Impact Assessment of Smart School Project in Howrah (West Bengal)

Impact Assessment Report

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- Impact Assessment Report

Project ID	P0630

Study Team

Dr. Manish Subharwal
Dr. Sanjay Gupta
Dharmendra Kumar Singh

Abbreviations

AV	Audio-Video
BaLA	Building as Learning Aid
CSR	Corporate Social Responsibility
KABP	Knowledge, Attitude, Behaviour and Practices
MI	Monitoring and Impact
NGO	Non-Government Organization
RO	Reverse Osmosis
SMC	School Management Committee
SS	Smart Schools
SaS	Sabuj Sangha
STEM	Science Technology Engineering Mathematics
TLM	Teaching Learning Materials
WASH	Water Sanitation and Health

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Executive Summary

1. Background

HDFC Parivartan provided a grant to Sabuj Sangh to carry out school development initiatives in 25 schools in the Howrah district of West Bengal between October 2022 and March 2023. The project was implemented in two phases, with 15 schools covered in Phase 1 and the remaining 10 schools covered in Phase 2. The project primarily strengthened the infrastructure of these schools, such as the renovation of girls' and boys' toilets, drinking water facility and building and learning (BaLA) artwork on the walls. The project also included the establishment of a Smart Class, a Library, and a Laboratory in all 25 target schools.

A research agency: 'Impact PSD' was assigned to undertake the third-party impact assessment study. A summary of the assessment is shared below:

Project/Impact Assessment Details	
Implementing NGO Partner	**Sabuj Sangh**
Project Location and coverage	West Bengal – Howrah district – 3 blocks – 25 schools – Uluberia block, Uluberia Municipality and Shyampur block
Project Duration	October 2022 – March 2023
Assessment Approach and Methodology	
Study Objectives	• To assess the extent to which the project achieved its intended results. • To ascertain the perception of stakeholders and project participants on the relevance and usefulness of the project interventions. • To identify learnings from the project that can be adapted for similar projects in future.
Research Design	Mixed methods approach (Quantitative and qualitative) Quantitative - Digital classroom checklist, STEM Lab, Interviews with Teachers Qualitative – In-depth interviews with school principal and Focus Group Discussion with students
Sample Covered	Out of 25 schools covered in 3 blocks, 8 (more than 30%) schools were selected to get a representative sample.

2. Key Observations and Impact

2.1 Smart Classroom Intervention

The physical verification process was administered to assess the current status of digital classrooms in terms of availability, functionality and current usage by the intended target groups (teachers and students). The results of the physical verification and interaction with teachers, principals and students are discussed as follows:

The advanced classrooms in each of the eight schools were completely functional and available to both students and teachers. These specialized classrooms are furnished with all essential smart class amenities, enabling teachers to facilitate engaging lessons customized to the specific grade-level syllabus.

- All eight schools have confirmed the receipt of the smart class setup. The setup includes a flat TV interactive panel, a sound bar, a web camera, e-content for Grades 6-10, power backup, and Android-based applications. This comprehensive support meets all the teachers' classroom teaching needs.
- Teachers from 7 schools informed that with the help of smart classes, students understand the concepts and principles with respect to different papers in the subjects and then ask their doubts and questions, which is incredible. In six schools, teachers expressed their views that they have seen improvement in tests and practical exercises and the regularity of students has increased multi-fold.
- In the FGD meetings, the students conveyed their contentment with the support offered by the smart classes. They highlighted numerous advantages, such as gaining a deeper comprehension of the material and being able to grasp experiments, leading to enhanced visual memory. Additionally, some students pointed out that their overall knowledge had improved as a result of the digital resources. All were very happy with the techno-pedagogy.
- The teachers across the three schools expressed satisfaction with the implementation of smart classes, which encouraged students to actively engage in discussions and seek clarification for any uncertainties that arose from the disparity between their note-taking and visual learning experiences. In two of the schools, teachers reported improved ease in lesson planning and chapter summarization.
- HDFC's assistance has been widely recognized for its incorporation of advanced digital tools, which has significantly enhanced educational practices.

2.2 STEM Labs

Under the smart school development project, HDFC Bank supported STEM labs in the target schools. The results of the physical verification and interaction with teachers, principals and students are discussed as follows:

- Six out of eight schools reached under the assessment confirmed receipt of STEM lab support. Five of these eight schools had STEM labs, and one did not have any labs.
- The STEM Lab setup provided schools with various resources, including models and equipment related to Science and Mathematics (6 schools), posters and teaching materials (6 schools).
- The teachers from all six schools have conveyed that hands-on practical exercises and demonstrations significantly facilitate the comprehension of various subjects among students. Furthermore, teachers from five of the schools have expressed that practical activities spark students' interest in different subjects and topics. Almost all teachers have observed that these

activities encourage students to actively participate in project-based learning and the creation of models, thereby improving their contextual understanding of the subjects. A few teachers have noted an increase in student attendance and improved academic performance in science and mathematics, consequently fostering greater interest in these subjects.

- The principals and teachers appreciated the HDFC Bank's assistance with STEM labs.

