

# Use of ICT in Rural Schools of West Bengal: Constraint and Consequences

Tanmoy Dutta<sup>1</sup>, Amit Kumar Hazra<sup>2</sup>

<sup>1</sup>Research Scholar, Department of Lifelong Learning & Extension, Rural Extension Centre (REC), Visva-Bharati, West Bengal, India  
E-mail: [duttatanmoy87\[at\]gmail.com](mailto:duttatanmoy87[at]gmail.com)

<sup>2</sup>Professor, Department of Lifelong Learning & Extension, Rural Extension Centre (REC), Visva-Bharati, West Bengal, India  
Email: [amit.hazra\[at\]visva-bharati.ac.in](mailto:amit.hazra[at]visva-bharati.ac.in)

**Abstract:** Travelling around India shows the contrast between rural and urban India. Educational inequalities between rural and urban India are also significant. Net Attendance Ratio at the primary level does not demonstrate a significant difference between rural and urban schooling, but at secondary and higher secondary levels, anyone can notice the difference. Lower upper-level enrollment leads to early dropout or discontinuation. Lack of interest in education is one of the main reasons for discontinuation. To this end, ICT can be a major solution to reduce the percentage of non-interest students. Information and communication technology (ICT) in the form of Digital Education can improve rural education and student interest. The present study will deal with the use of ICT for academic and non-academic purposes with major constraints of ICT use in rural schools. The study was conducted with secondary and higher secondary schools with ICT facilities in Burdwan District (Undivided) of West Bengal. Students, ICT teachers, and institution heads were interviewed using open and closed-ended questions. The study found many opportunities for ICT access with existing resources if it is properly used and utilized. Limited ICT resources, Poor internet connectivity, and a lack of skilled teachers are a few bottlenecks hindering the smooth implementation of ICT in rural schools.

**Keywords:** ICT, Digital Education, Rural School

## 1. Introduction

Students living in rural areas usually rely on schools run or assisted by Government for their educational needs. Therefore enrolment ratio in rural schools is much higher than in urban schools. Yet, rural areas still confront a variety of obstacles, which have a direct influence on the literacy rate of the state as well as the country. It requires more attention to be more successful. Out of various major issues which lag rural schools behind, non-interest among students is one of them. To this end, Information and Communication Technology (ICT) based digital education can be an alternative way to upgrade rural school education. The National Education Policy 2020 focuses on using digital learning as an alternative to the traditional classroom model; nonetheless, using digital knowledge in rural India will confront some difficulties in its implementation. The standard of living can be improved due to the development of ICT.

The leading ICT-based programme in school education in West Bengal is CAL (Computer Aided Learning) programme and the ICT[at] School scheme. ICT has recently been implemented and made effectual to satisfy the demands placed on educational institutions. The technology significantly ensures everyone's access to education and narrows the gap between rural and urban educational opportunities. Technological practices can make it possible for educators to use a variety of teaching tactics, which, in turn, will make it easier for students to engage in attentive education. Despite this significant exposure to Information and Communications Technology (ICT), rural schools in West Bengal are struggling with various challenges that prevent the successful adoption of the technology and its benefits.

The study was conducted based on two primary objectives. The first objective is to know the use and utilization of ICT in rural schools, and the second is to identify the challenges associated with ICT implementation in rural schools.

The paper is divided into a few sub-sections. In the first section, ICT and its significance were discussed briefly. The use of ICT has been addressed in the second section. The following section includes significant problems that create hindrances in ICT implication, and the fourth section discusses concluding remarks.

### ICT and School education:

Technology in school helps all students to learn the curriculum in detail. Because they have access to necessary materials and can use specialized ICT tools to meet their own educational needs, children with special needs are no longer at a disadvantage. ICT can assist students in deeply memorizing the topic information. Using diverse graphical presentations, they can learn practically. Their comprehension of the subject content also aids in their ability to perform well in examinations. Students are more engaged in their work when ICT is incorporated into lessons. This is because using technology to teach the same concepts in various ways can make learning more entertaining and fun. It helps to retain information more effectively and efficiently, which can help to increase participation. It can save the time of taking classes. Teachers can demonstrate practically during their lessons with a prompt example from various sources. Moreover, school administrations can be more accessible and more approachable due to ICT's involvement in their daily work.

