Augury of Implementation: A Case of Implementation through MIS coordinators in schools of Telangana State

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Abstract This study explores qualitative experiences of Management Information Systems (MIS) coordinators and Field Resource Coordinator (FRCs) working among 13 districts of Telangana CLIx (Connected Learning Initiative) project. Current study discusses bottlenecks at different levels of implementation of CLIx project. Paper explores problems with state dependency of PMU (Project Management Unit) during project implementation at micro/school level. It also brings out solutions and possible responsibilities which MIS coordinators can carry out ICT implementation, from experiences of FRCs at field level among CLIx project schools in Telangana. This study brings out how ICT (Information and communication technology) related projects have a higher - level of dependencies on state and other stakeholders during project implementation stage and how these dependencies create gaps in implementation at school level.

Keywords **-** Bottlenecks, MIS coordinators, Implementation, Stakeholders, ICT (Information and communication technology).

Introduction

Education sector has been adopting a lot of recent developments of the field in a very quickly compared to before. ICT is a frequently heard name in the sector recently. ICT related projects are booming recently in education sector globally and slowly picking up the popularity in developing countries and India is no exception. As articulated in the Tunis Commitment of UNDP's World Summit on Information Society: *ICTs have enormous potential to expand access to quality education, to boost literacy and universal primary education, and to facilitate the learning process itself, thus laying the groundwork for the establishment of a fully inclusive and development-oriented Information Society and knowledge economy which respects cultural and linguistic diversity* (World Summit on Information Society 2005, 2).

ICT - Information and Communication Technology ICTs are defined as all devices, tools, content, resources, forums, and services, digital and those that can be converted into or

delivered through digital forms, which can be deployed for realising the goals of teaching learning, enhancing access to and reach of resources, building of capacities, as well as management of the educational system. These will not only include hardware devices connected to computers, and software applications, but also interactive digital content, internet and other satellite communication devices, radio and television services, web based content repositories, interactive forums, learning management systems, and management information systems. These will also include processes for digitisation, deployment and management of content, development and deployment of platforms and processes for capacity development, and creation of forums for interaction and exchange (*Ministry of Human Resource Development Government of India, 2012*)

The ICT projects need high levels of teamwork unlike non ICT projects as they are a lot of technical aspects involved. Introduction of computer technology in learning requires a dramatic transformation of schools and this complex, difficult, and non-linear process requires commitment and support from all members of the education community (headmasters, teachers, students, parents, Government, etc.) (Demetriadis, et al., 2003: 20, Papert, 1993: vii, Urrea, 2007: 3). Balanced teamwork of both technical and pedagogical is the base for ICT Education.

Information and communications technology (ICT), Research scholars believe that ICT in education in many developing countries has been a subject of interest as it improves quality of education, gives digital access to the students and develops inclusion globally.   Digital learning technologies represent the biggest opportunity. They will transform the Indian education landscape, address capacity issues, and meet the expanding future student demand from all strata of society. Given its emphasis on digitisation and inclusive education, the Government of India should be the enabler and active supporter of the flexible model of education.

CLIx – Connected Learning Initiative is a technology enabled initiative at scale for high school students. CLIx offers a scalable and sustainable model of open education, to meet the educational needs of students and teachers. CLIx incorporates thoughtful pedagogical design and leverages contemporary technology and online capabilities. These are being offered to students of government secondary schools in Chhattisgarh, Mizoram, Rajasthan and Telangana in their regional languages and also released as Open Educational Resources (OERs) (CLIx internal documents). *Telangana*

CLIx Implementation CLIx project has been working on the CAL (Computer aided learning) in 300 schools of old 3 districts now due to expansion of the districts, 13 districts of the Telangana state. The project has been working with the state in both planning and implementation state. Adoption of ICT in high school is a new concept in the state. At ground level, MIS coordinators and FRCs are the people who are expected to work with teachers at school level. During our field visits we realised participation of the MIS coordinators was minimum at field level that whole responsibility has shifted on to FRCs , where we faced a lot problems during implementation of the CLIx.