2.3 Other Support under the Project

Library Support

- Seven schools have acknowledged receipt of library-related support. All seven schools have received storage shelves for books and textbooks, and six schools confirmed receipt of tables and benches/chairs. Additionally, four of the schools have confirmed receipt of the latest books, and two schools were supported with some kind of repairing of wall/floor/door or appearance-related work.
- The teachers from three schools have noted that providing library resources has ensured that books are accessible and reading habits have improved. Students have gained interest in using the library to explore ideas for project-making and prepare for quizzes and contests.
- The libraries in the five supported schools are currently accessible and actively utilized by the students. Nevertheless, the library support has successfully fostered a conducive reading environment for the students.
- After conducting discussions with students, it was noted that they find great pleasure in reading books from the library and participating in storytelling activities with their peers, both at school and in their homes. The students expressed immense enthusiasm when sharing their experiences with libraries during the conversations.

Repair and Refurbishment of WASH Structures (Toilets)

- Seven out of eight schools endorsed receiving support for repairs and renovation of WASH structures within the schools (toilets). Of these seven schools, one got a new construction and the remaining six only received repair and renovation support.
- Principals and teachers have reported the completion of a new toilet block construction at one school, along with repair and renovation work at six other schools, including flooring, windows, and doors. Additionally, upgrades to water supply systems, as well as replacements of faucets and wash basins, have been carried out.
- Teachers from four different schools have expressed that the introduction of improved infrastructure has positively impacted hygiene maintenance. Additionally, teachers from two of the schools have noted an increase in girls' regular attendance and a decrease in absences during menstruation, potentially leading to a reduction in illness occurrences.
- Teachers from five educational institutions expressed dissatisfaction with the standard of work performed and the resources provided within the schools. The schools did not have a budget for the repair and maintenance of WASH facilities.
- The school authorities were pleased with and praised HDFC Bank for its assistance in improving the schools' WASH (Water, Sanitation, and Hygiene) systems.

Repair and Refurbishment of WASH Structures (Drinking Water)

- All eight educational institutions have been provided with assistance pertaining to potable water. Each of the eight schools has confirmed the provision of Aqua Guard UV water purifiers.

Moreover, four schools have undergone repair and refurbishment of their drinking water facilities, while three schools have reported the construction of new drinking water platforms.

- Five schools observed a decrease in water-related illnesses following the provision of clean water to students. Additionally, three of the institutions reported a reduction in water-borne diseases among their students.
- Students in the discussions confirmed that the drinking water facilities are now clean and well-maintained.
- Seven of the eight schools expressed dissatisfaction with the quality of work carried out by the implementation partner.
- The principals expressed their satisfaction and acknowledged the support received from HDFC Bank.

3. Findings on the OECD Criteria

This section provides the impact assessment findings considering the OECD research framework or criteria to oversee the overall impact of the HDFC Bank-supported Smart Schools Project in Howrah (WB).

OECD Criteria	**Score**
Relevance	5
Coherence	5
Efficiency	3.5
Effectiveness	3.5
Impact	3
Sustainability	2.5
Overall Score	**3.8**

4. Key Recommendations

- ***Smart Class:*** Strengthen technical support and maintenance of smart class equipment, addressing challenges related to equipment functionality and content updates.
- ***STEM Lab:*** If support is provided for academic activities in STEM labs, then only support for the STEM labs should be taken into account. If support is provided for the STEM lab's infrastructure, then it should be categorized as support for school infrastructure.
- ***Library:*** Increase Library resources like books and textbooks
- ***Drinking Water:*** Ensure that funds are allocated towards enhancing and upkeeping water filtration and distribution systems to guarantee a consistent and secure supply of drinking water for all students.

Introduction

1.1 Background

HDFC Bank Parivartan supports focused development programs (FDPs) in multiple focused areas such as education, rural development, skills development and livelihood enhancement, healthcare and hygiene and financial literacy. In one of the focused development programs, HDFC Bank has committed creation of 2500 smart classrooms in partnership with non-profit organizations under its key objective of promotion of education wherein Digital Classrooms were introduced.

During the last few years, HDFC Bank supported the efforts of the government education department by providing them with need-based support to a large number of schools in many states across India. Primarily, the aim is to strengthen the school infrastructure holistically so that students are provided with an enabling environment for joyful learning, promoting enhanced participation and engagement and strengthening teacher-pupil dialogue and discussions. Ultimately, the inclusion of SMART classes and digital classrooms, along with developed infrastructure, led to improvement in student learning outcomes and an increase in enrolment and attendance. The HDFC Bank's support for the schools enhances the school's reputation among the local communities and stakeholders and teachers get equipped with techno-pedagogy also.

1.2 About the Project

HDFC Parivartan provided a grant to Sabuj Sangh to carry out school development initiatives in 25 schools in the Howrah district of West Bengal between October 2022 and March 2023. The project was implemented in two phases with 15 schools covered in Phase 1 and the remaining 10 schools covered in Phase 2. The project primarily strengthened the infrastructure of these schools, such as the renovation of girls' and boys' toilets, drinking water facility and building and learning (BaLA) artwork on the walls. Also, the project included the establishment of a Smart Class, a Library and a Laboratory, in all 25 target schools.

