











INNOVATION IN EDUCATION

LESSONS FROM PIONEERS
AROUND THE WORLD

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Cover picture

Children at a Nanhi Kali programme
school, Mumbai, India

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“It opened a door for me.
The door is to infinity...
Education does not mean
getting a certificate.
Education means I have
the right to learn anything
in this world and nothing
can obstruct me”

—
A student in Bangladesh
on what using MIT's OpenCourseWare
means to him.

FOREWORD

H.E. Sheikh Abdulla bin Ali Al-Thani, PhD, Chairman
of the World Innovation Summit for Education (WISE);
President of Hamad Bin Khalifa University;
and Vice President, Education, Qatar Foundation

—
When Her Highness Sheikha Moza bint Nasser, Chairperson
of the Qatar Foundation for Education, Science and Community
Development, asked us some three years ago to launch
an international, multi-sectoral initiative aimed at upgrading
education for all, we knew it was an ambitious but vitally
important mission.

Throughout most of history, education has been the preserve
of the few. As a result, regrettably, only a small part of our
collective potential has been put to use. Today's rapid social,
economic and technological developments have brought
us to a point where education should no longer be seen
as a privilege, but as a prerequisite to a decent quality of life
— for individuals and communities, in developed and deve-
loping countries. In short, it is a passport both to inclusion
and to opportunity.

Unfortunately, education systems have not always managed
to adapt. Too often our children enter adulthood without
the tools that will empower them to cope with an uncertain
future. Incremental change is no longer sufficient — transfor-
mational leadership is required. Our challenge is to move
in that direction, working within the wide range of circum-
stances that prevail, while respecting and nurturing the rich
diversity of cultures that are our shared heritage.

These same global processes also offer tremendous opportuni-
ties — to connect and network, to share ideas and best
practices. The World Innovation Summit for Education (WISE)
aims to seize that opportunity by offering a global platform
for collaborative action, using innovation as a key ingredient.

Since the launch of WISE, we have been immensely heartened
to discover many real-life success stories, sometimes in
the most unexpected places. We knew from the outset that,
in building the future of education, we must start from
those initiatives that are already making a positive difference.

Since 2009, the WISE Awards have identified, showcased
and promoted annually six of the most innovative
and promising educational projects around the world.

These projects, and others, are beacons of hope which, given
the right conditions, might grow and converge into the
education revolution that we need and which people around
the world are yearning for. It is the strategy of WISE to create
an environment in which this can happen.

In *Innovation in Education: Lessons from Pioneers around
the World*, we have visited exciting educational projects
that are achieving results, often in difficult circumstances.
The individuals engaged in these projects — educators and
organisers — are devoting their talents and energies to giving
the next generation a better start. They are true heroes
of our time, and I salute and thank them for their work,
and for their cooperation in helping us compile this unique
guide to breakthrough educational initiatives.

I also thank the WISE Qatar Foundation team and our partner
organisations for their support, and the entire WISE community,
whose combined experience, talent and passion will, I am
confident, engender many great things in the years to come.

I hope that this book will raise awareness of one of the most
significant issues of our age, that all who care about our shared
future will be able to draw encouragement from these exam-
ples, and that it will inspire original thinking and concerted
action both at the grassroots level and among policy-makers.

—
Find out more about the WISE initiative
and join our growing online community at:
www.wise-qatar.org

ACKNOWLEDGEMENTS

This book could not have been put together in so short a time, and to such high standards of production, without the help and commitment of many people. It would have been impossible without the tireless, resourceful research of Kathleen Stokes, who not only undertook extensive desk research but also, at short notice, plunged into field trips to the Netherlands, India and the Middle East, deploying her considerable language skills. Scores of people across the world generously gave their time to show us where they lived, went to school, worked and learned, from fathers' groups in Istanbul to the favelas of Bogotá, rural villages in India and Uganda to inner city programmes in Canada and the United States and farm schools in Paraguay. Without the generosity of our pioneers in sharing their experiences and ideas, this book would have been impossible. We have also drawn on the work of many other writers on education and innovation whose ideas we have built on: we hope we have given them due credit. My family very patiently put up with me being away for large parts of 2011.

Dr Abdulla bin Ali Al-Thani, chairman of the wise initiative, provided invaluable support for this project. Our main thanks go to Her Highness Sheikha Moza bint Nasser. The World Innovation Summit for Education (wise) is an initiative of Qatar Foundation for Education, Science and Community Development and was launched in 2009 at the instigation of Her Highness. This book and all the work that flows from it would have been impossible without her commitment to leading the search for innovation that can improve education around the world.

