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MEET THE MENTOR—Dr. Sugata Mitra

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Speaker: Dr. Sugata Mitra, Professor, Newcastle University, UK

Facilitated by: Becky Anderson, Managing Editor, Anchor, CNN Abu Dhabi, UAE

Summary Paragraph

How can access to technology revolutionize the way students learn? As an education scientist, Sugata Mitra tackles some of the greatest problems of education.. In a series of real-life experiments from New Delhi to South Africa to Italy, he gave kids self-supervised access to the web, and saw results that could revolutionize how we think about teaching.

Keywords: Innovation

Key Points

Dr. Mitra jumped straight into a discussion of his groundbreaking research that found that unsupervised groups of children can learn to use the Internet on their own in a safe and public place. Called the ‘Hole in the Wall’ experiment and taking place from 1999-2005, it consisted of thirty computers connected to the Internet, installed in the streets of Delhi’s slums.

Dr. Mitra observed, “without training or supervision, these children would begin to surf and learn many things. But no one was teaching them. People would ask how it was possible.”

To answer that question, Dr. Mitra again ran his experiment, this time in Newcastle in 2006, where he organized a self-organized learning environment, or SOLE, with a limited number of computers.

“It began as chaos,” he said, “and then the children self-organized. Ask them a question, and they can learn anything. It may not work the first few times, because children have been taught not to make any noise. But then there will be answers that will amaze you—if you ask the right ‘Big Question.’”





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The best kind of ‘Big Question’ is the one to which no one knows the answer. For example, why do we have five fingers on our limbs? Why not six? Three? Dr. Mitra said that after twenty-five minutes of students’ self-directed research, he received information about cell expression, natural selection, and other concepts well beyond the students’ grade levels. “They don’t know what they are supposed to be able to read or not to read,” said Dr. Mitra. “Their ability to express complex ideas improves, because you are asking difficult questions and they must explain. This improves searching skills—a life skill in the 21st century that is taught very rarely in schools.”

He compared the self-organizing systems in the SOLE experiment to the order and symmetry of a flower, or a murmuration of starlings—systems that show spontaneous order that comes from nowhere. Furthermore, Dr. Mitra feels that spontaneous order is currently happening on a societal scale: “when you write something or say something, it can be heard potentially by a billion people. This has never happened before.” He encouraged the group to clap, and within seconds, the audience was clapping in synch. No one decided the volume or frequency, but spontaneous order was seen almost immediately.

Back to education, Dr. Mitra said: “the teacher is a friend on this journey. Someone needs to create the Big Question, which is much harder than giving a lecture. You must say, ‘You go there. I will go with you.’”

He found that admiration and encouragement are particularly stimulating to learning through SOLE, since children love to explain their findings. In an arrangement that Dr. Mitra calls ‘the Method of the Grandmother,’ he gathered a cluster of 600 elderly volunteers that he called the Granny Cloud, to have a conversation with groups of children via Skype. Their admiration and encouragement spurred the children on and maintained their excitement.

Dr. Mitra envisions a future ‘School in the Cloud,’ which only needs an organizer to take care of health and safety. He has designed several of these schools in parts of rural India, where they are attended by hundreds of students. Rooms are designed for collaboration around the Internet, as opposed to passive reception of lectures. He has found this method to improve reading comprehension and well-being, cause learning with good retention, and bolster communication and collaboration.

However, Dr. Mitra admitted that “everything fails in the face of the need for examinations.” He described this as ‘the system vs. the SOLE,’ which he laments: “the society that engendered examinations is gone. Our office is a collaborative space. The examination should look like a collaborative, search-based process.” In response to concerns that students will ‘cheat’ on exams by using the Internet for answers, he said, “It’s already





happening, so why stop it? The Internet will come into your schools, it will come into your exam room.”

In response to a question about whether technology is killing creativity and innovation, Dr. Mitra said, “Technology as a word is dated. Technology is part of our lives. If you say it’s dumbing our minds, it’s like saying shoes have ruined our feet. Why should it do anything to our minds? Thirty percent of our minds are in our pockets now. So don’t worry about it.”

Dr. Mitra said that one early criticism of his work was that it was not ‘real learning.’ “But that’s like saying using Google Maps to get to the airport is cheating. We are attracted to the unknown. If we change the curriculum from the list of things we know to the list of things we don’t yet know, we will motivate people to solve problems. In the process, they will run into everything we know. The actual means by which someone learns is less important than the fact that they learn it.”

When asked about sample sizes and how to justify the results to critics, Dr. Mitra said that the number of children in his Hole in the Wall experiments was in the thousands. However, while in England, he was only able to access class sizes in the twenties. He published the results in the public domain, and many other teachers tried the SOLE model with great success, but these results were anecdotal. Scaling the experiment would require millions of dollars.

When asked how SOLE helps to teach attitudes and behaviour, Dr. Mitra responded, “the Queen of Sciences now will be complex dynamical systems. It is like a hive. A single bee does not know geometry, but thousands of them together make perfect hexagons. We have managed to join together six billion minds, and when you do that, spontaneous order has to come.”

One delegate asked a question about international testing and assessment such as PISA. Dr. Mitra pointed that with an UnGoogable question, we must have another way of assessing the answers. It will take a panel that will examine each question. It will be expensive, and the solutions have not yet emerged.

Dr. Mitra addressed the ‘dangers’ of the Internet by saying that this was the best reason to have it in schools, where it can be guided. He said that screens should be high resolution, large screens that will prevent the phenomenon of the private Internet, which is where the danger lies—personal use on small screens, away from parental monitoring. In homes, the Internet should be at the same status of the TV in the living room.





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One delegate asked about the impact of age and culture on spontaneous thinking. Dr. Mitra replied that the success of the SOLE depends on the audience's interest in the Big Question. Training people to expect the teacher to provide the answer has killed a lot of interest in solving questions, but the good news is that it can be brought back by capturing children's imaginations. Regarding culture, children and adolescents world-wide respond to the SOLE model, so culture is not as large a factor as might be expected.

Dr. Mitra concluded by addressing the need to bring this information and technique to teachers. "It is easier for children and adolescents to make the jump, but for teachers, it can be the hardest thing they have ever done. It requires giving up control and rethinking the traditional role of the teacher."

Main Takeaway: Children can self-organize into learning groups, providing teachers can guide, and not lead, them along the way.