1.3 Key Activities Undertaken for the Schools

Repair work/refurbishment of the school building
Repair work for Toilets
Repair work for Drinking water facilities
Supporting basic furniture in the school
Upgrading library
Installation of a Smart class
Setting up Digital classrooms
Activity Corner in Primary Schools
Set up of mini science lab government schools
SMC training and exposure visits for the SMC members to model schools

1.4 Objective of the Impact Assessment Study

Broadly, HDFC Bank intends to evaluate the effectiveness and efficacy of the project interventions and the sustainability of the project outcomes.

IMPACT PSD Private Limited, a firm specializing in impact assessments, was selected to carry out a comprehensive impact assessment of the smart school development project. The report includes detailed information on the study's methodology, which involved extensive data collection, stakeholder interviews, and rigorous analysis. Furthermore, the report presents the findings of the assessment, including the identified impacts, both positive and negative, and recommendations for maximizing the project's benefits while minimizing any adverse effects.

The Intervention Model

The project carried out several activities in the target schools. The table below provides the list of activities, as reported by the Sabuj Sangha. The matrix also includes the indicators proposed for the assessment.

Activity	Assessment Parameters
Set up Smart Classroom	• Functionality of equipment of digital classroom, including power backup • Average weekly attendance in digital class against overall school attendance • Teachers' perception/confidence in managing smart class • Students and teachers' perception on usefulness of Digital Class • Ease of access to Digital Class including crowding, waiting and time allocated to students
Set up Library	• Weekly rate of issue of books • Students' perception on reading habits • Average weekly time spent by students in the library • Inclusion of library period in school timetable
Set up Lab	• Use rate of Science Lab (average students accessing Science lab per week) • Perception of teachers on their capacity to effectively use the Science lab
Repairs and Maintenance	• Availability of supplied equipment and their functionality • Quality of products supplied • Repair and maintenance (provision, funds, warranty) • Usefulness of products • Perception of its impact on student attendance and regularity • Perception of its impact on school reputation

Study Methodology

2.1 Assessment Framework

For undertaking the impact assessment studies, we propose to use the following assessment framework which the standard OECD-DAC criteria[1] considered as one of the gold standards in evaluation. This framework recommends adapting this framework, wherever feasible and applicable:

Using this framework, we suggest questions/indicators that will be adopted to assess each program, using the six parameters stated above. These questions will be finalized in discussion with the HDFC team as well as after pre-testing the questionnaires.

	Indicators/Questions
Relevance	• What criteria were adopted for identifying the schools for support • How was the need assessment undertaken for the support • To what extent did the support meet the identified needs
Coherence	• What challenges were faced by schools due to non-availability of Smart class or Digital Classroom and other Infrastructure support (WASH, Library and other) • How the type of equipment, digital content and other essentials were finalized for the Digital Classroom • How did the Digital Classroom and infrastructure supported the school in achieving the expected results • How the library, WASH and other infrastructures provided under the project helped schools fulfilling the needs of the students • Options available with the school for repair and maintenance services of Digital Classroom and maintenance and upkeep of constructed/refurbished infrastructure
Efficiency	• What proportion of students were regularly attending smart class/digital classroom • What proportion of teachers could receive the benefits and type of benefits achieved • What subjects are being taught using the Digital Classroom • How many students could get benefits of Classrooms academically, socially and health-wise

[1] https://www.oecd.org/dac/evaluation/daccriteriaforevaluatingdevelopmentassistance.htm

	Indicators/Questions
	• What proportion of students were regularly attending the library
Effectiveness	• The extent to which Digital Classroom contributed in improving the retention and regularity of students in classes • To what extent WASH support helped girls and boys students
Impact	• Proportion of teachers and students stated the type of benefits and achievements • Proportion of teachers/principal reported: ○ Increase in attendance or participation of students ○ Improvement in learning outcomes of students ○ Improvement in critical thinking and analytical skills of students
Sustainability	• Teachers and Principal have the understanding on how Digital Classroom and library must be used to support students and in achieving the desired and improved results/learning outcomes. • Mechanism in place for regular maintenance and repairing, availability of vendors' contacts and allocation of funds for smooth functioning of Digital Classroom and upkeep of infrastructure

2.2 Research Methods

A mixed method approach was adopted for the impact assessment study wherein face-to-face interviews were conducted under the quantitative research and check-lists were filled up in each school. Under the qualitative component, focus groups were conducted with the students who participated in the smart classes and their experience related to project-related support in the schools.

2.3 Geographic Coverage

The project was implemented in the Uluberia municipality and Uluberia and Shyampur blocks of the Howrah district covering 8 schools.

