

Sugata Mitra – Speaker profile and talk synopsis



Speaker Profile:

Prof. Sugata Mitra's current work is on the Internet and children's learning. He retired in 2019, and is currently an Emeritus Professor of Newcastle University, England.

He conducted the Hole in the Wall (HIW) experiment, where in the year 1999 a computer was embedded within a wall in an Indian slum at Kalkaji, Delhi and children were allowed to freely use it. The experiment aimed at proving that kids could be taught computers very easily without any formal training. Sugata termed this as Minimally Invasive Education (MIE). The experiment has since been repeated at many places. He is the recipient of many awards and honorary doctorates from India, the UK, USA and many other countries in the world.

His interests include Children's Education, Remote Presence, Self-organising systems, Cognitive Systems, Complex Dynamical Systems, Physics and Consciousness.

The Hole in the Wall experiment has left a mark on popular culture. Indian diplomat Vikas Swarup read about Mitra's experiment and was inspired to write his debut novel that went on to become the Oscar winning movie of 2009 - Slumdog Millionaire.

Prof. Mitra is a PHD in Physics credited with more than 25 inventions in the area of cognitive science and educational technology. He was conferred the prestigious Dewang Mehta

Award from the Government of India for Innovation in Information Technology in the year 2003. Amongst many other awards, he was awarded the 1 million dollar TED Prize in 2013.

Starting with molecular orbital computation in the 1970s, Mitra discovered that the structure of organic molecules determine their function more than the constituent atoms.

After a Ph.D. in Solid State Physics from the IIT, Delhi, he went on to research energy storage systems, first at the Centre for Energy Studies in the IIT and then at the Technische Universität, Vienna, Austria. This resulted in a new design for Zinc-Chlorine batteries.

His interests in the flow of electricity through biological systems, a consequence of his Ph.D. research on exciton dissociation in organic semiconductors, led on to a seminal speculative paper on why the human sense organs are located where they are.

His interest in computer networking led him towards the emerging systems in printing in the 1980s. He set up India's first local area network based newspaper publishing system in 1984 and went on to predict the desktop publishing industry. This in turn led to the invention of LAN based database publishing and he created the "Yellow Pages" industry in India and Bangladesh.

His interest in the human mind once again led him into the areas of learning and memory and he was amongst the first in the world to show that simulated neural networks can help decipher the mechanisms of Alzheimer's disease.

He was amongst the first people in the world to invent Voluntary Perception Recording (a continuously variable voting machine) and a hyperlinked computing environment in 1990, several years ahead of the Internet.

Professor Mitra's work at NIIT created the first curricula and pedagogy for that organisation, followed by years of research on learning styles, learning devices, several of them now patented, multimedia and new methods of learning. Culminating and, perhaps, towering over his previous work, are his "hole in the wall" experiments with children's learning. Since 1999, he has convincingly demonstrated that groups of children, irrespective of who or where they are, can learn to use computers and the Internet on their own using public computers in open spaces such as roads and playgrounds. He brought these results to England in 2006 and invented Self Organised Learning Environments, now in use throughout the world. In 2009, he created the Granny Cloud, of teachers who interact with children over the Internet.

Since the 1970s, Professor Mitra's publications and work has resulted in training and development of perhaps a million young Indians, amongst them some of the poorest children in the world.

In 2013, he was awarded the first \$1 million TED prize, to put his educational ideas together to create seven laboratories called 'Schools in the Cloud'. Here he studied learning as emergent phenomena in an educational self-organising system. These results question the ideas of curriculum, examinations and the meaning of 'knowing' itself in the Internet world of the 21st century.

The effects of Sugata Mitra's work on the lives of people and the economy of the countries can only be guessed at.

Title of talk: **The Future of Learning**

Synopsis:

Since the 1990s, experiments with children's education takes us through a series of startling results – children, in groups, can form 'self organising systems' that results in emergent learning, they can achieve educational objectives on their own, can read by themselves. Finally, the most startling of them all: Groups of children with access to the Internet can learn anything by themselves. The mechanism of this kind of learning seems similar to the appearance of spontaneous order, or 'emergent phenomena' in chaotic systems.

From the slums of India, to the villages of India and Cambodia, to poor schools in Chile, Argentina, Uruguay, the USA and Italy, to the schools of Gateshead and the rich international schools of Washington and Hong Kong, Sugata's experimental results show a strange new future for learning.

Using the 2013 TED Prize, he has built seven 'Schools in the Cloud', where Self Organised Learning Environments (SOLEs) and a 'Granny Cloud' of mediators over the Internet, interact with unsupervised children. The results of this three-year study are summarised by Sugata in this talk.

We begin to see some glimpses of what schools should be for and what curricular, pedagogic and assessment changes will be required in the future.