MIS and how it has evolved. The Management Information System is a collection of men, tools, procedures and software to perform various business tasks at various levels in the organization. Many organizations have separate MIS departments which are involved in maintaining records, performing transactions, report generations and consolidation of the important information which will be supplied to the various levels of the management. MIS has three basic levels: operational, middle management and top management where the information is passed from bottom to top.

Definition differences. MIS has been understood and described in a number of ways. It is also popularly known as the Information System, the Information and Decision System, the Computer-based Information System. The MIS has more than one definition, some of which are given below:
1. The MIS is defined as **a system which provides information support for decision making in the organization.**
 2. The MIS is defined as an **integrated system of man and machine for providing the information to support the operations, the management and the decision making function in the organization.**
3. The **MIS is defined as a system based on the database of the organization evolved for the purpose of providing information to the people in the organization.**
4. The MIS is defined as a **Computer based Information System**[1] (Tripathi.K.P 2011)

MIS coordinator in the state of Telangana and their roles and responsibilities he/she is a person appointed by the government for ICT related work at mandal level. The roles of MIS coordinator are, He/she is responsible for creating computer awareness and literacy among children and teachers, make teaching - learning process effective and interesting

through ICT, help the teachers with latest technical knowledge, generate supplementary material in digitized form, and improve enrolment, retention, quality of education and achievement levels of children.

Their role in State Government Organogram. When we studied the role of the MIS coordinators in the state project management unit by studying the state document we realised that the work at mandal level for data management system is given to MIS coordinator. We found the MIS are responsible for major data management systems along with the CRPs and Computer operators who will be supporting Mandal education officer. Data management at district level.

Role in Organogram of state PMU

MIS coordinators @ how CLIx has envisioned. MIS coordinator was chosen by CLIx for the lab health check-up during the initial school mapping process. During the expansion of CLIx schools, in September 2015. Team in Telangana wanted to expand more schools in 3 districts in Telangana to gain an understanding of the present status of the computers labs (where they exist) in the schools in these districts; we had planned an infrastructure mapping survey for schools covered under ICT in these districts. We are seeking your support in this matter, in the form of logistical aid, manpower. Mandal MIS Coordinators/Complex Resource Persons (CRP's) to both conduct the actual survey and eventually take on the roles of Field Support Coordinator (FRC) is a key for execution of this endeavour.

What is this paper regarding?

This paper explores experiences of FRCs from CLIx and MIS coordinators who were envisioned support system at school level during implementation. During the planning stage of the implementation for the project at school level, state has expected that MIS coordinator who is at the school level will be able to carry out at school level without considering admin work at District level. Currently in 2017-18, we are seeing the difference in the above mentioned process. The current study was conducted among the 13 MIS coordinators and 3 FRCs among CLIx schools in Telangana. We felt this paper was the need of the hour to explore the bottlenecks in the implementation due to dependency on MIS coordinators of CLIx at school level.

Research Questions

This study focuses on the following three research questions:

1. What are the bottlenecks through the lens of MIS coordinators for implementation of CLIx at school level?
    · What are the problems faced by MIS coordinators from state administration level?
    · What are the problems faced by MIS coordinators at school level for implementation of CLIx?
2. How the state has envisioned role of MIS coordinators in the implementation of CLIx at school levels?
    · How the state envisioned role of MIS coordinators in the state implementation of CLIx Implementation?

3. What are the possible areas MIS coordinators can intervene according to FRCs?
    · What FRCs have envisioned role for MIS coordinators on field?

