NIIT FOUNDATION

Hole-in-the-Wall Education Project

Lighting the spark of Learning

Hole-in-the-Wall Education Project was set-up to research and propagate the idea of Hole-in-the-Wall, a path breaking learning methodology created by Dr. Sugata Mitra, NIIT's Chief Scientist Emeritus.

This innovative methodology was first launched in 1999. On 26th January, 1999, Dr. Mitra's team carved a "Hole-in-the-Wall" that separated the NIIT premises from the adjourning slum in Kalkaji, New Delhi. Through this hole a freely accessible computer was put up for use. This computer proved to be an instant hit among the slum dwellers, especially the children. With no prior experience, the children learn to use the computer on their own. The experiment suggested that children, irrespective of their social, ethnic or educational identity, can learn to use computers by themselves, thereby closing the much discussed 'digital divide".

This experiment was replicated in two other rural sites in the same year. The first adaptor of the idea was the Government of NCT of Delhi. In 2000, the Government of Delhi set-up 30 Learning windows in 5 locations in a re-settlement colony in Delhi. This project is ongoing and continues to create a tremendous impact among generations of young learners.
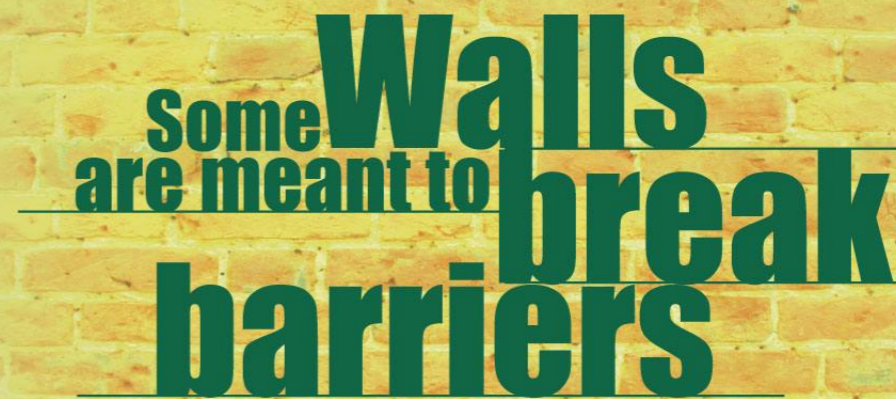
In 2001, a national research program was started, in which Learning stations were set-up in 23 locations across rural India. In 2004, the Hole-in-the-Wall reached Cambodia through ICCR and Ministry of External Affairs, Government of India.

NIIT Foundation is now poised to scale up the idea of Hole-in-the-Wall to make a significant contribution to improve the elementary education and life skills of children across the world, especially those in disadvantage communities in rural areas and urban slums.

Since its inception, there has have been over 600 installations, with more than 200 currently running Hole-in-the-Wall Learning Stations in India and abroad. The largest installation of 131 Learning Stations has been initiated in different parts of Bhutan.

Hole-in-the-Wall has brought the spark of learning to over 2 million children from the developing countries including India, Bhutan, Cambodia and African countries (Mozambique, Uganda, Rwanda, Botswana, Zambia, Swaziland, Namibia, Nigeria, Liberia, Central Africa and Zimbabwe).

What started as an experiment from a Hole-in-the-Wall has become India's gift to the world.

Some Walls are meant to break barriers

NIIT FOUNDATION

Hole-'n-the-Wall
Learning Station For Children

THE TIMES OF INDIA

New Delhi, Wednesday, May 12, 1999 • Capital • Internet Edition: www.timesofindia.com   Bennett, Coleman & Co., Ltd.   34 pages with Ascent • 6 pages of Delhi Times

Rajender ban gaya Netizen

Neeraj Paul

WHIZKID: Rajender, a slum boy, surfs the net with a touch-pad and a computer in Kalkaji, New Delhi.

By Parul Chandra

NEW DELHI: What could well have been a playground in the South Delhi colony of Kalkaji is instead a dusty expanse strewn with stones of various sizes. And yet, for the past few months, the children of Sarvodaya Camp, a slum bordering the ground, have been frequenting it.

Guddu, Rajender, Satish, Kamlesh... What draws them all is a *caamputer* fixed in what is virtually a hole in the boundary wall of the National Institute of Information Technology (NIIT). At any time, kids from the camp can be spotted surfing the Net with remarkable ease, thanks to a computer installed by the NIIT on January 26 this year.

Mind you, none of them has been taught to use the Net. There weren't any classes. No orientation courses. And as Prodeep Ghosh, vice-president, new products, NIIT, puts it: "I thought this Pentium II machine would go down the drain."

Three months down Mr Ghosh has no such fears. Now, he draws attention to the 1,000 folders the children have between them. The largest user is the 5-17 age group, says Mr Ghosh. And despite the text being largely in English, the users are "remarkably confident about going to the right site," he adds. Take Rajender, all of 8 and studying in Class III. His tiny fingers move deftly on the touch-pad which serves as the mouse.

The tiny tot doesn't mind standing on tiptoe as he peers into the screen. "*Games nahin aa rahin hain (the games cannot be accessed),*" he complains and then moves on to a film-site. "*Gaane bhi hain (there are songs too),*" he tells you, and soon the strains of Hindi chart-busters fill the air. But Rajender isn't quite satisfied, moving to the graphic equaliser on the screen for high audio quality. Remarks Rajender's mother Virma Devi: "He's there all the time." Vikas, also Net savvy, owes his computer-skills to Rajender. "*Yeh (Rajender) doosre number par hai (he's second best when it comes to computers),*" he states, with the numero uno being the older Sanjay bhaiya, who is now employed with a firm. Satish enjoys visiting the Disney website for its cartoons; the site is a major hit with all the children. Nowadays, most are busy accessing cricket sites. The kids are enjoying every minute of it; but if there is one thing that they miss, it's a keyboard.

