



Children in New Delhi, India, working out how to use a “Hole in the Wall” computer

How an idle computer experiment is transforming the lives of slum children

THE HOLE IN THE WALL GANG

BY SIMON HEMELRYK

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 Indian 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 realises 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 some 600 times in the last ten years. Conceived by the University of Newcastle's Professor Sugata Mitra, 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 inner-city Mumbai, 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 £500 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 realised 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 was chief scientist at IT company NIIT, charged with developing public-space terminals similar to those now used as ticket dispensers in train stations. 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.

Mitra decided to install a computer, operated only by cursor buttons, facing the wasteland. No doubt it would be vandalised by the children, giving him 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,

three foot 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."

Mitra set up further Holes in the Wall in the central Indian town of Shivpuri and the rural village of Mandantusi, north-east India, 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



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

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 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 Stock, 19,000 feet up in the Himalayas, and an island in the Ganges 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 the southern Indian village of Kuppam, Mitra placed information on biotechnology on the computer and asked the children 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 per cent. 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 per cent."

Mitra realised 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 Newcastle and extended his experiments to a Gateshead school. After less than an hour, working in groups of four using only the internet, a class of ten-year-olds had answered six GCSE 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 the remote village of 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. Now I'm studying aeronautical engineering."

At a time when computers are often criticised 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 pub.

"They're all in public places so only one has been vandalised and none has been used for porn. If British 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."

In India, he's 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 and South Africa, gifted by the Indian Government, have also been a success.

HIW has won Mitra many awards and, though now administered largely by NIIT, it takes up lots of his 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 *Q&A*, on which the film is based] had told the press my work was his inspiration. I got his email 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. Maybe that can be the sequel."



"It appears that we've accidentally laid off all the people who 'do' things..."

YOU ARE WHAT YOU EAT

The news that all men are vegetables will not surprise many women. But a survey has found that there are, at least, different types.

Dietary-supplement firm LIPObind asked 5,000 British men to define their body shape. A third acknowledged that they are aubergines, with bellies bulging beyond their hips and shoulders. Potato-shaped men were almost as common, while a quarter said they were string beans, long and lean like footballer Peter Crouch.

There's hope for UK ladies, though, with 13 per cent of chaps claiming broad shoulders and narrow hips like the actor Daniel Craig—or, if you prefer, "carrots".