innovations were codified into standardized approaches to school organization and architecture, teacher training, and assessment in a state-organized, compulsory education system, delivered by professional teachers. Another route to scaleis through the market: education as a commercial service. Modern India provides a telling example of how low-cost, private-sector schooling can spread fast. Ubiquitous technology on the web is creating another route to mass engagement, through the viral spread of videos, games, and tools.[64] Social entrepreneurs who lack resources to scale an organization are devising alternative routes to propagating social innovation.[65] For example:

- Social entrepreneurs **campaign** to change attitudes towards education and build demand for it. A prime example is Pratham, which began its own independent audit of the quality of Indian education in part to stimulate national debate.
- Social entrepreneurs **piggyback** on existing infrastructure rather than building their own. CDI works in conjunction with schools in several Latin American states. Pratham's learning support mentors add to the often scant resources in government primary schools. Drishtee provides its IT and English courses through a network of small kiosks. Social entrepreneurs make existing infrastructures more productive.
- Social entrepreneurs **adapt** to local circumstances. Many of the most successful social enterprises—CDI in Latin America, Hole in the Wall in India —propagate by adapting. They allow their basic approach to adapt to the different circumstances it will need to work in.

These networked and adaptive approaches are based on organizational models that are:

- Simple, very easy to explain and pick up, even if they involve new technologies.
- Modular: the models click together like Lego bricks with simple rather than complex designs, allowing ingredients to be added as they grow.
- Adaptable to circumstances so they can be made useful in situ.
- Immediately useful, which drives adoption and builds momentum.
- Open to others to make contributions, thus maintaining innovation.

The most impressive transformational social innovations follow this model: they resemble a plant like ivy, a radicant, which puts down roots as it spreads, hooking onto whatever supports it can find.

There are also successful models of social change of this kind, but they tend to come from agriculture and healthcare rather than education. The Green Revolution, triggered by scientific work of the Rockefeller Foundation in the 1940s, got new agricultural technologies into the hands of millions of poor farmers. Largely as a result, India's food production went from 11 million metric tonnes in 1960 to 55 million in 1990, far outstripping the projected increase in population. Smallpox affected 10 to 15 million people a year as recently as the late 1960s, but has been all but eliminated by a campaign bringing together specialists from the World Health Organization and local health practitioners. By 1980 the world was almost smallpox free. Polio was common in 125 countries in 1988, affecting more than 350,000 people. Only 784 cases were reported in 2003. The spread of knowledge about and services for family planning has reduced the average number of children that women in the developing world have from 5 in 1950 to 1955 to 2.8 in 1995 to 2000.[66]

Each of these transformations came about because effective technologies and specialist knowledge were combined with local expertise and community mobilization, which spread knowledge to where it was needed, in forms that allowed it to be put to immediate use, and in ways that delivered rapid and visible returns. We need the same approach to spread learning as if it were a vaccine fighting a virus.

64 See also Wood, J. (2006) "Leaving Microsoft to Change the World: An entrepreneur's quest to educate the world's children." New York: HarperCollins; also Prahalad, C. (2008) "The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits, Enabling Dignity and Choice Through Markets." Philadelphia: Wharton School Publishing.

65 For more such examples, see Sachs, J. (2005) "The End of Poverty: Economic Possibilities for Our Time." New York: The Penguin Press.

Part VII:
A New Wave of Education Entrepreneurs

Around the world, people disagree about the role of government and benefits of the free market, about religion and nationalism. Yet in the richest and poorest places in the world, almost everyone believes education provides hope. Education is becoming a global faith.

Our traditional means for delivering on this faith has been to provide people with schools. In the 20th century, the main focus for education policy was to finance, staff, regulate, inspect, and improve publicly funded schools. Good schools are a vital way to provide children with good teaching. It is a huge achievement that in the developing world, almost all children of primary age will soon have a place at a school. Societies such as Finland show that recruiting, training, motivating, and supporting good teachers is the key to high-quality school education. Yet even vastly improved schools will not meet the hopes being invested in education.