ICT in school education considers several communication technologies, including computers, the internet, wireless networks, mobile phones etc, allowing users to stay

informed about various global happenings. Desktop or laptop computers, mobile phones, projectors, multimedia K-YAN, routers/dongles for internet connection, printers with or without scanners, webcams, and sound systems are all examples of ICT used in schools. However, the use of ICT in education goes beyond teaching with resources. Teachers can use ICT to create both online and offline interactive sessions. Through this, students can stimulate physical and mental activities while learning.

## 2. Methodology of the study

In West Bengal, the Burdwan District (undivided) has been taken care of as it has the maximum number of Government-aided schools that are ICT-capable. 10 Government and/or aided schools with secondary/higher secondary have been selected randomly based on the availability of ICT from the rural area of Burdwan. Forty students were interviewed to fulfil the objectives.

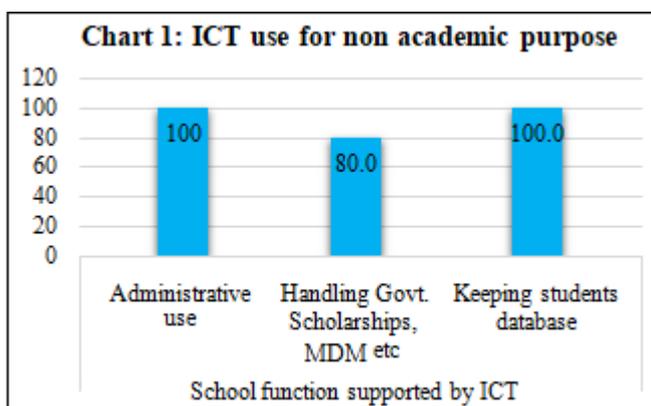
Structured and unstructured questionnaires were used to get detailed information from the schools. Participatory Rural Appraisal (PRA) and Focus Group Discussions (FGD) were used to determine what students and teachers thought about ICT. The results were analyzed based on first-hand information gathered in the field and available secondary information.

## 3. Results with analysis

The key results of the findings demonstrated and analyzed in this section are based on the data collected from the field (in percentage).

### 1) School function (non-academic) supported by ICT:

The use of ICT in school education has given enough facilities to handle administrative work easily. Chart 1 represents the use of ICT by school administration for non-academic purposes. Schools do various non-academic work daily, which is quite impossible without ICT. They must keep all Student databases online, report to multiple portals, contact administrators, etc. Besides this, various Government scholarships, MDM (Mid Day Meal) and other facilities need to maintain digitally, which can only be possible with ICT. Now, schools need to keep all the records of students in a single portal issued by the State Government for all schools. Schools need to update the portal regularly.

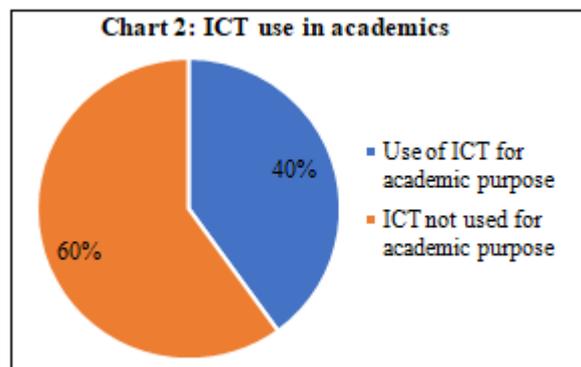


Source: Primary data

It was found that 20% of surveyed schools cannot use ICT in maintaining Government scholarships or MDM as they don't have any dedicated staff to handle ICT at school. They depend on outside café or computer centres to do it on their behalf.

### 2) Use of ICT for academic purposes:

In schools, the projector can be used for taking classes. The schools are provided with only one projector so that only one teacher can use it at a time. However, there are computers and K-YAN machines (in certain schools) to use as teaching and learning tool during classes.