Children in New Delhi, figuring out how to use a "Hole in the Wall" computer.
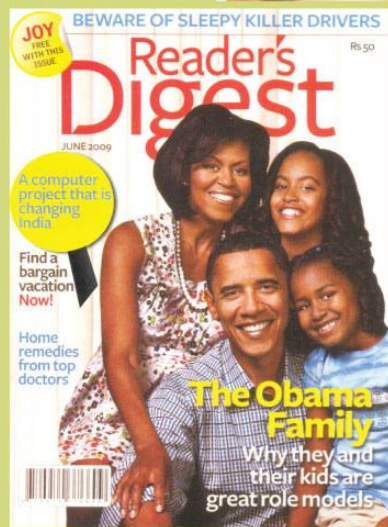
How a unique computer experiment is transforming the lives of underprivileged children. It was also the real inspiration for the movie *Slumdog Millionaire*

HOLE IN THE WALL

BY SIMON HEMELRYK

PHOTOS: PHILLIPPE TARBOURIECH

Two nine-year-old boys press their faces to a flickering screen. "What is this, television?" asks one.

"Press those buttons," says the other, pointing to the plastic-covered keyboard below. His friend pushes down on almost every key at once. Nothing happens.

From around the village, another 20 children, aged between six and 14, run over and crowd round, keen to see what this mysterious addition to their remote community can do. Men came from the city the day before, built a brick hut in the middle of the village and positioned the screen facing out from a window. The children were only told that this new machinery was for them to play with.

They shout out various, mostly unproductive, suggestions as to what the boy should do next. But after five minutes, he realizes that if he touches certain buttons an arrow moves round the screen and if he clicks on the big button in the middle, new pictures

appear. A while later, he clicks on a logo and finds himself logged on to the internet. Within hours, he and the other children are playing games and looking at Walt Disney websites, despite this being the first time they have encountered a computer.

Similar scenes have occurred across India in some 300 places in the last ten years. It's also being replicated in several developing countries of Africa and Asia. The kiosks were conceived by Professor Sugata Mitra who was, until recently, chief scientist with NIIT in New Delhi. Dr Mitra is now working at the University of Newcastle, UK. The "Hole in the Wall" kiosks have provided thousands of children from impoverished backgrounds with access to a PC. They can be found in public locations from the Himalayas to Andhra and Trivandrum, but what's remarkable about them is that, with no adult input whatsoever, children have used them to learn English, maths and, in several cases, to escape a future of labouring or farming to study politics, physics or biotechnology at university.

The idea for the kiosks dates back to 1985. "I was teaching people computer programming in New Delhi and had just spent Rs50,000 on my first home PC," explains Mitra, a smiley man with a gentle voice. "My four-year-old son wanted a go. 'Don't even think about it,' I said. But he carried on watching me.

"A couple of days later, I couldn't find a file. 'Try adding dir/w/p to the command,' my son said. I found the

file. Within a month he was ahead of me on everything and, like any good parents, my wife and I decided we had a genius. Then I spoke to my friends and realized their children were all computer geniuses too."

Mitra wrote a paper for a Goa educational conference in 1988, suggesting that if you left children to play with computers unaided, you could identify particularly bright kids and concentrate government spending on them for the good of all. "It was dismissed as fascist," laughs the 57-year-old. "So I forgot the whole thing for a while."

Eleven years later, Mitra as chief scientist at NIIT was charged with developing public-space terminals similar to those used in ATMs. Adjoining NIIT's building in New Delhi was a wasteland on the edge of the Kalkaji slum. Pigs snuffled through the rubbish looking for food, local residents used it as a latrine, but it was also a cricket pitch for the area's children.

On Republic Day 1999, Mitra and his NIIT colleagues decided to install a computer, operated only by cursor buttons, facing the wasteland. No doubt it would be vandalized by the children, giving Mitra data on how to make them more robust.

Then his 1988 paper sprang into his head. This could be more than an engineering project. None of the children knew much English and all were poorly educated, but if, perhaps, one or two of the brighter kids could at least open some documents, it might

go some way to proving his theory.

He instructed his staff to install the computer in a small gap in NIIT's wall, just one metre off the ground with a metal hood so only kids could easily access it.

Next day, he arrived late to his office to find a colleague waiting for him. "Those kids out there, they're surfing!" he said.

"Did you show them how to do it?" Mitra asked.

"No one went near them."

Mitra monitored the children from a second computer and saw them start to play online games unaided. After two weeks, he turned on the PC to find a word document reading "I love India" in multicoloured letters. Eight-year-old Rajinder showed him how he had created it using a character palette that Mitra had no idea existed.

Soon the children's fathers were asking them to look for jobs for them online, while their mothers wanted to know their horoscopes. "Just as my wife and I had found we had a genius, they all found they had geniuses too."

NIIT had initially given the project a more scientific-sounding name, "Minimally Invasive Education," but it was a newspaper article that first christened it Hole in the Wall, recalls NIIT Chairman Rajendra S. Pawar. Mitra and his colleagues set up further Holes in the Wall in the town of Shivpuri, Madhya Pradesh, and the village of

Sugata Mitra, creator of the "Hole in the Wall," talks to some child users.

Madantusi, Uttar Pradesh, where the children spoke no English at all. "Our children can't even plough a field," said the village's adults. "How are they going to use this English machine?"— a reference to the fact that no search engine operated in Hindi.

"I returned three months later and the first thing the children asked me was, 'Can we have a faster processor and a better mouse?' "

The children had developed a vocabulary of about 200 English words, such as "exit," "stop" and "save."

"Though individually the children comprehended very little, a group of 20, through reasoning and discussion, could work out enough to get started. They would also type in the odd word that they thought they knew, such as "rit" instead of rat. The internet search engine would say, "Did you mean rat?" So, by trial and error, the PC was teaching them English."

Mitra published a paper, attracting the attention of the World Bank. It

OVER THREE LAKH KIDS HAVE BENEFITED. IT'S NOW **INDIA'S GIFT TO THE WORLD.**

had recently started the Millennium Development Fund and gave Mitra £1.1 million to repeat his experiment in 23 locations around India. In diverse places such as Leh, up in the Himalayas, and an island in the Ganga where the terminals had to face away from a lake to prevent crocodiles sneaking up on the kids, time and again the children were operating the computer within hours. They also acquired knowledge from websites on everything from sport to electronics.

In Kuppam, Andhra Pradesh, Mitra placed information on biotechnology on the PC and asked the kids to look at it. He came back two months later. "Apart from the fact that improper replication of the DNA molecules causes genetic disease," a little girl confided. "We've understood nothing."

"I'd pre-tested them and they scored zero," says Mitra. "Now I tested them again and they scored 30 percent. I asked a 20-year-old girl, whom the kids all admired, to tell them she wanted to know more about the subject. I came back three months later and they scored 75 percent."