—
CHARLES LEADBEATER

—
*For Diogo Vasconcelos (1968-2011),
my friend and collaborator
who died while I was in Paraguay
researching this book.*



CHAPTER 1

THE BASICS: HOPE AND FRUSTRATION

A student from the African Institute of Mathematical Sciences looks out from the beach near the Institute's home at Muizenberg, just outside Cape Town

If you look closely at this host of children gathered around their teacher at the Kinyateke Primary School in deepest rural Uganda, you may spot a future doctor, teacher, engineer, artist, writer or businesswoman. We know there could be an aspiring mathematician hidden in that crowd because Angelina Lutambi came from a village just like this in nearby Tanzania.

“To afford the uniform, books and fees charged by state schools the entire family needed to pick cotton.” Angelina’s parents were illiterate. But that did not stop Angelina’s father from being determined that his bright little daughter would go to school. It was not easy. The Lutambi family were poor as poor could be. To afford the uniform, books and fees charged by state schools the entire family needed to pick cotton. When there was a drought, and so no cotton, there could be no school. Even when there was cotton to be picked there might be no teacher at the impoverished school that Angelina would walk hours to get to.

But Angelina persisted and eventually the immense natural talent of the girl from a mud hut next to the lake was spotted. After taking a degree at Dar es Salam University Anglina won one of the few available places at the African Institute for Mathematical Sciences (AIMS) in Cape Town.

Angelina prospered, focussing on the links between maths and epidemiology. She studied for a masters at Stellenbosch University in South Africa and worked for a health research organisation in Tanzania before going to Switzerland, to start a PhD. When her doctorate is completed she plans to return to her homeland to pick up her health research.

AIMS is a system for spotting and developing talent. That should be how all education systems see their task. Most do the job poorly, if at all. For the children of Kasese district in western Uganda, the struggle to get their talents recognised has recently become a little easier. They have a better school these days due to one of the remarkable projects profiled in this book – Rewrite the Future – a Save the Children campaign that has improved education for about 10m children in conflict zones in more than twenty countries. It has done this by building the equivalent of two schools a day for five years.

If education can find talent in the most unlikely places then it can also bring hope to the most unpromising places – places like La Capilla.

Emmanuel Kambale, the headmaster of Kinyateke Primary School in Uganda, surrounded by his pupils



Twenty-five minutes' drive south of the Colombian capital of Bogotá, La Capilla is part of the vast favela system known as Cazuco, the place where the poorest people live, the most recent arrivals from the countryside. La Capilla clings to a narrow strip of land, squeezed between a mud cliff and factories that line the main road out of the city. The factories belch fumes into the slum and each year the mud cliff delivers mudslides that carry away many of the feeble dwellings below. Most people in La Capilla make their living in Bogotá's vast informal economy. Gangs that peddle drugs are ever present in these favelas, as is the violence that goes with them. The community clusters around a few small shops, a DVD store, a cyber café, the church and a feeding station run by a Catholic charity which dispenses 500 lunches a day to hungry children. Everything in La Capilla is insecure, from the way people make their living to the earth beneath their feet. There cannot be many harder places to grow up. This is the place that Diego and Fabian Valendra, brothers, sixteen and fifteen, call home.

"To achieve real change we need to transform the lives of millions of children in this way, bit by bit, to make great things happen through many, many small things."

Diego and Fabian have seen their home swept away by mudslides twice and people lying murdered in the road outside. They live in a tiny house with seven other members of their family and share a room with their older sister. When other children their age were settling into school Diego and Fabian were out selling anything they could – flowers, chewing gum – in the bars of downtown Bogotá. Their working day started at 6pm and ended at four in the morning. It did not take long for them to become hooked on drugs, which they consumed with abandon.

How do you bring hope to boys like Diego and Fabian in a desperate place like La Capilla?

It's a trick Luizdary Brojas knows how to pull off. In 2003 Brojas started "learning circles" in La Capilla, based on the Escuela Nueva model of collaborative learning that Vicky Colbert first developed in rural schools in Colombia in the 1980s. Learning circles apply Escuela Nueva's core principles – collaborative and self-paced learning – to the most vulnerable city children who are at risk of slipping out of the school system.

Brojas, a tall, calm and warm woman, found Diego and Fabian, both made ill by the drugs they were taking, playing on scrubland that passes for a park. She asked whether they wanted

to join the circle. They were worried they would need official papers, books and money: "You just have to be clean," she told them.

