



will be different for each person, so we have to get an optimal mix of pedagogy to get learning effectiveness."

His colleague, NIIT Imperia Executive Vice-President Udai Singh, says that the cloud enables instructors to get valuable data about the level at which students are able to understand a point. "This data point is not possible in a physical world."

**B**ut how do you manage traffic when students from multiple centres are listening to a single teacher? Singh says more centres don't mean you get more questions than you would in a single classroom. "Once you have reached a critical mass of students, the questions depend on what is being taught," he says. "So just a finite number of questions emerge, and that is enough for the others to understand." He adds that the data quickly helps teachers pre-empt questions and emphasise what they teach.

There is much debate on whether a virtual teacher can actually replace or fill in for hundreds of others. Singh says: "If you are looking at technology replacing teachers, we are missing the point. Tech is a force multiplier that can increase the scope and impact of a teacher."

However, Sameer Brahmachari, Director General of the Council of Scientific & Industrial Research (CSIR), says technology has blurred the lines that separate teacher and student. "My experience with open source drug discovery has shown that groups of students who are monitored are the weakest," he says.

One of the most successful experiments in this field has

been conducted by Sugata Mitra, Professor of Educational Technology at the School of Education, Communication and Language Sciences at Newcastle University in the UK. His acclaimed "Hole in the Wall" experiments sought to find out whether children could learn to use computers on their own. The results were positive – startlingly so. However, Mitra said in an email interaction with *Business Today* that it would be wrong to believe any child who participates in a Self Organised Learning Environment (SOLE) session will finish school with flying colours, go on to university and make a big


impact on the world. He said: "This is not realistic. Every child will respond in his or her own way, and achieve to the extent of their own potential. Some will go on to great things, while others will simply finish school, an achievement in itself in many parts of the world."

Mitra, who recently received the TED Prize for his work, says that SOLES are not designed to be as effective as a really good teacher or facilitator in a great school, but they can make a real difference to children who do not have the resources and who would otherwise get left behind. "Unfortunately, there are always going to be places in the world where a good teacher cannot or will not go – SOLES are designed to 'beam' them into these locations."


But the real essence of the cloud classroom is that it enables students to go back to the content whenever they want. "The problem with live video classes is that there is no pause, rewind and forward, so students might miss parts if connectivity is affected," says Sunit Singh Tuli, CEO of Datawind, the company that makes Aakash tablets. "That is why we are big believers in affordable individual devices. If students get access to devices 24/7, they can rewind, pause and forward. This is crucial, as not everyone can learn at the same pace, and this ability will have a huge impact on a lot of students."

Mukesh Mohania, Distinguished Engineer and Chief Architect, Education Transformation, IBM Research, says prescriptive analytics from such data could lead to identifying personalised learning and help improve timely graduation and the employability of the graduates.


## Learning in the Cloud



**Cloud Classroom**  
Teacher interacts with students in multiple locations. Content is available 24/7 so students can revise it as long as they are connected



**Blended Classroom**  
Students take lessons from regular teachers, but take help of online videos or instructors when needed. Instruction is packaged according to students' academic level



**Flip Classroom**  
Works where connectivity is limited. Students learn a topic through access to devices with preloaded or streamed content. They use classrooms to clear doubts or understand the topic better