Mitra realized that a mixture of group discussion, leaving the children to learn for themselves and a desire to impress their peers or elders was a powerful combination for getting them to study unaided.

By 2007, he had become professor of educational technology at Newcas-

tle and extended his experiments to a local school. After less than an hour, working in groups of four using only the internet, a class of ten-year-olds had answered six tenth-standard questions. A few weeks later, he quizzed the children without allowing web access and again they aced the test.

"Teachers ask me, 'Is this real education?'," says Mitra. "But if you're learning, getting the answers right and remembering them, what else were you going to do in class?"

Twenty-year-old Swapnal Kadam is proof that the kiosks can have lasting effects. One was installed at her school in Shirgaon near Goa in 2002 and Swapnal became obsessed with articles about space. Her father was a humble school clerk and she lived in a brick hut, but the PC taught her how to learn. She resolved to become an astronaut.

"Without it, within a couple of years of leaving school, I'd have been a housewife," says Swapnal, "Now I'm studying aeronautical engineering."

At a time when computers are often criticized for making us isolated and socially inept, Mitra believes that ideas such as the Hole in the Wall could bring us closer together. "I would love to see a learning station in every restaurant. They're all in public places; only one has been vandalized and none has been used for porn. If

parents put their children's PCs in the sitting room, they'd find their children saying, 'Come and look at what I've found,' a lot more."

Mitra has even seen the HIWs break down the rigid caste system, with middle-class children crowding round the blacksmith's son for lessons and skilled girls given a prominence among their male peers that they rarely enjoy in wider society. Computer skills will also be vital for poorer Indians to operate in a world where everything from buying food to getting the news is increasingly done on a PC.

HIWs in countries such as Cambodia (the first one abroad—given in 2002 by then Prime Minister Vajpayee), Uganda, Mozambique and Nigeria, gifted by the Government of India, have also been a success. "More than three lakh children have benefited from the project," says NIIT Chairman Pawar. "That number is going to double with more than 200 Hole-in-the-Wall stations being installed this year. What started as a small experiment has now become India's gift to the world."

The Hole in the Wall has won Mitra

and NIIT many awards, including the prestigious Digital Opportunity Award at the World Congress on Information Technology, 2008. And, though administered by NIIT, it takes up much of Mitra's time. But he has never made any money from it.

"I am a social scientist and that would skew my results," says Mitra, who hopes next to take the project to Afghanistan and China. "I'm not even proud of it. The work's not over and pride is the beginning of the end."

Whether he likes it or not, Mitra received a little showbiz exposure recently with the success of *Slumdog Millionaire*. "Ah, yes," he giggles, "I came back from a lecture and found an answerphone message from NIIT saying that Vikas Swarup [author of the novel *Q&A*, on which the film is based] had told the press my work was his inspiration. I got his e-mail address and thanked him for the acknowledgement. To my surprise, he responded within the hour saying he was honoured I had contacted him.

"I loved the film, but I told him my dream is to see a Slumdog Nobel Laureate, not a *Slumdog Millionaire*."
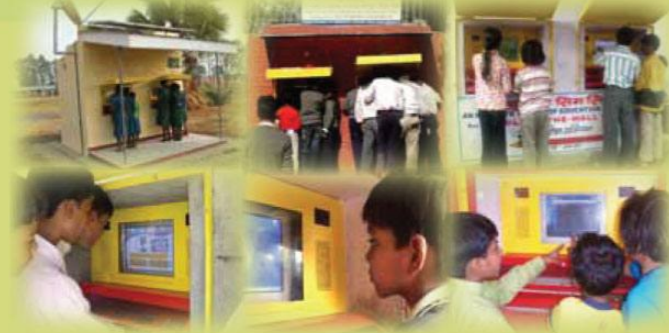
Searching for India's Hole-in-the-Wall

Blog post by:
Michael Trucano
Senior ICT and Education Specialist
Education Sector, Human Development Network
The World Bank
06/18/2010

I recently found myself with a free morning in Delhi, and thought I would make use of the time by searching for a certain rather famous Hole In The Wall.

Some quick background: Back in 1999 professor Sugata Mitra decided to conduct a very simple, small-scale experiment: He put a computer behind some protective plexiglass, connected it to a joystick, and embedded the whole thing in a wall in a Delhi slum. They he stood back and watched (both literally, and via a small video camera placed nearby). It turned out that, left to their own devices, children could 'learn computers' outside of the formal education system, unsupervised. Hearing about this experience was said to be the inspiration for the story that eventually became an Oscar-winning movie, Slumdog Millionaire. The Hole in the Wall had been in my thoughts for a number of reasons, including that fact that it had recently been awarded one of the Macarthur Foundation's DML prizes. (Disclaimer: A company, HiWEL, was formed by NIIT to take this work further, and it has received funding from the IFC, part of the World Bank Group. I have had no connection with this project or its principals.)

I must confess that I have been rather skeptical of many of the claims associated with the Hole in the Wall experience, especially (and mostly) those that have come from people and groups who have only a passsing familiarity with how it actually works in practice, and with the research base that has grown up around it. The Hole in the Wall experience has been a staple example in untold numbers of PowerPoint presentations that I have seen over the past decade, and the philosophy / approach / movement that has grown out of this experiment, which is known today formally as 'Minimally Invasive Education', has been since linked to and/or appropriated by many other groups and initiatives --sometimes responsibly, sometimes less so. (If you want to read what the project principals themselves have to say and conclude about this experience, you should dip directly into Mitra's copious related research output, and well as that of some of his associates, here and here.)

Despite having read and heard about Hole in the Wall for almost ten years, I had never actually seen it 'live' with my own eyes. The original Hole in the Wall site, in Kalkaji, no longer exists, and the original kiosk has since been relocated to a local school. So instead I visited two other sites, both in Delhi: one in a wall outside of a government school and one within a residental community (if you have seen a video of the project, this site in Madangir is often the one they feature).

My interest in the sites was predominantly ethnographic and mechanical, and my reactions reproduced here are largely impressionistic. One thing that seems to get lost (or, to be blunt, is often ignored) in policy-level discussions around educational technologies is a contemplation of actual usage scenarios, and how the physical settings of such use influences what is done with such technologies, and how. So my decidedly modest intention on my afternoon off was just to hang out for a few hours and see what was going on.

