Case Study 17

TEACHER AND TEACHING

Indra AI: AI-Powered Teaching Assistant for Content Creation and Multilingual Localization

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K-12

Summary

Indra AI develops generative-AI teaching assistants that reduce teacher workload while expanding access to high-quality multilingual learning materials in India's K–12 classrooms. Integrated with open-source digital-education platforms, the system produces curriculum-aligned lesson plans, worksheets, quizzes, and stories in multiple Indian languages enabling activity-based learning at scale while preserving public-sector governance and data sovereignty

Context

India's K–12 education system serves highly diverse linguistic communities while operating under high student–teacher ratios, often exceeding 40 students per classroom. Many teachers spend large amounts of time on lesson planning and administrative work rather than individual instruction. High-quality digital learning content is still concentrated in English, creating a major disadvantage for students who study primarily in regional languages. At the same time, government platforms such as DIKSHA and Sunbird form the backbone of national digital education efforts. Any innovation must therefore integrate with public infrastructure, function in low-bandwidth settings, and support multilingual classrooms at scale.

Challenge

India faces a severe "learning-poverty" crisis, with over half of Grade-3 students lacking basic literacy and numeracy. Overcrowded classrooms make it difficult for teachers to provide individual attention, while shortages of regionally relevant teaching materials force heavy reliance on rote instruction. Teachers are overburdened with repetitive planning tasks and manual content creation, leaving little time for remediation or creative pedagogy.

Language further deepens inequity. Most digital resources are English-first, excluding millions of rural and semi-urban learners who are more comfortable in state languages. Schools also lack scalable ways to generate grade-appropriate, culturally relevant materials aligned to national curricula.

Education systems face additional governance concerns. AI-generated materials must be accurate, bias-free, curriculum-aligned, and safe for classroom use. Teachers need to trust such tools rather than fear over-automation, while administrators require oversight and compliance with responsible-AI frameworks.

Without new approaches, public systems struggle to personalise instruction, localise content, and reduce teacher workload simultaneously - widening learning gaps rather than closing them.

Solution & Impact

The AI-Powered Teaching Assistant was built as a "co-curator" for teachers, using generative AI to transform official textbooks and curriculum documents into multilingual, classroom-ready learning materials. Developed on Sunbird's open-source digital-public-infrastructure layer and powered by large language models deployed through cloud AI platforms, the system generates stories, real-world examples, quizzes, worksheets, and lesson plans aligned to grade levels and foundational-learning competencies. Automated translation and transliteration localise English resources into culturally relevant regional languages, enabling "Teaching at the Right Level" pedagogy while reducing preparation time.

The platform integrates directly with DIKSHA and Sunbird user systems, avoiding new accounts or parallel workflows. A central content repository stores approved materials for teachers and students, while a secure teacher workspace allows educators to prompt AI, review outputs, and provide AI-assisted feedback on student work. All generated content is grounded in curriculum-mapped sources and must be verified by teachers before classroom use. Micro-learning modules, guided prompts, and dashboards support onboarding and sustained adoption, while telemetry data allows states to monitor engagement and reuse across schools.

Strong governance is embedded through human-in-the-loop review, curriculum anchoring, bias audits, and compliance with national responsible-AI guidelines. The system is optimised for low-bandwidth environments, offline access, and multiple Indian languages, ensuring inclusion for teachers and learners in rural and semi-urban settings.

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Early pilots demonstrate meaningful gains. Teachers reported 30-40% reductions in non-instructional workload, lower stress, and more time for one-to-one mentoring. Students using AI-localised, activity-based materials showed roughly double the engagement compared with rote methods and better alignment with learning outcomes. These results suggest that embedding governed generative AI within India's public digital infrastructure can strengthen instructional capacity at scale while advancing equity in foundational learning.