At the outset the children, who had been exposed to violence from an early age, fought a lot. Brojas explained: "What these children miss is the magic hand of love and affection, to make them feel valued. If you can start looking at each one of them individually you can start to see their potential and then it becomes easier to work with them. But you cannot teach them in the traditional way. You have to work with them and get them to work together. The way they learn to form relationships with one another is key."

The learning circle seems to have changed Diego and Fabian. They are in school, a year behind their peers, but determined to catch up and keen to stick the course. "We have to sit in rows, with the teacher at the front," Diego explained. "In the circle we all sat around together, with the teacher in the circle. But what we learned about how to get on with one another has been important. We want to stick it out, to get a career, to help our family."

For Brojas the change was even more fundamental: "Diego and Fabian fell in love with life again, they dared to have dreams again. To achieve real change we need to transform the lives of millions of children in this way, bit by bit, to make great things happen through many, many small things."

Angelina's story tells us that talent can be found anywhere if only we know how to look. Diego and Fabian's story tells us hope can be generated anywhere if people can learn in the right way. Azize Sagir and Ceren Can Seren's story tells us that education can generate its own momentum by raising people's expectations of what is possible.

Azize Sagir is intent and alert, sitting on a simple sofa in her bare apartment in the Istanbul suburb of Esenler Merkez. She puts a protective arm around her four-year-old son Samet to encourage him to complete the worksheet that sits in front of them on a low table. He concentrates hard, keen to impress his mother; she responds by gently praising his efforts. The worksheet comes from a programme Azize has enlisted in with about twenty other young mothers, to prepare their children to go to school.



CLOCKWISE FROM TOP LEFT: Luizdary Brojas with some of her students in La Capilla, Bogotá; Vicky Colbert, the founder of Escuela Nueva, in her office; Diego and Fabian Valendra listening to Vicky Colbert; background material on Escuela Nueva; Diego near his home in La Capilla; the view over the favela towards downtown Bogotá; two boys near the feeding station in La Capilla run by a Catholic charity that caters for hundreds of children each day



ABOVE: Azize Sagir, with her husband Cengiz and son Samet, in their apartment in Esenler Merkez, Istanbul; **ABOVE LEFT:** Samet reading at home; **LEFT:** Azize leading her son through one of the exercises provided by MOCEP; **BELOW:** Azize, (second left) in her local mothers' group; **FAR LEFT:** Muzzuz Olcay, the group's facilitator; **BELOW LEFT:** A mother from the group. Most grew up in the countryside with limited education



Azize grew up in a remote Anatolian village, one of five siblings, and left school at the age of twelve to work in a market garden: "I would like to have gone to school but that wasn't an option. I had to work in the garden." Her frustration has turned into an implacable determination that her own children will not suffer a similar fate, their own potential stunted. Gesturing to the photographs of Samet's elder sisters she declared: "God willing they will both go to secondary school. Yes I have a lot of dreams for them. I want them to have their own vocation and occupation. I do not want them to have to be dependent upon their husbands."

That ambition leads Azize each week to the cramped, windowless back room of a local community centre, where with a group of other mothers, over about six months, she will learn how to prepare Samet to hold a pencil, make his letters, count in tens. The group, deftly led by veteran facilitator Muzzuz Olcay, alternates between mocking laughter at tales of their husbands' antics and fierce concentration as they hang onto Olcay's tips. Not a single mother went to school beyond the age of twelve. All are determined to give their own children a better chance in life.

Ceren Can Seren is proof that their ambitions are realistic. In 1983 she was at a pre-school group, attached to the Eczacıbasi pharmaceuticals factory in Istanbul, which employed her mother, where the pilot for what became the Mother Child Education Program (MOCEP) was launched. Ceren's mother was obsessed with educating her daughter even in the face of outright scepticism from her relatives who could see little point in educating a girl. Thanks to her mother's efforts, supported by MOCEP, Ceren was the first in her school class to read and she never looked back. Her teachers, she says, showed her "a different path to walk in life".

After leaving school with flying colours, Ceren took two degrees and now works as an architect in a thriving practice serving Istanbul's commercial property boom. When she is ready she will set up her own business. She was not prepared to be so patient as far as her own daughter's education was concerned.

With 35 other parents Ceren has set up her own pre-school, The Little Black Fish, modelled on Montessori principles. She explained: "I want a school that will preserve my child's spirit and keep alive what is inside. That is a proper education." She wants something that will find and nurture her daughter's talents.

Azize and Ceren are just tiny particles in a mushrooming cloud of rising expectations. All over the world parents are determined to give their children a better start in life. Children are hungry to learn and express themselves. For women like Ceren and Azize it is not just about lessons and exams; it is about women claiming the power to shape their own lives.