I must confess felt a little like a pale imitation of Jan Chipchase, fascinated by lots of the 'little things' that I found interesting about the HiWEL usage experience, snapping tons of pictures, some of which confused the people gathered around the kiosk. (Why are you just taking a picture of how they are using their fingers to move things onscreen? Why do you care so much about how far apart the children are standing, about which fingers hey use to point at and touch the screen, and which they use to prod their friend into some sort of action?) The fact that the plexiglas covering over the keyboard not only helped prevent theft, for example, but also make it very difficult for adults to use the computers (little hands had little trouble darting in and out under this protective guard), I found quite interesting. I filled up 20 notebook pages with notes and notations about such mundane things (possible fodder for future blog posts).

One thing that was stressed to me by the NIIT staff with whom I subsequently spoke about the lessons from the HiWEL 'experiment' was that, while the learning experience itself is meant to 'minimally invasive', this does not mean that you can just drop the computers into these communities and expect meaningful things to happen. 'Community mobilization' was cited as a key component in successful implementations over time. It has been found that having someone from the local community serve as a site coordinator, for example, and having someone dedicated to informing the community about what the computers are, and how they can be used, is a critical piece of the puzzle. "Why should we care about computers?" "Why should we allow our children -- especially our girls ! -- to go use them, especially in a public place?" Satisfactory answers to such questions can go a long way in ensuring that the colorful new devices dropped into low income communities actually get used.

In addition, it was clear that a good deal of effort had gone into developing compelling education content -- mostly in game or game-like formats. One boy I talked to said that he came to the kiosk "for the games", which he "thought were fun to play". My impression was that he didn't think at all about the fact that the content was actually drawn from the curriculum that his age group was meant to be using in schools. For him, the challenge of manipulating the computer to perform various tasks -- match objects, answer questions based on scenarios presented on-screen, make simple mathematical calculations, learn new vocabularly -- was what kept him engaged, and why he chose to return to the kiosk so often.

At both sites, the computers were seeing a lot of use on the days I visited. In both cases, there was an adult nearby monitoring what was happening, but their presence was quite unobtrusive. The HiWEL literature talks about the learning activities at such sites being 'unsupervised', and this was certainly the case during my (unannounced) visits. Or: At least this was the case as far as adult supervision was concerned -- the children themselves were pretty animatedly 'supervising' (or at least commenting on) each other's activities!

As part of my observations at the first HiWEL site, I asked a senior teacher at a neighboring school about his impressions of the kiosk embedded in the wall just outside his building. Yes, he said, he knew that some of the pupils at his school used the nearby kiosk, and he "didn't object" to this occurring. (I found this to be an interesting formulation.) I asked if his school had any computers. Yes, he said, his school had had about a dozen computers for about 7-8 years. However, they had decided to close the lab two years previously, he confided, because they "did not have teachers who were trained and competent enough to use them". The good news (!) was that they had recently hired two new teachers who were getting some computer training, though, and so it as expected that they would reopen the computer lab soon, once these teachers had been properly certified.

The contrast here was for me pretty stark: One the one hand, you had two computers set up outside which received minimal maintenance, and which anyone could use from 9-5 each day. There was no direction on how to use this equipment, but that didn't stop kids from figuring it out via trial and error (or, more often, from other kids). On the other hand, you had a dozen computers locked up in a school just a short walk away, gathering dust for lack of 'qualified teachers' to use them, and direct their use.

I am hesitant to draw many broad conclusions and make sweeping generalizations on the basis of an afternoon of observation of activities at two Hole in the Wall sites. Doing so does not appear to me to be very responsible, as the sample size was simply too small.

The image of a locked school computer room door, and of an educator explaining why the door had to remain locked, however, and the image of a bunch of children animatedly using computers on the street less than a hundred meters away, is not one that I will soon forget.

SPREADING THE NET
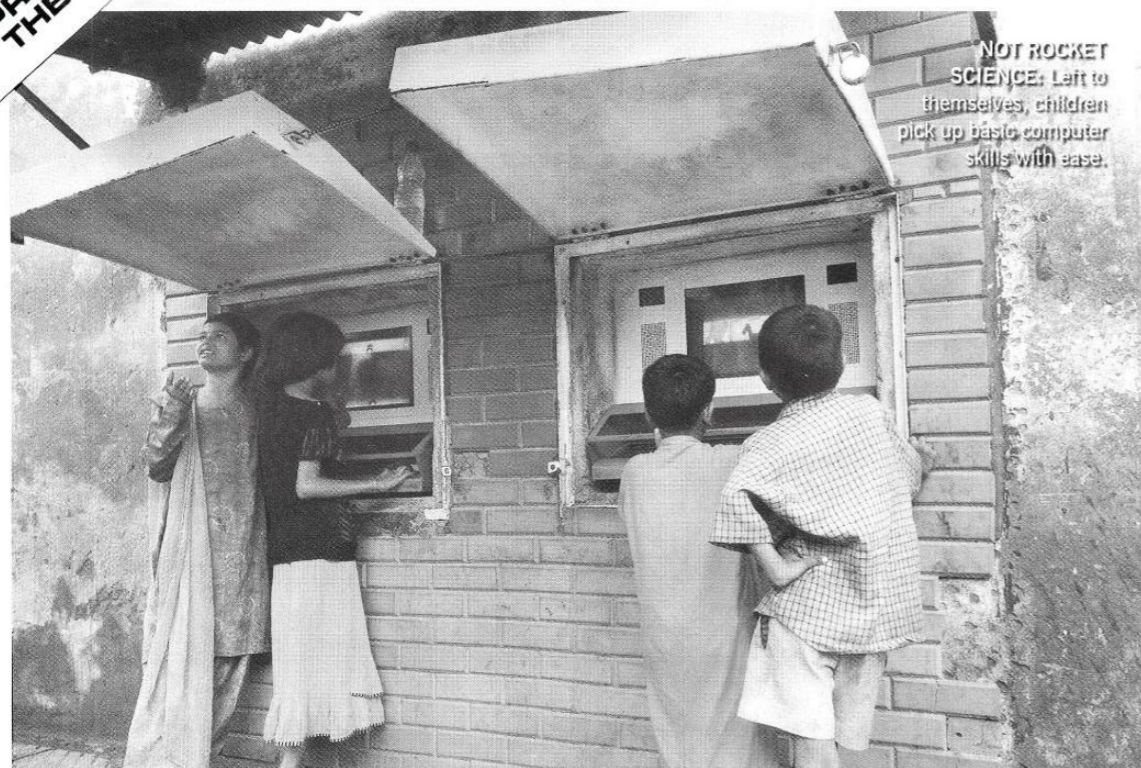
NOT ROCKET SCIENCE: Left to themselves, children pick up basic computer skills with ease.