2.4 Target Groups

The following target group was included in the impact assessment study:
(a) Principal (b) Teachers (c) Students

2.5 Sample and Sampling Procedure

Of the **25 schools** included in the Project, **8 schools (more than 30%)** were randomly selected from all three blocks, including Uluberia Municipality (3), Uluberia 1 (3) and Shyampur 1 (2) in proportion to the number of target schools in each block. A total of **20 students, 2 teachers, and one Principal** from each school were selected for the data collection. For covering students, 4 FGDs were conducted in each school, with 5 students in each FGD (including 2 FGDs with boys and 2 FGDs with girls).

2.6 Sample Coverage

The following sample was covered under the assessment:

Target Group	Total
Schools	**8**
Checklists	**8**
Students	**32 FGDs** 184 students (Boys = 100; Girls = 84)
Teachers	**16**
Principals	**8**

2.7 Study Tools

The following tools were developed for collecting data:

- Observation and Verification Checklist for assessment of Smart Classrooms and Infrastructure provided through the project
- Semi-structured tool for the teachers
- FGD Discussion Guide for Students
- In-depth interview discussion guides Principals

All the developed tools were shared for review and were finalised in association with the HDFC MI team. The tools were duly translated into Hindi for the data collection.

2.8 Training of Data Collection Teams

The training of the data collection team was organised and facilitated by the senior management of IMPACT. During the training, the team members were provided with an overview of the project and the type of infrastructure support provided by HDFC Bank. The team members were guided through the data collection process and briefing on the data collection tools.

2.9 Survey Implementation

The data collection process followed by the teams is described as follows:

- For the assessment, a team of two trained investigators was deployed to visit the selected schools.
- The team reached to the selected school with prior appointments coordinated by the implementing partner officials.
- Both team members completed the data collection, which included qualitative and quantitative interviews and physical verification of the infrastructure support, in one day.
- Initially, the principals were contacted and informed about the purpose of the survey and informed consent was obtained from them.
- Principals were interviewed, and then teachers who were associated with smart class teaching were interviewed.
- Later, physical verification was undertaken which was facilitated by the teachers and/or principals to give the details of the features and status of the support.
- In the end, the teachers were requested to allow and interact with the students who had undergone sessions in the smart class, and information was gathered in mini-groups without disturbing the classes.
- Before the return, the principals and teachers were duly acknowledged for their coordination and support offered for the impact assessment study.

2.10 Data Analysis and Report Writing

Post-data collection, all the collected data were processed at the IMPACT office including data cleaning and scrutiny. All the data analysis was undertaken in MS Excel and/or SPSS and frequency runs were

obtained. For the qualitative data, a thorough content analysis was done to obtain the results based on the components of the projects. Post-completion of tabulation and crosstabs, the interpretation of results was undertaken. The report writing was undertaken by the senior researchers.

2.11 Challenges Faced

- The schools initially granted permission for data collection, allowing the researchers to gather information for their study. However, at a later stage, the schools retracted their permission, stating that the data collection would interfere with the scheduling of school-level examinations.
- Despite best efforts and personal obligations, a few school principals gave permission to collect data after the examination. This decision was made due to the urgency of the situation and the unavailability of alternative dates, as well as understanding the importance of data collection.
- The implementation partner did not have a strong connection with the schools it supported. The probable reason was the local-level socio-political conditions. The schools wanted more support from the implementation partner, but they could not provide it due to limited financial resources.

Current Status of the Equipment and Supplies Provided through the Support

In this chapter, we delve into the assessment findings from the physical verification of the support provided under the smart school infrastructure development project to a sample of 8 schools in West Bengal. The comprehensive findings provide an in-depth analysis of the current status of various facilities, including smart classes equipped with interactive learning tools, the condition of toilets, availability of clean drinking water facilities, adequacy of library materials, and condition of sports equipment, and the functionality of STEM labs for education.

3.1 Smart Class

Under the HDFC Bank Project, the assessment of smart class setups across eight schools in West Bengal revealed that all 8 schools (100%) received the necessary equipment for digital/smart classrooms. These digital classrooms were powered by primarily equipped with LED Smart TVs, inverters, and essential infrastructure like fans and chairs (with 6 schools having functioning chairs and 5 schools having working fans). During physical verification, all eight schools (100%) were found to have operational LED Smart TVs.

Incorporating smart class setups, schools effectively integrate LED TVs, fans, and chairs into their daily classroom activities. Some educational institutions have also reported supplementary enhancements, such as tables, almirahs, and a fresh coat of paint, all aimed at further enriching the learning environment.

The assessment revealed recurring challenges in two schools supported by the implementing partner. Incomplete installations hindered the comprehensive utilization of the smart class equipment, and in one instance, digital content was inaccessible. Principals and teachers also expressed apprehensions regarding the absence of warranty cards, which may result in inadequate maintenance planning in certain cases.

Overall, while most schools have operational smart class setups, addressing gaps in digital content, providing adequate teacher training on how to utilize the technology effectively, and ensuring regular maintenance to prevent technical issues are necessary to maximize the educational impact and sustain the technology provided under the project. This includes regularly updating digital content to align with the curriculum, offering ongoing professional development for teachers to integrate technology into their lessons, and establishing a system for routine maintenance and troubleshooting to keep the smart class setups running smoothly.

