

# FIELD VISIT NOTE: UNDERSTANDING AADHAAR ENABLED BIOMETRIC ATTENDANCE SYSTEM (AEBAS)

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## INTRODUCTION

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In the recent [announcement](#) of Karnataka State Budget 2018, wherein improvement of education was said to have received priority with 11% increased allocation compared to previous year, it was declared that biometric devices will be installed in 48,000 government schools within three years 'to monitor teachers and students'.

Two years ago, in 2016, it was [reported](#) that, Aadhaar enabled biometric attendance system (AEBAS) has been introduced in Shivamogga govt schools. The system was said to have been adopted *to ensure better monitoring of the attendance of teaching and non-teaching staff at (all 16) government (high) schools (in the district)*.

'Teacher Absenteeism' as being one of the issues plaguing the Indian Public Education system is often debated amongst scholars. While previous research indicate that India is one of the leading nations to have a large percentage of teacher absenteeism (more than 20%), a recent study by Azim Premji Foundation showed that only 2.5 % of teachers are absent in school 'without a valid reason.'

While the debate continues, deeper understanding of the root causes of teacher absenteeism along with effective implementation of AEBAS can aid the process of improvement of education system in government schools.

Aadhaar Enabled Biometric System was introduced during the year 2011 across various states in India to increase teacher attendance. According to previous research of Karthik, Guerrero and others, teacher attendance is dependent on multiple factors - demographic conditions like age, gender and educational qualification of teacher.

The second factor is teacher motivation. This includes various aspects like satisfaction of teacher w.r.t the salary, commitment to work, support from other school members and staff, opportunities available for growth and infrastructural facilities available at schools. Teachers with more robust support system and opportunities to grow have shown higher teacher attendance than teachers who lack such facilities.

Thirdly, increased community engagement with parents and teachers, at times, can have a positive impact on teacher attendance. Finally, involvement of teachers with administrative duties like election and polio campaign discourage teachers from going to school and hence leads to decrease in teacher attendance.

There have been multiple interventions to improve teacher attendance. Direct intervention aims to increase teacher attendance by incentivizing teachers based on their attendance. Whereas, indirect interventions aim to improve teacher attendance by incentivizing teachers based on students' performance.

Coupling effective monitoring mechanism along with incentivizing schemes have a strong positive impact on teacher attendance. Incentivizing can be in the form of finances combined with other incentives like better roads, good infrastructure to increase teacher attendance.

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## EFFICACY OF AEBAS

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The National Education Policy document in April 2015, poses the question: ‘How can technology be used to ensure the punctuality of teachers?’ AEBAS serves as monitoring mechanism to measure teacher attendance. ‘Aadhaar’ is a unique biometric form of identification, which consists of a 12-digit random number tied to an individual’s biometric (fingerprint, iris scan and photograph) and demographic information.

[Biometric authentication](#) is the process by which Aadhaar number and biometric data submitted are matched with the biometric attributes of the Aadhaar holder stored in the centralized database called Central Identities Data Repository (CIDR). Biometric authentication may be carried out through fingerprint authentication or iris scans. The CIDR returns a “yes” or “no” response, along with other information related to the transaction.

Before the introduction of AEBAS where authentication is digital, attendance was tracked on paper registers. This could be easily misrepresented, difficult to track, and was not visible to people based outside of school.

On the other hand, with biometric attendance devices in place, it is easier to ensure continuous monitoring from remote locations. The increase in visibility is expected to impact the accountability of teachers ensuring higher percentage of teacher presence in classrooms. While some states are at an initial stage of piloting, few states like Haryana and Telangana have already mandated the system to be implemented across the state.

According to the IDinsight, Andhra Pradesh reported fingerprint authentication failure of 17.4% individuals, despite three attempts whereas the failure rate averaged 7.8% for MGNREGA Scheme in Telangana.

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## STAKEHOLDER: TEACHER AND STUDENT CONCERNS

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The Delhi government has initiated its plans to install CCTV cameras in all classrooms at all schools. Teachers like (Mr. Gupta and Mr. Ahmad) respond that “These orders make a fetish of technology, criminalize all teachers and create a milieu far removed from one that upholds the ethics of freedom of expression and fearlessness”.

They suggested few things. Firstly, arbitrary implementation and withdrawal of schemes with little participation and engagement of teachers is less impactful. Secondly, they pointed out that surveillance is often confused with accountability. It is important to note the distinction as mechanisms of surveillance can always be bypassed if there is lack of teacher accountability. Lastly, teachers are motivated to teach well and would benefit from effective pre-service and in-service trainings and with better infrastructure.

While one of the teachers spoken to, indicated that timestamp mechanism of biometric system puts pressure on the teachers while traveling to school, another indicated that internet issues delay the

process. Two others explained that they felt committed to their work irrespective of the monitoring systems. Overall, teachers felt that it did not hamper their motivation to teach. Few felt that teachers 'are being more punctual and it was a good initiative'.

Students were found unaware of the new mechanism. A student mentioned few examples of teachers who came regularly and did not have much impact on their learning, whereas few teachers had great impact on their learning whenever they came.

When asked about factors that can help them improve learning, their immediate response was 'tuition classes.' However, one amongst them suggested that teachers could be trained better to improve their learning.

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### RESEARCHER REMARKS

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Post-installation of biometric devices, rigorous research needs to be conducted to understand the reasons of failure and success caused due to both technical (e.g. biometric authentication) and non-technical (e.g. teacher concerns) factors.

Kentaro Toyama in his book *Geek Heresy: Rescuing Social Change from the Cult of Technology* suggests, one should see the social situations less as problems to be solved and more as people and institutions to be nurtured.

The problem of teacher attendance can be addressed effectively by a combination of technology and nurturing of social institution. Implementation of AEBAS may help in improving teacher attendance when it is supplemented with multiple other factors.

This includes improvement of infrastructure like electricity and internet, effective incentivizing mechanisms which are based on financial and non-financial factors, constant engagement and feedback from teachers on the effectiveness of AEBAS, research to understand the reasons of failure and holistic measurement of student learning outcomes.