KULDEEP CHAUDHARI

One Click At A Time

NIIT's hole-in-the-wall initiative is helping bridge the digital divide between rich and poor kids.

ALLAN LASRADO

IN 1999, SUGATA MITRA, NIIT's Chief Scientist at the time, shook the world with a simple experiment. He drilled a hole in his office in Kalkaji, New Delhi, and stuck a computer into it. The office was next to a slum and he wanted to observe what would happen. In no time, he found scores of curious children flocking to the PC. Over the next few days, he saw that, left to themselves, the children were perfectly capable of picking up basic computer skills. The results were the same when he repeated the experiment elsewhere, including several rural locations.

Since then, the groundbreaking research has won many awards and received saturation coverage in the media. Mitra has moved on from NIIT but the company has continued the good work through a separate business unit called Hole in the Wall Education (HiWEL), a fully owned subsidary of NIIT. The progress has been slow but it has been steady.

The original hole in the wall is no longer in existence, nor is the slum. But a government school nearby has installed two PCs on its compound wall. There, the

HIWEL

STARTED
2001

REVENUE
₹3 crore

EMPLOYEES
Under 50

SOCIAL IMPACT
Imparts basic computing skills to children from underprivileged backgrounds.

SPREADING THE NET

sight is the same as at other hole-in-the-wall sites in India and abroad. Children mill around the "learning stations" and take turns using them. "I like the games most," says Raju, one of the children. So do the others. The content, which includes game-based learning and videos, has been developed by HiWEL, NIIT, TCS, National Geographic and others.

"We have three verticals," explains Sanjay Gupta, Head, HiWEL. They are schools (mostly government schools), CSR (initiatives of companies/ foundations/ NGOs) and foreign projects (Ministry of External Affairs). On the school front, HiWEL has deployed learning stations under various development initiatives, particularly Sarva Shiksha Abhiyan. Under CSR, organisations such as ACC, ICICI Group and Hindalco have sponsored them in rural areas. As for the MEA, it has roped in HiWEL to deploy learning stations in Africa (eight countries), Cambodia and Bhutan. In all, a little over 50 have been deployed so far. More will follow, with Bhutan alone set to have 131 by the end of this fiscal year.

JUST AS SMART

Mitra's experiment proved without a doubt that children benefited from exploratory and collaborative learning. This "minimally invasive education", as it is called, gives children unrestricted and unsupervised access to a computer. Curiosity pushes the kids to explore, discover and share their learning with each other. "The environment is a learning environment," explains Dr Ritu Dargwal, a psychologist who works with HiWEL. "They will do whatever it takes to find out."

Dr Dangwal cites an experiment that HiWEL carried out in Kalikuppam village, Tamil Nadu. A group of 10 to 14 year olds who knew only Tamil was asked to find out about biotechnology, initially with a hole-in-the-wall PC and later with a facilitator who knew nothing about the subject.

"We then compared their outcomes with those of children from a top private school in Delhi," she recalls. It turned out that when the children relied only on the learning station, they achieved test scores of around 30%—statistically significant, considering they had zero prior knowledge. When they had the assistance of the mediator, who had barely covered five chapters, their scores jumped to nearly 57%. The Delhi school students scored 70%. They had expert help, knew English, had internet access and their teachers had covered the entire syllabus. Also, they were 11th graders.

HiWEL is now looking to get the children to generate content as well. This led to an initiative called Content Co-Creation by Children in 2010. A pilot project was tried out with the school near HiWEL's Kalkaji office "At first, we thought nothing would come of it," says Meera S Dutta, Senior Project Manager in an NIIT research division. "But the kids proved adept at creating and using email IDs, Google gadgets and so on."

> **Minimally invasive education gives children unrestricted access to a computer and pushes them to share their learning with each other.**

Next, the children were asked to document something important about the local culture. "They decided to cover the Budh Bazaar—weekly bazaar—in the area," she says. Armed with a camera and a set of questions, they interviewed traders.

Later, they sat down and captured it all on a computer, complete with photos. They even used Google's language tool to translate what they had written into English. While not perfect, the language is easily comprehensible to any English reader.

INNOVATIVE SOLUTIONS

In the early days, a few of the learning stations were damaged due to heavy usage. "This sparked off a series of innovations by our team," explains Gupta. After some trial and error the company came up with a durable solution. It protected the PCs with steel and polymer panels that could withstand vandalism as well as extreme climatic conditions. The keyboard is housed in a panel that not only deters theft but also discourages adults from using it. The touch-button mouse is a hardy piece of work with six buttons for left and right clicks as well as up/down/sideways movement.

It didn't end there. A simple switch initiates the start-up and shutdown processes, eliminating the need for a PC-literate caretaker. During power outages an automated power system shuts the machine and turns it on when needed. In addition, HiWEL has also developed a software that automatically shuts inactive windows and ensures the machine doesn't hang. Also, remote monitoring software enables the Kalkaji office to monitor usage at every learning station across the world.

NIIT still bankrolls all of HiWEL's costs. The subsidiary's annual turnover is in the region of ₹3 crore, with expenditure exceeding that by around 10%. "We hope to break even this year," says Gupta. The costs are largely incurred on monitoring and evaluation, research and development, and the salaries of the small team. Every learning station is paid for by the school, corporation or concerned government that sponsors it. Vendors who supply the PCs maintain them.

The price of a learning station is around ₹1.6 lakh (plus taxes). Going forward, the biggest challenge before HiWEL will be to bring down this steep price. "Our top priority will be to innovate and drive costs down," says Gupta, explaining the company's plans.

It's been a long, hard road, one that's taken the HiWEL team to remote parts of the India and the world. "Everywhere we go, whether it is in militancy-ridden areas of Kashmir or Naxal-infested Dantewada, we are welcomed," says Nitin Sharma, a project manager at HiWEL.

As Suhotra Banerjee, Head, Relations, puts it: "We are helping to bridge the digital divide between the children of haves and have-nots. That is a reward in itself."