3.2 STEM Lab

Under the project, out of the eight (8) schools assessed, only four (4) reported receiving some kind of support for STEM/Science lab development, which primarily included painting, whitewashing, distempering, and furniture (tables and chairs). **Essential science equipment and models were not provided** except for one school. For example, only one High School has functional lab equipment, along with furniture and painting, enabling students to utilize the lab for practical science education.

The school has encountered significant challenges with its current laboratory. The furniture and painting work in the lab remains incomplete, and practical classes have not commenced due to the lack of essential lab equipment. Upon verification and analysis of the main data, it has become evident that the absence of crucial lab materials is preventing any meaningful use of the laboratory space. This lack of equipment is not only hindering the students' ability to engage in practical learning but also impacting the overall effectiveness of the laboratory.

This scenario underscores a deficiency in comprehending the genuine requirements of the STEM laboratory. Despite the presence of facilities in certain educational institutions, they continue to encounter challenges related to inoperative or incomplete configurations, thereby restricting the efficacy of STEM or discipline-specific laboratories.

3.3 Library Support

Seven of the eight schools implemented a library-focused initiative, each receiving varying degrees of support. Six of the evaluated schools were provided with furniture, including chairs, tables, and bookshelves. Additionally, five schools received book supplies from a designated publisher. Students clearly require supplementary academic books to facilitate comprehensive learning.

Only 2 schools have been furnished with ample furniture and a substantial collection of books. These libraries have also undergone painting and maintenance, ensuring that they are fully operational.

The library, despite being equipped with physical resources, falls short of its intended purpose due to a shortage of relevant and adequate books. Teachers have specifically asked for academic books that are in line with the curriculum. This situation underscores a larger issue where the presence of basic infrastructure is overshadowed by the lack of sufficient reading materials and poor maintenance, which ultimately hinders the libraries' ability to meet the educational needs of the students. Addressing these gaps, including replenishing books and enhancing library reading and learning resources, will be key to improving student access to educational materials across the schools.

3.4 Drinking Water Facilities

The overall assessment of the drinking water infrastructure in the 8 surveyed schools reveals a mix of functional and non-functional facilities, with several issues affecting usability. The majority of schools have installed basic drinking water systems, including taps, water purifiers, and RO filters.

All schools have RO filters installed (8), though many report only partial functionality. In five schools, purifiers face issues like damaged pipelines or incomplete connections resulting in partial access to clean drinking water for students.

The assessment of tap and plumbing systems reveals that most schools (6) have operational systems, but issues such as leakage (2 schools), poor water drainage, and inadequate water platforms (3 schools) persist, resulting in wet floors and soaked uniforms for students. These challenges not only compromise convenience but also pose hygiene and safety risks. Additionally, while some schools (2 schools) have completed tile work around water facilities, others (3 schools) continue to face unfinished or defective sanitation infrastructure, further undermining the effectiveness of recent upgrades due to plumbing leaks and broken platforms.

In summary, many schools have drinking water infrastructure in place; however, its long-term effectiveness is often compromised by problems such as inadequate maintenance, improper initial installations, and the use of substandard quality materials. These issues can lead to a variety of problems, including water contamination, leaks, and inefficient water supply systems. As a result, ensuring the proper functioning of drinking water infrastructure in schools requires addressing these specific challenges to guarantee the provision of safe and reliable drinking water for students and staff.

3.5 Repairs and Renovation of Toilets

The assessment of toilet infrastructure across 8 schools reveals a generally functional toilet setup, with most toilets operational. However, issues related to ongoing maintenance and minor repairs need attention to ensure the long-term sustainability of these facilities.

In most schools, toilets have undergone repairs and are now fully operational (7 schools). These repairs include fixing doors, windows, and taps and addressing other structural issues. Five schools have repainted their toilet facilities, including boys' and girls' toilets, to improve their appearance and cleanliness. Additionally, tile work has been completed in one school to enhance sanitation standards.

Water availability has been improved through the repair of running water systems and taps in multiple schools (N=2). However, some schools report needing further repairs to ensure uninterrupted water flow, which is critical for hygiene and sanitation. Despite recent repairs and renovations, several schools continue to face challenges in maintaining toilet infrastructure. These include inconsistent water supply, ongoing issues with urinal partitions, and the need for regular checks on lighting and electrical systems, all of which compromise overall hygiene and safety.

In conclusion, while most schools have functional toilet infrastructure, ongoing repairs, and consistent maintenance are crucial for ensuring these facilities remain operational and hygienic for students.

3.6 Building as a Learning Aid (BaLA) Support

BaLA work was observed in a single school. The infrastructure, which includes the creative use of school spaces for educational purposes, is operational, and its impact and usage are unidentified.