The mathematician from a mud hut in Tanzania. The boys from the Bogotá slum who want a career. The young woman, the first in her family to complete secondary school, who has set up a school for her daughters. What do these stories tell us about the state of education around the world?

The first thing they tell us is that hundreds of millions of families send their children to school every day in the hope that education will change their lives for the better.

Education plays a vital role in economic development, by providing skills and knowledge to make the economy more productive. Many families see in education qualifications that will lead their children to better jobs and higher incomes. Yet the benefits extend well beyond the economic. Education is generative: it brings multiple benefits to people and over a very long time. In rural Pakistan the gains might show up first in improved hygiene, which leads to better family health. In India it might be in the way young women are deciding to continue learning even after they get married. In zones of conflict, education can provide people with something in common, which helps overcome religious and ethnic differences. In Colombia, Escuela Nueva's collaborative learning does not just educate children in maths and Spanish, but in how to govern themselves, to become citizens.

For these people education is not just about exams and qualifications. It offers them the hope that their place in society will not be fixed by where they were born. People believe that through education they can remake their lives; talent can be found anywhere, hope kindled in the harshest places. Expectations of what education can and should offer are constantly rising.

The second message, however, is that education can also deliver disappointment and frustration.

It's not good enough to get more children into school, if few of them learn and what they learn

"I want a school that will preserve my child's spirit and keep alive what is inside. That is a proper education."

makes little difference to their lives. As Vicky Colbert, the founder of Escuela Nueva, puts it: “Education is the best hope we have for creating fairness and social justice, but only education of the right kind will do that.”

For all the hope that it excites, schooling can be rigid and bureaucratic, conservative and inflexible, resistant to new ideas and difficult to reform. That inability to adapt means that education, far from delivering social mobility, can entrench social inequality. Education can become a process for sorting children into those that will go on to university and into the professions, from those who fall behind and drop out of systems that almost seem designed to make life difficult for them. For too many families, in both the developed and the developing world, demography is destiny: where you come from, the family you

“The status quo can be changed but it takes a lot of outrage and a lot of good examples.”

are born into, will determine whether you go to a decent school that will shape your life chances. Inflexible, impersonal and rigid systems and rote learning are likely to reinforce rather than break through inequalities of class, caste and gender.

Just as expectations of education are rising around the world, so is evidence of disappointment. In most countries of the world, most children are now enrolled in primary schools that are free and accessible to most families. You might think that if children can go to school to be taught by a well-trained teacher, the rest should pretty much take care of itself. If only it were so simple.

The UN Millennium Development Goals, in order to ensure that by 2015 all girls and boys are able to complete a full course of primary education, have encouraged a huge government push to universalise primary education. In India 95% of children have a state primary school within half a mile of where they live. In several African states – Uganda, Kenya and Ghana – children flocked to school after primary education was made free. According to UNICEF, between 1999 and 2006 primary enrolments in Sub-Saharan Africa rose from 54% to 70%, while in East and South Asia they rose from 75% to 88%. Worldwide the number of children of primary school age who were out of school dropped from 103m in 1999 to 73m in 2006. More children also have access to secondary school despite it being more expensive. Between 1995 and 2008 gross secondary school enrolment ratios in Sub-Saharan Africa rose from 25% to 34%, in South Asia they rose from 44% to 51% and in East Asia from 64% to 74%. Over the past 50 years the number of students enrolled in secondary school increased tenfold to 500m.

Yet the fact that children are enrolled in school does not, necessarily, mean they are being taught. The 2002 and 2006 World Absenteeism Survey conducted by the World Bank found that public school teachers in countries such as Bangladesh, Ecuador, Indonesia and Peru miss one day in five. In India, when inspectors made unannounced visits they found 50% of teachers drinking tea, reading the newspaper or chatting to colleagues. It should be no surprise that many children do not learn what they are supposed to have been taught. A survey by Pratham, India’s leading educational NGO, found that only 35% of children in sixth grade could read a story and only 30% could do maths calculations designed for children in second grade. The frustration and disappointment bred by these systems can lead to dropouts and exam failures.