*Email us at **business@outlookindia.com** or SMS **OLB<feedback> at 575758*** ∎

MY MACHINE: Little geeks
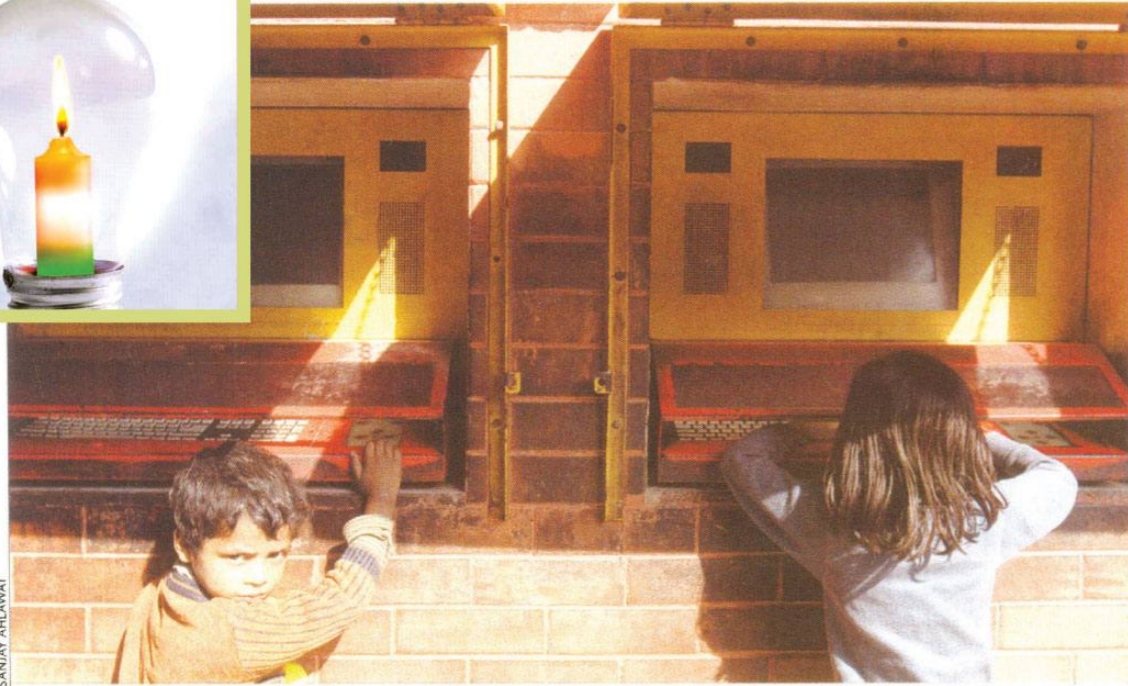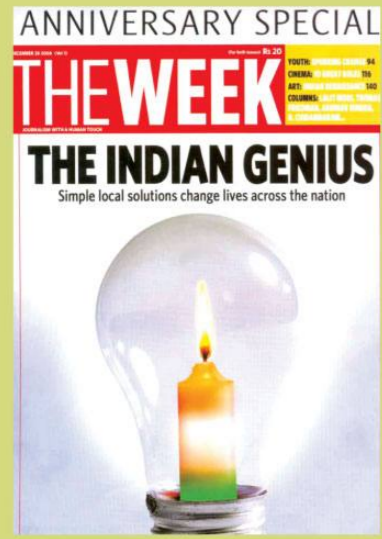
EDUCATION

Hole in the wall exposes slum children to computers

BY SONI MISHRA

A good number of children in Madangir, a low-income locality of Delhi, are computer geeks who spend hours in front of a PC. A 'hole in the wall' transports them instantaneously from their poverty-stricken lives into a world of knowledge and fun.

The hole in the wall—which is actually a kiosk with computers set in depressions in a wall—has the same bewitching effect on children in the area as perhaps the fabled Pied Piper did on the children of Hamelin.

The children have open access to the computers and are encouraged to find out for themselves how to use them. With minimal intervention they draw, paint, play games, go through educational material and improve their language skills. Set up eight years ago, the hole in the wall in Madangir is painted bright yellow and has five computers. Open from 9 a.m. to 6 p.m., it is abuzz with youngsters all day. Prominent among them is nine-year-old Shabnam, a computer-crazy brat. The other children don't mess with her, allowing her maximum use of the kiosk. Not at all shy, the little girl with a lisp describes her favourite game on the computer, 'Bhookha magarmach' (Hungry Crocodile). "The crocodile eats you up if you give a wrong answer. I have never been eaten," she says proudly.

Ruby, a student of class 10, who comes to the kiosk less frequently than before because she has to devote more time to studying for the Board exams, talks about how the children have come up with their own terminology for various computer icons. "We call the cursor 'teer' [arrow] and the hourglass 'doodh ka katora' [cup of milk]. The kids often say 'yeh doodh ka katora kab bharega' [when will the cup of milk fill up?] when the hourglass icon is on and they are waiting," she says. "In the beginning, I would play games and watch cartoons on the computer. Then slowly, I started going through information on different subjects like English, maths, science and social studies."

The hole in the wall has a tie-up with the government's campaign for universalising education, and targets children who are out of school. According to Manoj, a supervisor at a learning centre in the Hauz Rani area of Delhi, a sizeable number of children who are using the kiosk are school dropouts. "Only last week, I got 10 children re-admitted to school," he says. "The content is such that it encourages children to go back to school, coupled with the pep talk that we give them."

The kiosks are set up near schools so that they catch the eye of school-children and encourage the dropouts to get back to school. One of the computer games is based on the 'School chale hum' song of the Sarva Shiksha Abhiyan, an education programme of the Union government.

The success of the project lies in the unrestricted use of computers and the innovative content, which is interactive and multimedia-based. As there is little intervention by the supervisor, the concept is child-centric and not teacher-centric, providing for self-paced learning in a playful atmosphere. Computer skills are passed on by older children to the younger ones.

True to its motto "Some walls are meant to break barriers," the hole in the wall—a brainchild of Dr Sugata Mitra, educationist and chief scientist, NIIT—is breaking the digital divide for underprivileged children not only in Delhi but in different parts of the country, as well as the rest of Asia and Africa.

The project began as a research experiment in 1999 when Mitra installed a computer on the wall separating the NIIT office from a slum situated next door, in Kalkaji in south Delhi. It was a big success and children who had no exposure to computers took to the PC instantly and learnt to use it on their own.