Study Findings

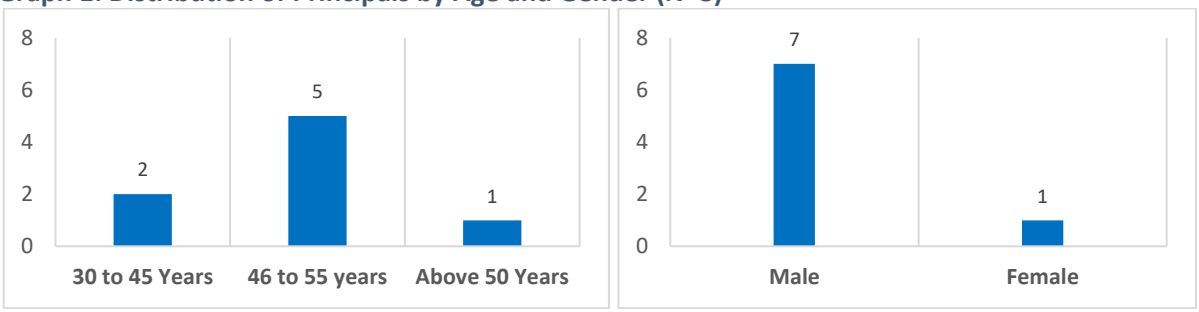
In this section, we present the outcomes derived from discussions with principals, teachers, and students within the 8 project schools. The findings offer valuable insights into HDFC Bank's contributions across various domains such as smart classes, STEM labs, sanitation facilities, potable water provisions, library resources, and other educational interventions. Through a thorough analysis of the gathered data, this section emphasizes the primary advantages, obstacles, and areas necessitating enhancement as communicated by the survey participants.

The findings are based on the opinions, perceptions, and beliefs of the principals, teachers, and students regarding HDFC Bank's support to the schools in response to the assessment team's inquiries. These findings may differ from the results of the physical verification of the support provided at the schools.

4.1 Profile of the Respondents

Eight principals were contacted, and information was collected about the infrastructure support received for the schools. The following graphs show the age distribution and gender of the principals.

Graph 1: Distribution of Principals by Age and Gender (N=8)



The Smart Class Project in government schools of West Bengal interviewed 8 principals from respecting number of schools. This age distribution suggests that a majority (67%) of the principals (5) belong to the experienced mid-career stage, particularly in the 46 to 55 age bracket. While surveyed principals in this set of schools are predominantly male (7 out of 8).

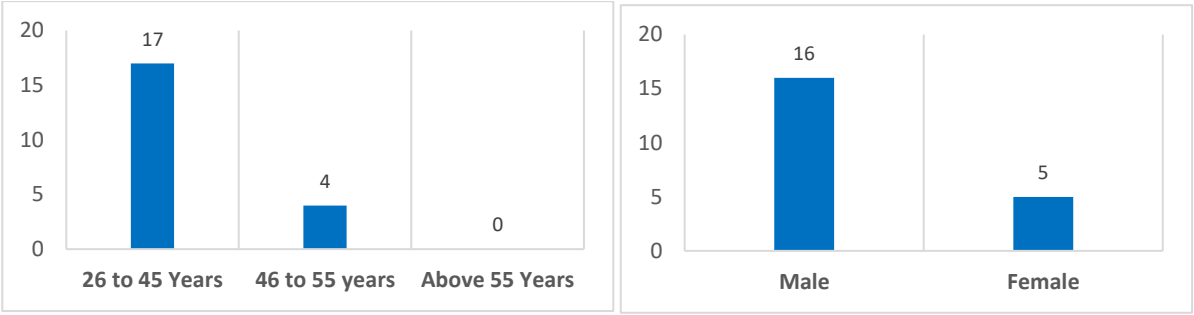
The overall teaching experience shows that all the teachers have significant experience, with the majority (5 out of 8) having more than two decades in the profession. Furthermore, there is a strong continuity, as nearly 63% of the teachers have been with their current school for over a decade.

Given their extensive teaching experience, coupled with a significant number being relatively new to their current schools, the principals have a strong foundation for contributing effectively to school development and ensuring informed leadership and decision-making.

In each school, at least two teachers were interviewed, as they were primarily responsible for managing Smart Classes, STEM Labs, and Libraries, alongside the principals. A total of 21 teachers

participated in the study, with 8 involved in Smart Classes, 7 in STEM Labs, and 6 teachers deputed as librarians were interviewed. The following graphs depict the age distribution and gender of the participants.

Graph 2: Distribution of Teachers by Age and Gender (N=21)



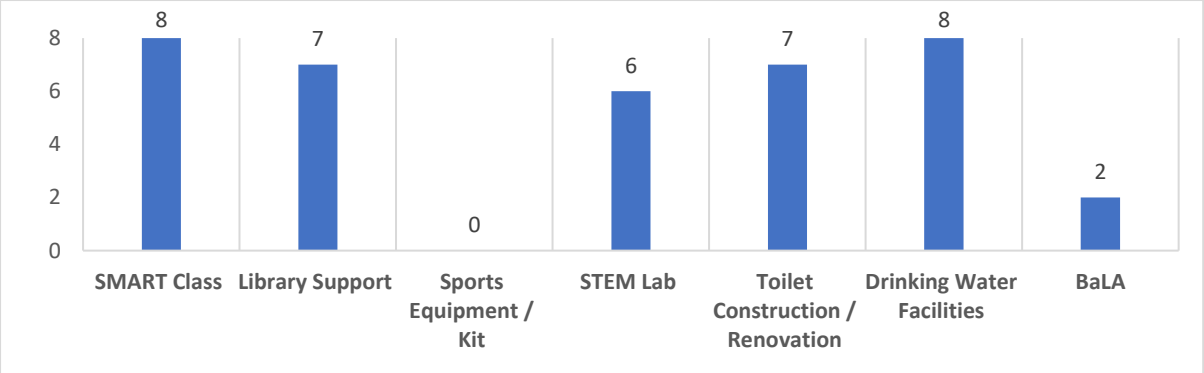
A total of 21 teachers participated in the study. The majority of the teachers (81%) were between 26 to 45 years of age, while 19% were between 46 to 55 years. In terms of gender, 76% were male, and 24% were female, reflecting a predominantly male teaching staff.