Literature Review

ICT for Education: In recent years, the argument for ICT in education has changed, shifting from human capital and economic growth to equity, social inclusion and access to basic education. Falling hardware costs, trade liberalisation and the growth of global communication networks have given rise to speculation that ICT can contribute to education at all levels, even in the world's poorest communities. This has been accompanied by a shift in development priorities from economic growth through industrialisation to poverty alleviation and capabilities (Sen 1999), emphasising basic education, civic participation and economic opportunities for disadvantaged groups. Rather than a gateway to the global knowledge economy, ICT is viewed as a means to expanding educational access and quality. The use of information and communications technology (ICT) for education in developing countries has been a subject of great interest and speculation, with its proponents arguing that ICT improves educational quality, develops critical thinking skills, expands access, increases economic competitiveness and facilitates inclusion in a rapidly expanding global information society (Shields, 2011). As the historian Larry Cuban (1993, 185) observed succinctly of the remarkable resilience of schools to the waves of successive technological developments throughout the 1980s and 1990s, "computer meets classroomclassroomwins." The most important point to consider is the well-worn tendency of digital technology to reinforce existing patterns of educational engagement helping already engaged individuals to participate further, but doing little to widen participation or

re engage those who are previously disengaged (Selwyn 2011).

Education and Technology in India: The history of modern India provides an example of the 'investment approach': the 1950s and 1960s saw heavy investment in technology in higher education, with the establishment of the elite and highly selective Indian Institutes of Technology and a growth of computing facilities at national universities. This came at a time when the basic education system was struggling, with gross primary enrolment rates at just 42.6% in 1951 (Kamat 2007, 220). Using technology in education space has been booming in India in Private schools system. This was adapted recently among the government schools

ICT Education in Telangana: **ICT@schools:** The scheme Information and Communication Technology (ICT) in Schools (ICT@schools) has been subsumed under RMSA. ICT@schools was launched in December 2004 and revised in 2010 to provide opportunities to secondary school students to develop their ICT skills and to facilitate computer-aided learning process. The fund sharing pattern is 75:25 between the centre and the state. Until 2015, 20 schools are approved under the Vocational Education scheme. Under ICT, 4,857 schools were approved in 2010–11. At present, 2,680 schools are functional under the BOOT model, and 2,177 schools are yet to be implemented. However, from 2016–17 onwards, the state government has decided to discontinue the BOOT model and has run the ICT@schools directly for the remaining 2,420 schools. (The initial proposal was to cover 5,000 schools under the scheme). The state government is proposing to sanction a sum of Rs. 50 lakh per district for installing computers, training teachers and develop ICT curriculum (RMSA, 2016).

CLIx Activities in Telangana with MIS coordinators. The academic year 2016–17 was a pivotal year for CLIx in Telangana in terms of achieving major milestones of implementation. We were able to work closely with the Directorate of School Education (DSE), State Council for Education Research and Training (SCERT) and Sarva Shiksha Abhiyan (SSA) on several key milestones of the project (CLIx Internal documents).

As of 2010–11, 2,680 schools in Telangana were made functional through the BOOT model. Under this scheme, school labs were established and staffed by the third-party agencies that were expected to conduct ICT classes in the school. These agencies were also expected to transfer both knowledge and hardware to the schools by the end of their contract period. However, this was not done diligently, and most of these labs were neglected and fell into disrepair (CLIx Internal documents).

1.	**Lab Health Audit**	The Telangana government recently decided to end the BOOT model and run the school labs directly. In order to address current problems in school ICT labs, it was necessary to first understand the current status of these labs. To this end, a statewide lab health audit was initiated. The lab health audit is part of an ambitious goal of the Telangana government, namely, to identify the condition of ICT labs in all schools in Telangana. A set of comprehensive tools were created to capture the general conditions of school labs, the status of computers and infrastructure limitations of the schools, such as the availability of power, internet etc. Field-level data collection was done by MIS coordinators, who work with the SSA at the mandal level. To train MIS coordinators in the use of these tools, a series of workshops were planned with the help of resource persons from TISS and Homi Bhabha Centre for Science Education (HBCSE). To initiate this process, a group of MIS coordinators were identified from each district to act as master trainers. The master trainers were trained in the use of the tools and in basic PC hardware troubleshooting in a three day workshop at SCERT.
2.	**MIS Trainings**	As part of their transition away from the BOOT model, the state education department sought to build the capacities necessary to install (new hardware) and maintain ICT labs in schools. To accomplish this, a two-day training workshop was organised at MCRHRD training centre for selected MIS coordinators. In addition to theoretical instruction, they were given several opportunities for hands-on practice under