"We decided to do a meaningful act coinciding with Republic Day in 1999. We had a city slum outside one of our software factories in south Delhi. We thought, why not do something for the slum children that can be their window of knowledge to the world," recalls NIIT Chairman R.S. Pawar.

"For the nine countries where we have initiated the hole in the wall, one aspect is common—the pace of learning computer basics is extremely rapid. The children get hooked from day one and remain hooked for a long time," says Pawar. "What started with an experiment has now become India's gift to the world." ∎

TECH TOYS: Children draw, paint, play games and go through educational material

SMALL REVOLUTIONARIES

Eleven-year-old Ubed heads a panchayat in Uttar Pradesh. His playmates are the other members of the council. Many such councils or Bal Panchayats have been formed across India by Bachpan Bachao Andolan, a movement for children's rights.

Bal Panchayats strengthen BBA's campaigns by spreading awareness on the importance of education. Formed in 1980 and led by Kailash Satyarthi, BBA works to root out child labour and child marriage, and ensure that the little ones get education. So far, 238 villages have been made child-friendly.

THE INDIAN GENIUS
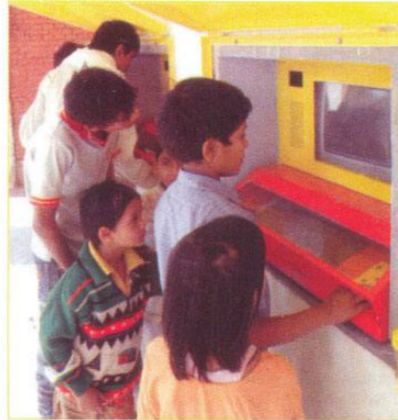
INDI-GENIUS

Indians are one of a type. That typicality gives them their distinguishing and enduring profile

BY PAVAN K. VARMA

A Russian historian once said to me that those who think that people are only the products of today and have no history, are plain stupid. Societies and peoples in the throes of the challenges of the present, especially if things are going better than expected, often are stupid. They genuinely believe that the traits that make them distinctive have no pedigree, and that their achievements are severed from any anchorage in the past.

Indians—perhaps more than most other people—have no reason to be stupid. They are the legatees of a culture that goes back to the dawn of time. That culture has had an almost unbroken continuity for the last 5,000 years. In the course of that eventful journey, much has been assimilated from outside, but in a syncretic way, without overwhelming the indigenous. As a consequence of all of the above, Indian society has seen peaks of refinement, innovation and ingenuity that have few parallels anywhere else.

Such a cultural package, notable for its antiquity, continuity, assimilation, diversity and refinement, is wrapped in one unmistakable foil: survivability. For all their spiritual halo—and the sheer loftiness of Indian metaphysics and philosophy perhaps justifies it—Indians have been exceptionally porous to the opportunities of the material world, and have learnt to pursue them in the most ingenuous ways, should circumstances permit. In fact, entrepreneurship in the service of material gain is an irresistible Indian trait. The very poor have been deprived of the opportunity to practise it, but recent experience shows that given an opportunity, they are as good as the rest.

(Reprinted from The Week, December 28, 2008 issue by NIIT Corporate Communications Division for internal circulation only)

THE WEEK, December 2008

'Golden' diplomat basks in *Slumdog* glory

SHUBHAJIT ROY
NEW DELHI, JANUARY 12

THERE'S a strong South Block connection to *Slumdog Millionaire* - which won four Golden Globe Awards including one for music director A R Rahman — and that's Vikas Swarup. The movie is based on Swarup's first novel, *Q and A*, and he is currently India's Deputy High Commissioner to South Africa.

Swarup, a South Block mandarin who served as director in former External Affairs Minister Natwar Singh's office, has also been director, heading the Pakistan desk, as well as the Nepal and Bhutan desks, in the past. A career diplomat since 1986, he has served in the US, the UK, Turkey and Ethiopia.

Swarup was the buzz in the corridors of South Block on Monday. So much so that even Foreign Secretary Shiv Shanker Menon wanted to speak to him, as did most of his batchmates, colleagues and friends in the diplomatic community.

Speaking to *Newsline* from London, an ecstatic Swarup, on being asked about his thoughts on the film bagging the prestigious award, said: "I don't think anybody expected this (winning the Golden Globe). It was a very low-budget film, by Indian actors, shot on Indian locations, and based on a book written by an Indian. For a film like this to challenge world cinema is truly amazing."

Swarup said there is a lot of interest in Bollywood about making the movie in Hindi. "My wife got calls from some Bollywood directors who want to make the Hindi version." He couldn't give names, as Film Four (UK), which has the rights, hasn't yet decided on giving it up.

What inspired him to write the book? Swarup was candid: "I was inspired by the hole-in-the-wall project, where a computer with an internet connection was put in a Delhi slum. When the slum was revisited after a month, the children of that slum had learnt how to use the worldwide web."

"That got me fascinated and I realised that there's an innate ability in everyone to do something extraordinary, provided they are given an opportunity. How else do you explain children with no education at all being able to learn to use the Internet. This shows knowledge is not just the preserve of the elite," Swarup said, while talking about the project, in which NIIT chief scientist Dr Sugata Mitra had carved a 'hole in the wall' that separated the NIIT premises from the adjoining slum in Kalkaji in 1999. Through this 'hole', a freely accessible computer was put out for use and with no prior experience, the children learnt to use the computer on their own.

"Moreover, the 'Who wants to be a Millionaire' quiz format was a huge global success, with Amitabh Bachchan hosting *Kaun Banega Crorepati* in India on prime time television, when streets used to be deserted in India. All these developments made write my first novel," Swarup said.

So, what's next? "First, I will have to return several calls, the first one from the Foreign Secretary, since I have been busy giving interviews since the morning. And then I will be busy with my work as Deputy High Commissioner." His office in Pretoria is managed by one Mr Parmar, who told *Newsline* that his boss had received more than 100 calls today, and the phones were still ringing.

Swarup's second novel Six Suspects hit the stands last July

The Indian Express, New Delhi, January 13, 2009

CITY ANCHOR TED AWARD FOR FORMER CHIEF SCIENTIST AT NIIT DR SUGATA MITRA, WHOSE IDEA HELPED CHILDREN LEARN

In South Delhi slum, a Hole in the Wall is window to world

DIPANKAR GHOSE
NEW DELHI, FEBRUARY 27

IT STARTED as a project meant to test the learning ability of children using computers — unsupervised.

