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Innovative Remote Monitoring System by Amrita Reduces Teacher Absenteeism in Rural Schools

Delhi – Implementation of two simple, accessible technologies – Android tablets and monitoring apps such as eAttendance and WhatsApp – can not only reduce absenteeism in schools in rural areas, but also increase teachers' effectiveness and improve student performance. This is the outcome of a three-year remote-monitoring project run by Amrita Vishwa Vidyapeetham in 18 study centres called Amrita Rural Education Centres and their corresponding Government schools in Uttarakhand's Rudraprayag and Uttarkashi districts. The technology-enhanced model for learning and teacher monitoring was envisioned by Sri Mata Amritanandamayi Devi, Chancellor, Amrita Vishwa Vidyapeetham, to improve student performance outcomes in rural areas.

Monitoring schoolteachers is challenging, particularly in remote, rural areas that lack infrastructure and resources. Methods like maintaining attendance registers or physical inspections have not proven to be very effective, and teacher and student absenteeism remains high in the Indian hinterland. Said Dr. Prema Nedungadi, Director, Amrita Center of Research in Analytics & Technologies for Education, "Teacher and student absenteeism is a big challenge in public schooling. Studies show that in many places in India, there is a high teacher-absenteeism rate, estimated to be as high as 42% in places like Jharkhand. Our remote monitoring project in Uttarakhand gives us an innovative way to solve this problem.



Android tablets, loaded with apps to gather and send data, along with WhatsApp, form a user-friendly platform to get real-time data about the teachers' activity at the study centre and eliminate both teacher and student absenteeism. These inexpensive, readily available tools can help remotely monitor teachers and classrooms, substantially improving outcomes."

As part of the Amrita Rural India Tablet Education (AmritaRITE) program run by Amrita Vishwa Vidyapeetham, teachers at the participating study centres have been given tablets with a 2G SIM card for online connectivity. Students are given tablets with educational content, which can connect to the teachers' tablets through Bluetooth. The teachers' tablets have WhatsApp installed as well as a couple of apps for attendance and teacher training to act as classroom monitoring tools. The study centre works in close collaboration with teachers at the local government schools, exchanging notes on student improvement, and attendance. In many cases, this monitoring of students indirectly corrects the teacher absenteeism in the local schools as well.

"Cluster coordinators" monitor educational activities for a cluster of four to five villages. They periodically conduct surprise visits to centres for physical inspection, distribute tablets for WhatsApp communication to each centre, collect information from each teacher and take decisions. Five such cluster coordinators report to a central coordinator. Teachers use the apps to send daily attendance reports of students along with performance reports. They take a time-stamped photograph of themselves, along with their students, at the beginning and end of each class and send these to cluster coordinators using WhatsApp. Teachers also keep a record of what was taught in the class each day. Photos and records can be logged every day for every class to keep track of teacher attendance and accomplishments. As WhatsApp data sent by one teacher is visible to all others in the group, there is peer pressure to perform.

Assessments taken by the study centres along with student grades from local government schools are also sent to coordinators. When any centre needs some learning material for the class, it is made available to teachers through WhatsApp for download on tablets. The coordinators can also watch videos of how individual teachers teach a concept and then provide supportive feedback.

Creating and conducting tests, gathering the data and measuring improvement involves continuous monitoring and support from the central monitoring team through WhatsApp. Extra-curricular activities are also implemented in local schools by teachers and tracked through WhatsApp by the coordinators. Improvements in reading, writing, math and science among students are measured through weekly and quarterly assessments. This approach has resulted in increased teacher and student attendance, as well as improvements in lessons and other educational activities. Attendance and assessment reports of students are analysed by the central coordinators and feedback provided to the centres on the list of children who are at risk of dropping out and failing.

Said Dr. Nedungadi, "With this approach, significant improvements have been seen among students in studies. For example, at Uddalka in Uttarakhand, only 24.8% of Class 3 students could do math at grade level in an assessment conducted in February 2016. In September 2017, as many as 75.3% of students could complete math assessments at grade level, showing a big leap in student outcomes in math."

The approach provides substantial benefits to teachers by supporting their training as well as sharing of content and experiences. The central coordinator helps plan lessons, sends lesson plans and short instructional videos and provides feedback on teaching and learning in the classroom after watching class videos. The fact that teachers play a critical, active role in monitoring, combined with the accessible, tailored in-service benefits they receive, contribute to a sense of empowerment. Though the monitoring is for entire classroom activities, teacher attendance gets automatically tracked as teachers send multiple reports daily. As achievement at each centre is acknowledged to the entire group, teachers have reported an increase in motivation.

Added Dr. Nedungadi, "96% of teachers interviewed commented on the improvement in their own teaching strategies, such as small group instruction and periodic assessments. 82% received feedback from local schools about improvement in student grades. Teachers who were once isolated in a small region in remote and rural India are now able to communicate with teachers in other villages. Occasional face-to-face training is supplemented by on-going mentoring using tablet technology. Cluster coordinators keep the central coordinators informed. This data is cross verified with the teacher chat data and information from apps to determine the authenticity of teacher reports."

The success of this remote monitoring project shows that multiple low-cost channels for rural classroom monitoring that include customized apps, social media such as WhatsApp, along with periodic field visits, can help enforce accuracy in reporting and accountability, empower teachers, and improve the quality of education.