In the developing world, good teachers are in short supply. The academic skills schools teach are not what many poor communities need. Adapting schools will take too long. Hundreds of millions of children will find themselves in schools that will disappoint, frustrate, and confuse them. Many will fall behind, become dispirited, and drop out. The developing world will need a wider range of strategies than simply hoping to improve schools.

In the developed world, better schools, on their own, will not break through the ingrained cultures of low aspiration and ambition that underlie persistent inequalities in educational performance. Nor will traditional schools provide the 21st century skills and capabilities people will need to work in an innovation-driven economy, saturated with new technology, in which participation and collaboration will be ubiquitous.

For that reason, societies will need to invest more in the other three innovation strategies outlined in this paper. They will need to:

- **Supplement** schools with innovative approaches to community and family-based learning of the kind that Reggio Emilia, Harlem Children's Zone, and Pratham have pioneered.
- **Reinvent** schools to provide many more diverse kinds of learning.
- **Transform** learning by providing alternatives to school using the "pull" approaches pioneered by social entrepreneurs, particularly those that deploy new technologies.

The key to all three strategies is to unleash a wave of entrepreneurship in education of a kind the developed world has not seen since the 19th century. The developing world will only meet its citizens' demands for learning by encouraging a greater number of social entrepreneurs to work alongside state systems and to provide alternatives to them.

In both settings, the chief challenge facing policymakers is how to encourage entrepreneurship and new entry—that is, how to lower barriers to the creation of new kinds of school, build up capacity for entrepreneurship in education, encourage the innovative use of technologies for learning such as mobile networks, exploit the potential of the web to provide new platforms for learning, and create new kinds of community-based learning initiatives. Fine-tuning existing systems will not do the trick. We need to create new ways to learn that will work on a mass scale for hundreds of millions of young people in the developing world.

Rather than wait till improvement strategies are exhausted, policymakers should pursue a mix of all four strategies at the same time and not put their eggs in one single basket after another. Simultaneous innovation in all four quadrants will give a society diverse ways forward. Improving schools but also reinventing them; supporting improving schools with community-based initiatives; combining attempts to reinvent schools with new web-based learning platforms outside school. There are four basic strategies but at least 15 major combinations of these strategies. At the moment we concentrate all our efforts on just one tool: improvement. However, there are many other combinations of strategies a society could pursue. The challenge will be to get the right mix of innovation in the right settings, which will differ even within countries and regions.

One mark of the strength of the Finnish system is its capacity to innovate across all four quadrants. Finland is continuing to improve its schools, while adapting its family support services, creating new kinds of schools, and as one of the most technologically adept societies in Europe, seeking to use new technologies to promote learning. In England, the dominant focus is school improvement: community-based efforts to supplement schools or to provide learning in entirely new ways are mainly confined to children the school system cannot cope with. Yet education policy in England, too, is opening up new avenues for entrepreneurship—for example, by allowing parents to set up secondary schools.

In much of the developing world, the stakes are much higher. In India and Pakistan, Kenya and Brazil, it will take many decades to improve the state school system to an acceptable level. There, the most relevant strategies will be to supplement schools more effectively through programs to support family and community learning, and to exploit the opportunities of new technologies, particularly the mobile phone, to make learning possible in new ways, in the way that Hole in the Wall is pioneering.

For many people in the developing world:

> Education + Technology = Hope

To bring to life technology's potential to enable learning, however, we will need a massive wave of social entrepreneurship, in both the developed and developing world. Without that, new technologies will remain trapped inside old institutions, the learning potentially untapped.

> Technology + Social Entrepreneurs = New Ways to Learn = Hope Made Good

Schools are the main focus of the improvement agenda. Social entrepreneurs, disruptive organizations and technologies, should be the main focus of the other strategies. Social entrepreneurs will bring to life the learning in the future.

Too often, entrepreneurship and innovation have been seen as marginal add-ons. In the century to come, they have to become the new mainstream. The 20th century was the century of the teacher and the school, the class and the exam. The 21st needs to become the century of the educational entrepreneur and of the pupil as protagonist, self-motivated and self-organized learning, at scale, wherever and whenever it is needed.