Regarding teaching experience, 33% of the teachers had up to 10 years of experience, 52% had 11 to 20 years, and 19% had over 20 years. In terms of their tenure in their current schools, 57% had worked there for 1 to 10 years, while 33% had been at the same school for 11 to 20 years. These demographics suggest that the majority of the participants are relatively young and moderately experienced.

4.2 Information on Infrastructure Support

Under the project, different types of infrastructure support were provided to the targeted 25 schools, incorporating the needful components. As the name of the project implies, the smart schools' project, smart classrooms, was the common support given to all the schools. The following graph portrays the type of infrastructure support offered to schools.

Graph 3: Infrastructure Support Received through HDFC Bank Grant (N=8)



The principals of the 8 schools in West Bengal reported various infrastructure and material support received through the HDFC Bank grant. All schools (100%) benefited from the establishment of Smart Classes and drinking water facilities. Additionally, 7 schools (88%) received library support and underwent toilet construction or renovation. STEM Labs were established in 6 schools (75%), while BaLA (Building as Learning Aid) components were introduced in 2 schools (25%). None of the schools received sports equipment or kits, indicating a strong emphasis on educational and essential infrastructure that significantly enhances the quality of education and the overall school environment.

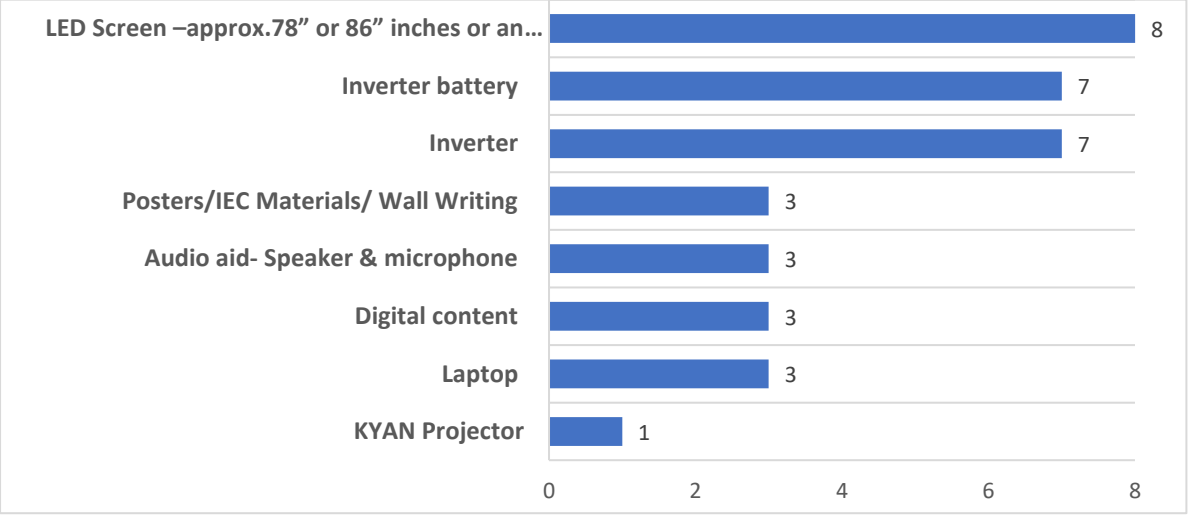
It is evident that HDFC Bank went above and beyond by providing comprehensive support to equip schools with smart classrooms and essential infrastructure. This support aimed to ensure that students have access to adequate facilities, making the learning process easier and promoting regular attendance in schools.

In addition, schools were asked about the capacity-building initiatives provided to stakeholders. The training support provided appears limited compared to the extensive material support received by the schools. With only one school reporting teacher training and SMC training, alongside health sessions in three schools, the training may not adequately equip staff and management to utilize the new resources effectively, particularly for taking digital classes.

4.2.1 SMART CLASS

As stated earlier, all eight schools reported receiving smart class setups. The following graph portrays the type of support received by the schools.