| | the supervision of subject experts from CLIx. | out forms, can limit the time for other school visits to them. |

We have to work on a lot of data for district we don't have time for doing CLIx work.

Research Methodology

For this research study, we have used an exploratory research design. Data was collected from 1 MIS coordinator per district, a total of 13 MIS Coordinators were interviewed using a semi structured interview schedule and 1 Field Resource Coordinators (FRC) from all districts of Telangana state. We have used non- probability sampling - purposive sampling was used. Total Sample size of the study is 16. Secondary data was analysed from government orders (G.O's) and documents were referred for the secondary data. Data was collected through semi structured interviewing schedule for both MIS coordinators and FRCs.

Findings of the Study

MIS playing as street-level bureaucrats and their importance in implementing ICT projects MIS coordinators as street-level bureaucrats can be categorized under the frontline workers or policy implementers in government agencies such as the health service, schools or police service. They are professionals with good knowledge of the computers at mandal levels.

Bottlenecks at different levels of implementation of both MIS coordinators and FRCs At school level we are not able get support from MIS at school level. We got feedback from teachers that they did not have any technical support from any MIS coordinators. Most of the rollout which have started successfully had to halt because of technological issues. Issues which a person with minimal knowledge can solve.

1. MIS coordinators work pressures and problems they are facing on field in their voices

In order to explain work and the pressures of MIS coordinators, it is important to understand the conditions under which they operate and the nature of their work. The following are challenges faced by them.

A. ***Inadequate resources***. At ground level, MIS have very less resources both in manpower and finances at their disposal to the tasks they are required to perform at district level. This resource inadequacy can take various forms. More focus on administrative tasks, such as filling

B. ***Demand for their services***. The demand for MIS coordinator services is in high demand as they organize the data for the DEOs and other officials at district level. A MIS is not able to justify all the roles mentioned in his job chart due to his high demand at administrative level.

We have to do data work, office work and go for meetings and also do project work, like CLIx, who will answer to DEO sir if we go to do project related work. These school are nearby they are very far from each other.

C. ***Vague or conflicting organisational expectations.*** Government agencies often have ambiguous, vague or conflicting goals. Like in the case of MIS coordinators they are given the huge task of admin work and also government has mentioned that they have to overlook the ICT projects at district level or some times mandal level.

"We have 15 mandals in our district, I am the only MIS coordinator they would not recruit any one as our contract was only for one year and how can I leave all my work at office and go to school visits. These schools are all very far from the DEO office."

D. ***Challenges of performance measurement.*** It is difficult to evaluate the performance of MIS coordinators as they are street level workers and their contributions are important at higher level.

2. **CLIx envisioned role for MIS coordinators.** CLIx project has assumed that we can work on the ground level or micro level of the implementation with the help of MIS coordinators as per our state suggestions. There was a contradictory action on the field to what was envisioned at the state level. MIS Coordinators are mainly facing serious problem at the ground level, the range of problems very from the honorarium, the distance between the schools, to the less manpower at the mandal level data.

CLIx Project Expectation of MIS coordinators vs. Reality on field According to the state advise, we expected MIS coordinators to be key supports at school level especially as a

technical support for the teachers during rollout and implementation process (student modules), as they are present at district level. In reality MIS coordinators were not able to be on field majorly due to administrative work at DEO office level. MIS coordinators also felt that the financial aspect of not getting paid for this extra work they are doing coming to school.