Appendix

For further information about and links to the organisations mentioned in the report visit the following websites:

Baljyothi (Enlightenment for Children)

http://proxied.changemakers.net/journal/99june/banagiri.cfm

Bansofe School

http://www.unicef.org.uk/features/feature_detail.asp?feature=17&nodeid=girlseduc

Baraka Agricultural College

http://www.sustainableag.org/agricultural-products.html

http://www.convertworld.com/en/currency/Kenya.html

Barefoot College

http://www.barefootcollege.org/

http://www.skollfoundation.org/grantees/a-e.asp

http://schwabfound.weforum.org/sf/SocialEntrepreneurs/Profiles/index.htm?sname=129161&sorganization=0&sarea=0&ssector=0&stype=0

Bodh Shiksha Samiti

http://www.bodh.org/default.htm

http://www.ashoka.org/fellow/2662

Bugrado Edutrade

http://www.ashoka.org/fellow/2412

Centre for Mass Education in Science (CMES)

http://www.cmesbd.org/index.htm

http://www.schwabfound.org/sf/SocialEntrepreneurs/Profiles/index.htm?sname=0&sorganization=52229&sarea=0&ssector=0&stype=0

Centro de Estudios para el Desarrollo Rural (Centre for Studies in Rural Development—CESDER)

http://www.ashoka.org/fellow/3033

http://tinyurl.com/c4mclx

Centro Popular de Cultura e Desenvolvimento (Centre for Popular Culture and Development—CPCD)

http://www.schwabfound.org/sf/SocialEntrepreneurs/Profiles/index.htm?sname=199215&sorganization=0&sarea=0&ssector=0&stype=0

CID Consulting

http://www.schwabfound.org/sf/SocialEntrepreneurs/Profiles/index.htm?sname=173093

www.cid.com.eg

Committee for Democracy of Information Technology (CDI)

http://www.schwabfound.org/sf/SocialEntrepreneurs/Profiles/index.htm?sname=103461

www.cdi.org.br

Digital Study Hall (DSH)

http://dsh.cs.washington.edu/info/overview.html

http://groups.google.com/group/dsh-discuss/msg/59c3eb6c1fa7448d?

Doorstep School (DSS)

http://www.doorstepschool.org/

http://www.ashoka.org/fellow/3556

Dreams Can Be (DCBF)—Escola Pernambucana de Circo (EPC)

http://matadortravel.com/organizations/dreams-can-be-foundation

http://www.dreamscanbe.org/view/205

Drishtee

http://www.drishtee.com/index.html

http://www.acumenfund.org/investment/drishtee.html

El Abrojo (The Thistle)

http://www.ashoka.org/node/3744

http://www.elabrojo.org.uy/

Escuela Nueva Foundation

www.escuelanueva.org

http://www.schwabfound.org/sf/SocialEntrepreneurs/Profiles/index.htm?sname=129195&sorganization=0&sarea=0&ssector=0&stype=0

Expedição Vaga Lume (Firefly Expedition)

http://www.ashoka.org/fellow/3339

http://translate.google.co.uk/translate?hl=en&sl=pt&u=http://este-tango-eh-meu.blogspot.com/2008_05_01_archive.html&ei=5SrvSfrpPMuZjAea9YAe&sa=X&oi=translate&resnum=7&ct=result&prev=/search%3Fq%3DLa%25C3%25ADs%2BFleury%2BCunha%26hl%3Den%26client%3Dfirefox-a%26rls%3Dorg.mozilla:en-US:official%26sa%3DG

FESNOJIV

http://fesnojiv.gob.ve/en.html

http://www.guardian.co.uk/music/2006/nov/24/classicalmusicandopera

Foundation for Education with Production (FEP)

http://www.rightlivelihood.org/van-rensburg.html

http://www.mmegi.bw/index.php?sid=1&aid=104&dir=2007/April/Tuesday3

http://www.mmegi.bw/index.php?sid=2&aid=66&dir=2007/July/Friday20

Freeplay Foundation and Lifeline Radio—Learning at Taonga Market

http://www.freeplayfoundation.org/project_zambia_LATM.html

http://www.freeplayfoundation.org/lifeline_radio.html

http://www.globalgiving.com/pr/600/proj600a.html

Fundación de Apoyo Comunitario (FUNDAC—Foundation for Community Support)