On January 26, 1999, in collaboration with the Delhi government, a team led by Dr Sugata Mitra, then Chief Scientist at NIIT, carved open a section of a wall adjoining the NIIT campus, and placed a computer there. This was used by children, without supervision, from the adjacent slum — quite literally, "A Hole in the Wall", was born.

The next year, a similar set of computers was installed in Dakshinpuri in South Delhi.

The success of the project has been such that it has become the inspiration for an internationally acclaimed movie, and 14 years after the project took off, Dr Mitra has been awarded $1 million grant by non-profit organisation TED, to take his innovation forward.

While the computers at Kalkaji have been shut due to construction work, those at Dakshinpuri are functioning.

Purnendu Hota, from Hole in the Wall Education Systems, said, "The concept behind the project was to see if children, who were new to computers, could work on the Internet without supervision. Within a month, the children at the Kalkaji slum were experts at it. The computers were carved into the walls at both places, where the children could use it for free. Through our studies, we saw that without any formal education, children had begun to grasp the complexities of scientific and mathematical concepts."

In the 14 years that have passed since, "Hole in the Wall" concept has spread to Kerala and Maharashtra. "In Delhi itself, these computers have been set up in Lajpat Nagar and Alipur.

There are two of these systems in juvenile care centres as well. A local representative opens the boxes containing these computers at 9am and shuts them at 5pm.

"When a child hits a button, he or she is asked his or her age. Based on that, there are educational games on mathematics, geography, and other subjects. There are information storing devices on these computers, which look at the patterns of usage," Hota said.

Residents of Dakshinpuri said that they have trouble pulling their children away from these computers. "Our children often tell us they learn more on them than at school. They even seem to do better at examinations now," said Rakesh Panwar, owner of a grocery store next to a row of four Hole In the Wall computers.

The project was also the inspiration behind the novel *Q and A* by Vikas Swarup, an IFS officer. This novel led to the Oscar-winning *Slumdog Millionaire*.

Swarup said, "I was inspired by hole-in-the-wall project, where a computer with an Internet connection was put in a Delhi slum. When the slum was revisited after a month, the children of that slum had learnt how to use the Internet. I realised that there's an innate ability in everyone to do something extraordinary, provided they are given an opportunity."

EXPRESS ARCHIVE

Dr Mitra will get $1 mn grant to take innovation forward

The Indian Express, New Delhi, February 28, 2013

GAME-CHANGERS E-SCHOOLING

A HOLE NEW WAY OF LEARNING

Online learning is transforming India's primary education landscape through initiatives such as Hole-in-the-Wall, set up in Delhi and now available across 23 states

THE BIG IDEA

E-learning
Provides education opportunities to children who otherwise have no access or time to attend schools.

No Pressure
Learning is made interactive, often in mobile classrooms, without fear of failure or punishment.

Customised Subjects
Each child gets a chance to learn what he or she wants to from a seamless database, rather than study a generic curriculum.

IMPACT OF E-LEARNING

Reach
E-learning is changing the way education is distributed, with 420,000 children benefiting from Hole-in-the-Wall alone.

Retention
A study done by eCore in the US showed that retention rates for e-learning courses were 83 per cent, 20 per cent more than those for regular classes.

Flat World
Enables connections with like-minded students in the global e-learning community.

In the remote village of Laya, Bhutan, two eight-year-olds, Sakyamuni Dorje and Chana, sit in front of a computer placed beneath a tree in the village, explaining key points of a Wikipedia entry on arthritis to a semi-nomadic yak herder. Two years ago, the two children couldn't read English and had never seen a keyboard. This computer is one of the 500 stations set up around the world by the Hole-in-the-Wall initiative (HiWEL), a branch of the NIIT Group. With no qualified teacher, these stations give 420,000 children a chance to teach themselves.

"The traditional system of schooling where each person is trained to read, write, do maths and not think independently, is obsolete today. We need a curriculum that equips children with skills they can actually use in the 21st century. In a world where calculators are available on every office desk, why do children need to mug up the 15-times table?" says Sugata Mitra, chief scientist emeritus at NIIT, who won the first-ever $1 million grant from the TED Foundation to further his work and research in the field.

Mitra, 61, who teaches at Newcastle University, UK, set up the first HiWEL station on January 26, 1999 as an experiment to see what would happen if a computer was introduced to slum children with no guidance or supervision. "I cut a hole in the boundary wall that divided our NIIT office in Kalkaji, Delhi, from a nearby slum. A few days later I visited them and found the children teach each other how to read English and use the mouse," explains Mitra. He went on to replicate the same experiment across the country. "I watched slum children in Karnataka use a voice command software to learn an American accent, students in Tamil Nadu pick up basics of DNA modelling and children in Delhi teaching each other English nursery rhymes. I realised when children are given the means, they start thinking for themselves. They start learning instead of just studying," says Mitra.

by Sonali Acharjee

CHILDREN AT THE HiWEL CENTRE IN MADANGIR, DELHI

VIKRAM SHARMA /www.indiatodayimages.com

> **IF YOU LET CHILDREN THINK FOR THEMSELVES, THEY COME OUT OF THEIR SHELL AND START LEARNING INSTEAD OF JUST STUDYING.**
>
> **SUGATA MITRA**
> *HiWEL founder*

Sugata Mitra, 61
Creator of Hole-in-the-Wall; chief scientist emeritus, NIIT

Mitra is an academic who has been termed a polymath by the University of London for the range of disciplines he has worked on. A PhD in solid state physics from IIT, Delhi, Mitra set up India's first LAN newspaper publishing system in 1984, and went on to research in the areas of learning and memory, helping simulate neural networks that can help decipher the mechanisms of Alzheimer's disease.

HOW E-SCHOOLING WORKS

Computer systems are introduced and students divided into groups.

Students are asked to search for answers online and justify their findings.

Students learn by teaching and helping each other at their own pace.

Answers are not learnt by rote but questioned, discussed and analysed.

E-LEARNING FOR ALL

Students
design their own path and pace of learning.

Schools
save time and energy.

Teachers
serve as motivators and not supervisors.

Parents
save money on expensive after-school tuition classes.

Companies
employ students who have distinct thought and analysis patterns.

India Today, June 10, 2013