

Kerala's KITE Flies High, Shows the Way for ICT Enabled Education

KITE

In Kerala, an ICT revolution among school students has been underway since the early 2000s, courtesy a path-breaking initiative of the Kerala government which has digital literacy, inclusion, and a free and open source software (FOSS) model at its center. Anvar K. Sadath, CEO of KITE (Kerala Infrastructure and Technology for Education) speaks to Engendering Education about why this programme stands out and is being emulated in different parts of the world.



In the early 2000s, India's IT revolution was yet to take off with computers still a novelty. Computer laboratories existed in some schools but students were not allowed a free hand with machines. This was the case for much of the country.

Schools in Kerala too had limited computers. But local school authorities and the state government were cognizant and had the foresight that children should have an early grasp over information and communication technology (ICT).

"There was no standardisation in machine specifications and no prescribed ICT syllabus. Teachers had little support or training to teach IT and questioned change," said K. Anvar Sadath, CEO of KITE (Kerala Infrastructure and Technology for Education).

To assess the matter, a task force led by Prof. U.R. Rao in 2000 recommended creating a dedicated wing within Kerala's education department to make interventions in information technology. This led to the establishing of 'IT@School' in 2001-2002, an initiative which systematically introduced ICT in schools in the state.

The government did not outsource the task to any external agencies or outsource the programme implementation to a private company.

A study¹ by IT for Change noted: "The adoption of an 'inhouse' model of IT education, allowed the system to benefit from capacity building of teachers and the ownership of the infrastructure by the school." In other words, ownership of curriculum, pedagogy and infrastructure would be with the schools rather than with a private entity.

The experiment took some years to take off. When it eventually did, the outcomes were laudeworthy.

Under the project, information technology became a compulsory subject in Standard X and broadband connectivity was brought to schools. ICT based textbooks were taught in schools from Standard IX-XII. ICT infrastructure was brought to 4071 schools during 2007- 2012 and students began to learn about animation, cyber safety, hardware, electronics and Malayalam computing from an early age.

The transition from IT@School to KITE

IT@School was later renamed to Kerala Infrastructure and Information Technology for Education (KITE) in 2017 with its new status as a government company. The new status allowed KITE more scope and authority for implementing various ICT programmes. The broader aim was to foster digital technology literacy in government and aided schools, and competency among students.

Particularly during the COVID-19 lockdown, KITE ensured the broadcast of specially framed e-curricula to over 4.6 million students in the state.



Students absorb technology skills in a KITE classroom.
Photo: kite.kerala.gov.in

Kerala became the first state to introduce ICT as a subject in school curriculum (2001-2003).



Girls have been equal beneficiaries of ICT-enabled education in Kerala's schools. Photo: kite.kerala.gov.in

The flagship programme of KITE is the 'Little KITEs' programme implemented in government and aided schools. Little KITEs envisages that students not only use technologies but also contribute to the development of new software and tools and share their learnings with one another.

"Little KITEs is the largest ICT student network in the country," Sadath says. Over 1,80,000 high school students (Grades VIII, IX, and X) are currently members of Little KITEs clubs formed in over 2,174 government and aided high schools in the state (roughly covering 50% of the state's schools). Since its inception in the year 2018 more than 12,00,000 students have benefited from the programme.

The aim of KITES is to promote digital literacy, cyber literacy, and language computing. Students are introduced to advanced technologies such as Internet of Things, AI, robotics, 3D animation, multimedia, electronics, and mobile app development. It fosters community, collaboration, and peer learning among students.

What is the gender balance in the KITES programme?

Girls are equally represented in Little KITEs as boys. "Little KITEs has been able to improve girls'

participation in STEM, thus breaking prejudice against gender/girls," Sadath says.

For the academic session 2023-26, girls were 50.1 percent of 33,723 of a total batch strength of 67,318 students. The trend was consistent during 2021-24 and 2022-25.

"The Little KITEs programme has addressed the under-representation of girls in STEM disciplines. Girls from marginalised communities have developed ambitions for higher studies in science and technology, and aiming for careers as scientists and technologists," says a UNICEF assessment² of the programme.

In a unique initiative, Little KITE students have also trained parents on the safe use of smartphones and the internet. "More than 400,000 mothers participated in the programme and learned from students on cybersecurity, fact checking, OTP and password protection and fake news," Sadath explains.

Pedagogical approaches have ensured that all children feel included in the process of learning, especially those who struggle with technology. Peer teaching is encouraged through which students comfortable with activities such as robotics and computer programming teach other students who are not as comfortable.

The heart of Little KITEs: Free and Open Source Software

KITE ensures that all computers in government and aided schools run free software-based operating systems (FOSS) with open digital content and open educational resources. “Besides the fact that free software and educational resources incur no charges, it also helps unrestricted sharing and editing/revising of educational content among teachers and students,” Sadath said.

Thus expanding the programme to more schools does not require any expenditure on software or content since it is free and open source. The only costs are hardware and connectivity expenses. KITE schools have laptops that utilise entirely free software, replacing the previously licensed software. The state government’s decision to use FOSS in the General Education Department since 2008 itself gave Kerala an early start and has helped save about INR 3000 Crore annually in infrastructural costs. Choosing FOSS over proprietary software has technological, economic, social, and pedagogical benefits.

“The key pedagogical value of FOSS is that it supports teacher agency – teachers can use the applications they want to install/upgrade these without any constraints. FOSS apps ‘belong’ to the school and the teachers and not any company. So their use, upgrade, and replacement decisions are made by the school and the school system, without any vendor dependency,” the UNICEF report says.

The management helming Little KITEs is also cognizant of issues related to excessive exposure to technology and problems of unequal access among students to digital devices.

Sadath says, “We also have offline methods to involve students. Otherwise, the digital divide will kick in. To prevent the overuse of machines and smartphones by children, we focus a great deal on cyber safety protocol and cyber vulnerability. We do not insist on digital applications in schools which require the internet. Rather, students should be able to complete their activities without the internet.”

In 2022, the KITEs programme received significant recognition when Finland asked the KITE team and Kerala government to establish student IT Clubs along the lines of the Little KITEs IT Clubs in Kerala.

Undoubtedly, the Little KITE model has lessons and insights for educators and learners that can be adapted in various geographies and schools.



Free and Open Source Software (FOSS) is at the heart of the KITE programme. Photo: kite.kerala.gov.in

SOURCES:

¹ Soaring High. An Impact Study on Little KITEs, Kerala's Pioneering Digital Literacy Programme. <https://itforchange.net/sites/default/files/add/Soaring%20High%20-%20Impact%20Study%20on%20Little%20KITEs.pdf>

² Empowering Adolescents with Future-ready Skills The inspiring story of 'Little KITEs' <https://www.unicef.org/india/media/10976/file/Empowering%20Adolescents%20with%20Future%20Ready%20Skills.pdf.pdf>

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Nayana Chowdhury is the CEO of Breakthrough. With more than 25 years of experience in working in the social sector, Nayana vouches for the power of collective action in ensuring that it is the most marginalised who lead, both with their stories and in bringing together others in the community.



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KITE

Kerala Infrastructure and Technology for Education (KITE) is a Government of Kerala establishment set up to foster, promote and implement modernisation of educational institutions in the state of Kerala. At the core of it is FOSS, a free and open-source software that provides easy to access educational resources for teachers and students.