In West Bengal, for example, only 17 of 100 students starting primary education will make it to their school leaving exams. India produces more engineers than anywhere in the world; it also produces more school dropouts. By the turn of the twentieth century all Brazilian children had a place at school. The illiteracy rate among 14-year-olds has fallen to 2.5%. Girls have access to education on the same basis as boys. Yet one study found that half the resources of Brazilian education are spent on pupils repeating grades. Those falling behind and dropping out come disproportionately from the poorer sections of society. In Kenya, following the phased abolition of school entrance fees, enrolments reached 100% in 2003, rising from 5.9m in 2002 to 7.6m in 2005. Rising enrolments, however, have dramatically increased class sizes in state systems strapped for resources. A study of 210 primary schools in Western Kenya in 2007 found the average class size was 83, and 28% of first-grade classes had more than 100 pupils. A UNESCO review in 2006 found that less than half of those that enrol for primary school in Kenya complete all eight years.

This litany of disappointment is not confined to the developing world. In the United Kingdom 30,000 children a year leave the school system with few qualifications. In France the failures are most evident in the high rates of grade repetitions and dropouts among children from poorer suburbs with large ethnic minorities. Perhaps the most glaring example is the United States.

In the United States, spending per child in education rose by 70% in the 25 years to 2010 but produced no appreciable improvement in literacy rates. In 1969 about 77% of high school students graduated within four years. By the year 2000, that had fallen to 69%. The US public school system caters particularly poorly for children from ethnic minority and immigrant

backgrounds who will make up a majority of the US population within the next three decades. Most of those immigrants will be from Mexico, Latin America, Asia and Africa. American public schools are serving an increasingly diverse population in which many parents have limited experience of formal schooling and many families do not speak English as their first language. Yet these are precisely the students that are most likely to fail. As Linda Darling-Hammond explains in *The Flat World and Education*, too many of the poorest children go to schools with fewer resources and less-qualified teachers, where they have fewer opportunities for challenging and exciting learning tailored to their needs and the pace at which they learn.

The frustrations people feel with traditional schooling are only likely to intensify as schools fail to deliver the kinds of skills needed in a modern, innovative economy. Schools that teach children to get through tests will not impart the social and entrepreneurial skills they will need to prosper at work. Even when schools are hitting the target they may still miss the point. The main focus of education policy globally has been to get more children into better schools. In the decades to come the focus will have to shift, to make sure children have ample opportunities to learn: before they go to school, when they are at school and outside school. Too many children cannot get to a school, but just as many children are in school and learning too little.

The third lesson from our three success stories is that under the right circumstances a mix of hope and frustration can provide the fuel for innovation, and lead to the creation of more effective solutions.

Innovators meet frustration not with complaints, but with a commitment to devise more effective solutions. But this often requires innovators to break with conventional thinking and challenge orthodox models. As Bill Gates, Microsoft’s founder, put it in an interview for the film *Waiting for Superman*: “The status quo can be changed but it takes a lot of outrage and a lot of good examples.” In each of these three stories an innovator created a good example of a different way to learn.

Angelina, the mathematician of our first story, was lucky to go to AIMS, which has broken with the traditional model of university lectures to create a unique, collaborative and interactive approach to learning. Diego and Fabian are among the many millions of children in Latin America who have benefited from Escuela Nueva’s methods enabling children to learn together, at their own pace, from one another, in circles, as an alternative to classrooms in which children sit in rows, parroting what a

teacher tells them. Azize Sagir’s son is benefiting from an innovation that trains mothers to become the first educators of their children, instead of relying on professionals who, in developing countries, are often too scarce and costly.

Innovation can cut through the inertia that envelops many school systems by mobilising three key ingredients: the rising hopes and expectations of millions of parents and children; mounting frustration with the shortcomings of traditional models of education; and a commitment to develop new and more effective solutions. When these three – hope, frustration and experimentation – come together in the right way they can produce radical innovation that delivers much better outcomes for families, at affordable costs and on a large scale. Understanding where that kind of innovation comes from is the purpose of this book.

This is not a scientific, academic study of innovation. Nor is it a set of cookie-cutter recipes for people to follow. The focus is on the work of 16 pioneers around the world who have developed new and more effective approaches to education that work at scale. These pioneers are almost all drawn from applicants for awards from the World Innovation Summit for Education (WISE) in 2009 and 2010. By tracing the story of how these pioneering innovations came about, developed, spread and acquired scale we hope to raise awareness of why innovation in education is needed, where it comes from and how more can be generated.

First we introduce our 16 pioneers and the innovations they have created, starting with five friends from Karachi who had a crazy idea.

Children heading to school in Bhimavaram, Andhra Pradesh. Though enrolments have increased, 72m children in India are still not at school





Classroom in Kallakuru village primary school, West Godavari district, Andhra Pradesh, India. Children take turns making crafts and artwork while waiting to use the Telugu-based Bridges to the Future software implemented as part of the Model Schools programme of the Byrraju Foundation