http://www.tdh-geneve.ch/www/pdf/projets/col/col25138en.pdf

http://www.womenscampaigninternational.org/about/

http://www.globenet.org/preceup/pages/ang/chapitre/capitali/cas/bogpart.htm

Fundación Gente Nueva

http://www.schwabfound.org/sf/SocialEntrepreneurs/Profiles/index.htm?sname=198551

www.fundaciongentenueva.org.ar

Fundación Origen

http://www.schwabfound.org/sf/SocialEntrepreneurs/Profiles/index.htm?sname=197267

http://www.fundacionorigen.cl/ing_origen.htm

Fundación Paraguaya

http://www.fundacionparaguaya.org.py/index.php?c=208

http://www.teachamantofish.org.uk/aboutus.php

Grassroot Soccer (GRS)

http://www.grassrootsoccer.org/

http://www.draperrichards.org/fellows/soccer.html

Instituto Arton Senna

http://senna.globo.com/institutoayrtonsenna/ingles/home.asp?r=

http://www.comminit.com/en/node/131470

http://www.brazilpoliticalcomment.com.br/index2.php ?option=com_content&do_pdf=1&id=239

http://portal.unesco.org/education/en/ev.php -URL_ID=9761&URL_DO=DO_TOPIC&URL_SECTION=201.html

Karatara

http://www.edencampus.co.za/

http://www.teachamantofish.org.uk/bulletin/may2007.php

Makhi Welfare Association

http://www.ashoka.org/fellow/2777

Makutano Junction

http://www.comminit.com/en/node/133770/304

http://www.makutanojunction.org.uk/

http://www.research4development.info/ SearchResearchDatabase.asp?ProjectID=60313

Mann Deshi Mahila

http://www.manndeshi.org/

http://www.globalgiving.com/pr/2000/proj1963a.html

Mobile Boat School Program

http://www.ashoka.org/fellow/3852

http://www.grambanglabd.org/?action=background

http://www.bracresearch.org/publications/bede_school.pdf

Mukuru Centre/Sisters of Mercy

http://www.mukuruex.org/

Pratham

http://www.pratham.org/

http://www.ashoka.org/fellow/2555

Program for Active and Creative Mathematics

http://www.ashoka.org/fellow/3011

Revolving Micro-credit Fund

http://www.ashoka.org/fellow/3951

http://tiny.cc/4xNQR

Ruchika Social Service Organization

http://www.ruchika.org/

http://www.ashoka.org/node/2544

http://ajws.org/

Satya Bharti Schools

http://www.bhartifoundation.org/wps/wcm/connect/bhartifoundation/ BhartiFoundation/Programs/Satya+Bharti+Schools/

http://www.bharti.com/

Seto Gurans National Child Development Services

http://www.ashoka.org/fellow/2743

http://www.whole-child.org/projectdetails.adp?pid=10

http://www.jica.go.jp/nepal/english/pdf/newsletter_49.pdf

http://mashav.mfa.gov.il/mfm/Data/71460.

Soft Power Education

http://www.teachamantofish.org.uk/competition/winners.php

http://www.softpowereducation.com/

Sonidos de la Tierra

www.sonidosdelatierra.org.py/english

http://www.skollfoundation.org/grantees/r-z.asp

Soul City

http://www.soulcity.org.za/

http://gateway.nlm.nih.gov/MeetingAbstracts/ma?f=102272988.html

http://www.debeersgroup.com/en/Sustainability/Communities/ Case-study-Soul-City/

http://www.comminit.com/en/node/122775

http://www.southafrica.info/news/international/soul-250308.htm

http://www.comminit.com/en/node/1652

http://clearvisioninst.org/team

The Afghan Institute of Learning

http://www.creatinghope.org/afghaninstituteoflearning

The Tigers Club Project

http://www.changemakers.net/en-us/node/3686

http://www.retrak.org/index.html

A full set of case studies of the organisations profiled in the report will be available at GETIdeas.org.

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Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

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