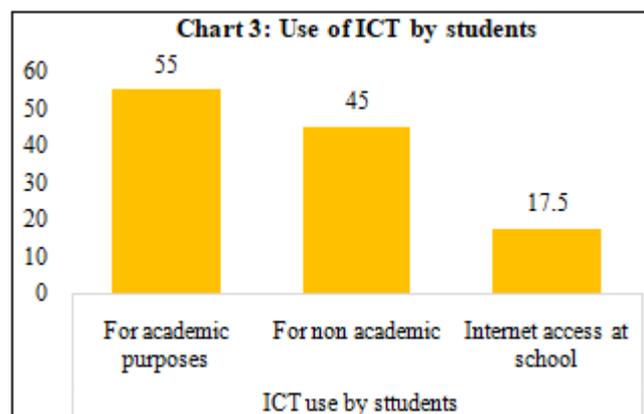


Source: Primary data

Data shows 40 per cent of schools use ICT for academic purposes, while the majority of schools do not use it for academic purposes. According to them, the study material is not updated per the syllabus. It is also unavailable in local languages, creating problems during class. Moreover, many aged teachers were found reluctant and felt uneasy about handling ICT.

### 3) Purpose of ICT use by students:

If a student wants to use ICT in their education, they have a limited number of options. If they are at home, they are welcome to use the phone of any other family member if they do not have their own. And at school they can access only computer without internet during class. Chart 3 represents the use of ICT by students for academic and non-academic purposes, including internet access at school.



Source: Primary data

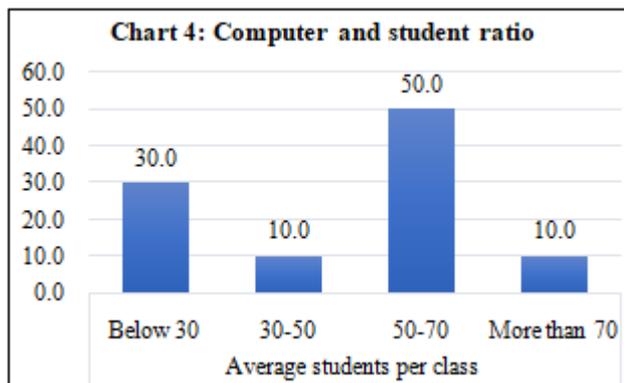
It was found that 55% of students utilize ICT for academic purposes. There is minimal opportunity for ICT use via the internet at schools. Most students said they don't have access to the internet at school, and only 17.5% of students replied

that their schools provide them with the internet. Since most students in rural areas lack personal cell phones or other forms of electronic communication, they must rely on others, and not all rural areas have reliable internet access.

### Major Constraints of ICT implication in Rural schools:

#### 1) Limited Technical support:

As already said, the number of ICT equipment, especially computers, is inadequate according to the student strength of the class. Out of which few machines are found damaged in many schools. Several schools managed computers from other sources like donations and help from other Government offices.

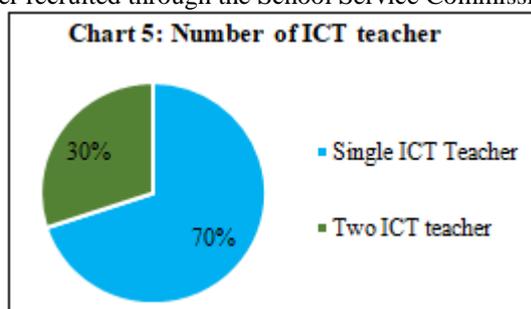


Source: Primary data

It was observed that in 30 per cent of rural surveyed schools number of students per class is below 30. While in most schools, students used to sit in a classroom is about 50-70. That means 5-7 students have to share only one computer during ICT classes. This issue primarily affects all secondary and higher secondary schools in rural areas because enrollment in rural schools is significantly higher than in urban schools.

#### 2) Single ICT teacher:

ICT teacher is one of the primary keypersons for successfully implementing ICT in school education. Only one ICT teacher is found in 70 percent of schools, and 30 per cent of schools have two ICT teachers. The vendor (responsible for supplying machines and maintenance) recruits one ICT teacher and another full-time computer teacher recruited through the School Service Commission.



Source: Primary data

We may see that the workload of an ICT teacher is excessive if we compare it with other subjective teachers.

They are bound to take all allotted classes from V-X. As a result, assigning classes based on need is highly challenging. Besides, they also need to perform various administrative tasks relating to the school.

#### 3) Lack of good content material:

Schools are provided with one projector with a screen. Even in a few schools, K-YAN (a multimedia projection device) has been supplied. One teacher can take a single class at a time. In most of the schools, preloaded study material was found non updated. This results in willing teachers cannot take classes using ICT if they want, which creates non-interest among the teachers and students.

