

Human Resources for Health

Workforce Analytics for Design and Planning Report

LESSONS FROM THE EDUCATION SECTOR: THE EMIS IN ANDHRA PRADESH



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In conversations across all twenty countries, stakeholders had a low level of awareness of what was happening in other sectors around human resource information systems.

This likely reflects the administrative and programmatic silos in which most donor and government officials work. Instead, there was a strong perception of the health sector being a leader in human resource information management. Nevertheless, the assessment team was able to document a success story from the education sector in India, where there is a robust integrated education management information system (EMIS) in place, including a teacher information system and a teacher attendance tracking system, among other components.

Like health, education is also an information-intensive sector. Looking at design process of the EMIS in Andhra Pradesh (AP) illustrates many lessons learned that are applicable to health, including achievement of interoperability, availability of data on private schools, ensuring the system meets the needs of multiple users, including data entry into job roles, institutionalizing capacity building, and making data available to parents and community members (Shoobridge, 2020; UNICEF, 2021).

Bringing an EMIS to the School-Level

In the recent past, considerable investment has gone into strengthening national education monitoring systems. These efforts have largely focused on creating EMISs at the national level, with little focus at subnational and school levels. From 2012-3 the national "UDISE" system in India required data reporting from states to the national level but didn't have the state's decision-making needs factored into the system design. This centralized approach is problematic for system engagement since it is at **subnational and school levels where data are entered, as well as where key decisions are made and problems addressed.**

The EMIS in Andhra Pradesh is unique in that it focuses on decision makers at multiple administrative levels, including the school. "Making the system useful for those who use it," is a key success factor (Government of India, Ministry of Human Resource Development, 2019). The AP EMIS system was designed in 2016 with a bigger range of data points collected to serve a larger range of data use cases for decision makers at all levels, and then all its features scaled up through incorporation

into the national system in 2017 as "U-DISE+." Throughout the design and implementation, the process benefitted from the **strong interest and support from the Chief Minister, Chandrababu Naidu – especially regarding attendance tracking.** While this system now operates nationally, in this case study we are describing the design phase and the system impacts which are all captured at the state level in Andhra Pradesh.

HR Data Elements

The AP EMIS covers public and private primary, lower secondary, and upper secondary schools. Initially the private sector was reluctant to share data and the data that was reported wasn't necessarily trusted. However, once the private sector could see how the system benefitted them, they became more engaged with reporting. For example, it became easier for them to get their fire safety certification, and other routine approvals required to remain open as a business (seven different government departments are required to give approvals for the ongoing functioning of schools). However, most indicators are published for the public sector, for use in public sector planning, and reference the private sector when assessing the requirements of the public-sector provision of schooling.

In terms of the education workforce, **Andhra Pradesh emphasizes that teachers' data should be updated correctly and validated at respective levels.** To facilitate this, teachers can update their own details, subject to a digital approval process involving head teachers, cluster education officers, and Mandal or block (local administrative unit) education officers, via a mobile application.⁸

Mobile Access at the School Level

The AP EMIS employs mobile applications to engage teachers and headmasters in schools and is designed to easily meet their needs (e.g., they can file leave notifications or enter information on the class list). The Department of School Education ensured schools have a monthly allowance for mobile connectivity, so mobile applications were accessible to staff in schools with poor infrastructure, which lacked capacity to engage the desktop version of SIMS. The accessibility of the system at the school level is a key success factor.

Initially, teachers complained about the data entry requirements of the system but were quickly convinced once they were able to use the data for their work, for example tracking

⁸ Staff members can access and comment on their own file by logging in using their treasury ID and password sent to their mobile number.

absenteeism. Estimates had suggested that absenteeism was as high as 20%, but once the biometric attendance system was in place it recorded absenteeism at around 5%, which was a relief to teachers. They could also apply for leave, get a “no objection certificate” for any travel, and have any grievances addressed all through their phone.

Capacity Building

At least one day a month is allocated to mentoring staff at all levels of education, from district headquarters down to the school level. This time is used for EMIS capacity building when new applications or functions are introduced. In addition, job roles have been rewritten to accommodate the system, to ensure data entry and use is sustained.

Interoperability

System design has focused on integration or interoperability between several systems including the teacher information system, the student information system, the student assessment system, student and teacher attendance, the GIS, the midday meal system, and the national U-DISE system, with the aim of each data point only needing to be collected once, creating efficiencies, and supporting the verifiability of data (Government of Andhra Pradesh, 2018). Robust data standards such as the use of unique codes for all entities and use of application programming interfaces (API) ensure that relevant data are shared between systems. This was achieved by convening meetings among several sections within the Ministry of Human Resource Development, led by the Commissioner for High School Education. There were 11 heads of department who all had unique data requirements. An NGO called Circle Square Foundation from Delhi helped facilitate these meetings to map the data requirements for planning and management decision making. Initial discussions were also conducted with treasury to be able to use Teachers’ treasury ID as a unique identifier and ensure interoperability with payroll. The ability to facilitate this cross-sectoral coordination reflects a strong governance ecosystem, with clear leadership support.

Another factor that provided ongoing coordination and technical support across the different sections of the education department was the creation of a dedicated IT unit.

Access to the Information

The information from SIMS is broadly available to parent committees and the public. However, it is not easy for a layperson to locate or navigate the information. A program has been started to appoint resource persons to engage with parents and communities on data awareness.

System Impacts

Andhra Pradesh has undertaken significant transformative initiatives to modernize and improve the education system and ensure greater equality and quality of education. SIMS plays a vital role in the monitoring and evaluation of all initiatives. **The relevance of the system to the dynamic policy environment is a key success factor.** There are several successful impacts of the system, these are listed below:

- A biometric attendance tracking system (E-Hazar) has been attributed with **increasing teacher attendance from 27.5% in August 2017 to 97.2% in February 2018.**⁹
- Performance data is now factored into the transparent transfer process, which gives more weight to performance overall. Stakeholders suggest that the AP EMIS has **improved teacher and headmaster satisfaction by ensuring fairer, more transparent processes of decision making, such as in the case of transfer requests.** As 40,000 transfers happen at a time, managing this process through the system, in a transparent way, has provided a huge amount of administrative relief to the education department.
- A use case that generated the biggest cost savings was seeing which schools had low enrolments, and then merging 4,000 of them using that data.

⁹ Staff can access and comment on their file by logging in.