B. **Problems in implementation and with state dependency at district level** Due to dependency on the state and lack of communication from district level system. This is very difficult as our FRC when they go to schools; they were facing difficulties due to proceedings from district level.

3. **Practical Problems on the field in the voice of MIS coordinators**

A. **Geographical Location of the schools** the schools in rural areas are very far from each other and this is very difficult MIS coordinator to bear the load of all the 15 to 16 schools in 1 mandal. Distance between each school is too far.

> *"I am only MIS coordinator in my mandal and it difficult for me to travel so much and when I have to take care of all the other data in the mandal. If I go to schools who will do my work at MEO office. The distance between each mandal is 50-60 km and within the mandal it is a lot of distance to cover. This differs from a rural area (30-40 km sometimes) to urban area (15km-20km) with in the district."*

B. **Limited manpower at mandal level**

At our mandal level there is only one MIS coordinator and one Computer operator who are responsible for the entire school data at Mandal level according to rules, but in reality there are hardly any computer operators at mandal level, We MIS coordinators only do the computer operator job also.

> *"In my mandal there is no computer operator I am only doing his job. I am over working (day and night) to keep up with both the roles. They are not appointing any new computer operators because MIS coordinators only can be used for both these."*

C. **Salaries not on time as they are contractual employees**

MIS are contractual employees and salaries are less. They get honorarium not salaries. They are getting very less and they are asked to do the work of the computer operator also which becomes overburdening for them and demotivating as he/she is not getting back the benefits of the regular employee in the state.

> *"I am not getting my salary only regularly, actually we are contract employees we get honorarium. With the number of projects adding every year they are not even looking at making us permanent employees".*

> *"We have trained MIS coordinator 3-4 times from the project in these two years but I feel that we were not able to get back services from MIS coordinators we have expected from them."*

4. **FRC view on possibility of work for MIS coordinator at field level.**

A. **MIS can take up ownership of project at school level.** FRCs had felt that MIS coordinators have not taken proper ownership of the project at school level. In FRC experience, MIS support at school level was minimal or nil. MIS are not able to help due to their administrative responsibilities at DEO (District Education Officer) level. FRCs felt that since these administrative responsibilities are not on a daily basis. They were not available remotely solve technical issues over the phone. MIS coordinators felt that they are not getting any financial benefits from the project for the work they are doing. According to FRCs they were not able to help teachers remotely also; they were always giving reasons of financial benefits from the project.

Discussion/Implications of the study:

Expected outcomes of Project from MIS was different from reality on field	
Expected outcomes of Project	**Reality on field**
We had conducted 3 trainings for the MIS coordinators from the project for MIS coordinators regarding hardware and software related to CLIx.	On field MIS coordinators are not helping either teachers or students on field

We considered that after this training these MIS will be able to help the teachers and students at rollout stage.	Possible responsibilities of MIS coordinators from the experiences of FRCs in field in CLIx schools in Telangana.
On field we felt the need for teacher support in the technology front can be carried out by a CRP (Cluster resource person) or MIS Coordinators	There was minimal of nil support from the teachers.

State has been very ambitious in introducing multiple ICT initiatives this year which are all implemented this academic year. The state has launched Digital learning in the state education, this is new way of learning in the state education.

Conclusion of the study: In the above study we felt that MIS coordinators are not able to work on implementation of CLIx and ICT related projected due to following reasons.

1. Lack of communication
2. Internal problems like salaries and honorarium from the project
3. Distance of the schools and problems at administrative level.

Based on project field resource persons (FRCs) felt that the MIS can do the following tasks for the projects.

- They could take up ownership of the project at school level.
- They could help the teachers resolve the hardware issues and give them technology support at school level.
- They should help Headmasters in the reporting structure.
- They should be a key member in supporting an ICT project at district level.

If we there is an ideal situation of the best support from educational department and ownership at ground level these gaps can be filled.

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