#### 4) Reluctancy among Teachers:

Most aged teachers found hesitant to use technology. They are unwilling to use it during class. When handling this type of ICT equipment, they experience uneasiness. However, they can improve themselves with the help of ICT teachers' training. But, they had little interest in such kind of training.

#### 5) Unstable internet connectivity:

Many remote schools still don't have reliable internet access. An essential internet speed is necessary for downloading or any other online activity. The absence of these resources makes it challenging to deploy ICT usage.

#### 6) Limited ICT Classes:

It was observed that the number of ICT classes is highly restricted compared to the number of classes for other subjects. Only one or two periods are provided for each class/section per week, which is not even close to enough for the students.

#### 7) Lack of skilled teachers:

When there are more skilled teachers, there will be more applications of ICT in the curriculum. Yet, the current situation suggests that many teachers do not wish to use it during their classes. On the other hand, students are observed to have a high level of curiosity and don't want to miss a single class if it is conducted via ICT.

## 4. Conclusion

This paper focused on a few primary constraints of ICT use in rural schools besides their current use. Despite the ongoing efforts to incorporate ICT in schools, many households, particularly in rural regions, are unfamiliar with using ICT tools in their daily lives. Maximum families cannot afford computers and the internet for everyday use. Even they don't know the meaning of ICT. In this sense, the primary task is efficiently supplying adequate information and communications technology tools to required urban and rural locations (Ghavifekr et al., n. d.).

Moreover, rural households do not have a sufficient economic standard to maintain this highly costly ICT aid for their children. So most of them had to rely on school as the only source of their digital education. Technology has the potential to improve rural schooling. In addition to the chalk-and-talk method, it can develop interest among pupils to get through obstacles to learning. Its utilization and

accessibility can be increased with a continuous teacher training programme and using existing resources properly.

## References

- [1] Dutta, T., & Hazra, A. K. (2018). Information and Communication Technology in School Education in West Bengal: Scopes and Challenges. *Journal of Education and Development*, 8 (16).
- [2] Ghavifekr, S., Kunjappan, T., Ramasamy, L., & Anthony, A. (n. d.). *Teaching and Learning with ICT Tools: Issues and Challenges from Teachers' Perceptions*.4 (2).
- [3] GOI, MHRD (2020). *National Education Policy, 2020*. [https://www.education.gov.in/sites/upload\\_files/mhrd/files/NEP\\_Final\\_English\\_0.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf)
- [4] Kundu, D. A. (2018). Prospects of ICT Integration in School Education: An Analytical Study of the Government Schools in West Bengal, India. *International Journal of Advance and Innovative Research*. [https://www.academia.edu/37983887/Prospects\\_of\\_ICT\\_Integration\\_in\\_School\\_Education\\_An\\_Analytical\\_Study\\_of\\_the\\_Government\\_Schools\\_in\\_West\\_Bengal\\_India](https://www.academia.edu/37983887/Prospects_of_ICT_Integration_in_School_Education_An_Analytical_Study_of_the_Government_Schools_in_West_Bengal_India)
- [5] Odero, J. O. (n. d.). *Challenges Facing ICT in Education for Rural Transformation*. Retrieved March 7, 2023, from [https://www.academia.edu/21904093/Challenges\\_Facing\\_ICT\\_in\\_Education\\_for\\_Rural\\_Transformation](https://www.academia.edu/21904093/Challenges_Facing_ICT_in_Education_for_Rural_Transformation)
- [6] *The Importance of ICT in Education*. (n. d.). ICTE Solutions. Retrieved March 03, 2023, from <https://www.ictesolutions.com.au/blog/why-schools-should-invest-in-ict/>

## Author Profile



**Tanmoy Dutta**, Passed Masters in Rural Development and currently a Research Scholar of the Department of Lifelong Learning and Extension (Rural Extension Centre), Visva-Bharati, West Bengal. His area of interest in research is ICT in Education.

Participated and presented research papers at National and International conferences, and published articles in journal.



**Prof. Amit Kumar Hazra**, Professor of Rural Management, Department of Lifelong Learning and Extension (Rural Extension Centre), Visva-Bharati, West Bengal. His area of interest is Rural Development, Land Reforms, Decentralization and

Participatory Development, Rural Poverty, Renewable Energy etc. He published articles and research papers in many national and international journals and is a writer of Books.