Graph 4: Support Received for Smart Class (N=8)

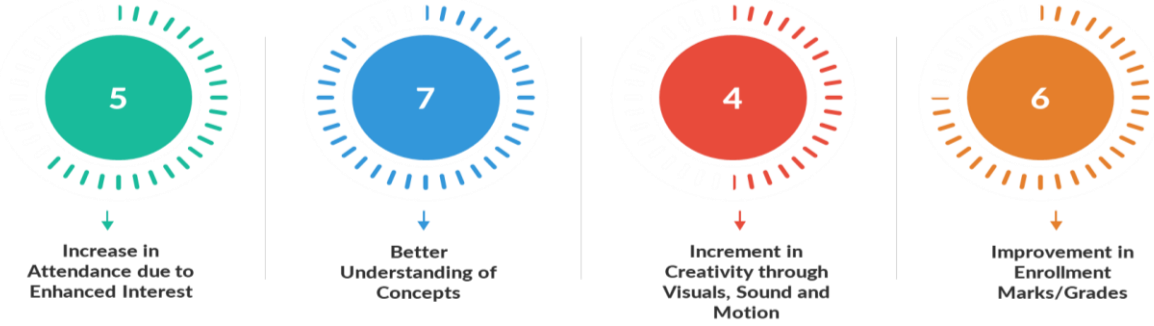


Various components were received within the SMART Class setup supported by HDFC Bank. All eight teachers (100%) received LED screens (smart TV) or interactive boards, and most schools (7) were powered by inverters and inverter batteries, ensuring a reliable power supply for consistent digital learning. Three teachers reported receipt of laptops, digital content, audio aids (including speakers and microphones), and instructional materials such as posters and wall writings.

The support provided equips schools with essential components for Smart Classes and digital education, particularly through LED screens and reliable power sources. However, the limited digital content may hinder the optimal use of these resources.

The supplier/vendor primarily handled the **installation** of the SMART class equipment in all 8 schools (100%). Overall, the implementation partner outsourced the smart class set-up to the supplier vendor identified for the installation.

Graph 5: Observed Improvements Among Students – After Initiation of Smart Class (N=8)



Since the initiation of the Smart Class, several improvements have been observed among students. Five (5) teachers noted an increase in attendance due to heightened interest, while six (6) reported improved learning outcomes and increased enrolment. Seven (7) teachers indicated that students better understand concepts and actively ask questions. Additionally, four (4) teachers mentioned that visuals and audio elements stimulate creativity and enhance learning methods. However, one of the teachers highlighted a lack of training, which limits the full potential of the Smart Class initiative.

During the discussions, the majority of the students expressed that smart classes provided them with an engaging and interactive way to acquire knowledge through educational videos, animations, and audio resources. Nearly all students emphasized that their attendance and participation improved significantly after the introduction of smart classes. Teachers, as a practice, began each session with conventional lectures and then complemented the material with digital content and YouTube videos, ensuring that students had a comprehensive understanding of the topics covered. Normally, teachers use their hotspots to connect the device

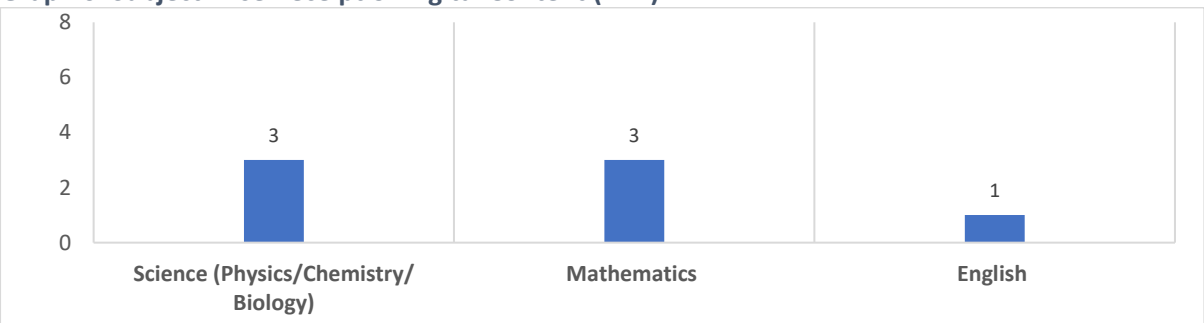
Training Receipt for Operation of Equipment

Training on operating the equipment and utilizing digital content was essential for effectively running the smart class. When asked, only 3 out of 8 teachers (34%) reported receiving training and demonstrations, all from the company that installed the setup.

All 3 teachers (100%) found the training very useful in preparing for digital content-based education. This underscores the urgent need for comprehensive training programs to enable all teachers to fully utilize the Smart Class resources.

Only 3 teachers (34%) confirmed receiving digital content along with the LED smart TV. The digital content covered various subjects, including Science, Mathematics, and English, as seen in the following graph.

Graph 6: Subject-wise Receipt of Digital Content (N=2)



All 3 teachers reported having received digital content and expressed comfort in delivering lessons using it.

Perceived Benefits of Digital Content in Teaching

Among the 3 teachers who received digital content, all found it helpful in explaining concepts and topics effectively. Two teachers reported that the digital content facilitated a very effective learning process through visual forms, eased lesson planning, and simplified providing lesson summaries.

Graph 7: Benefits of Digital Content in Teaching (N=3)

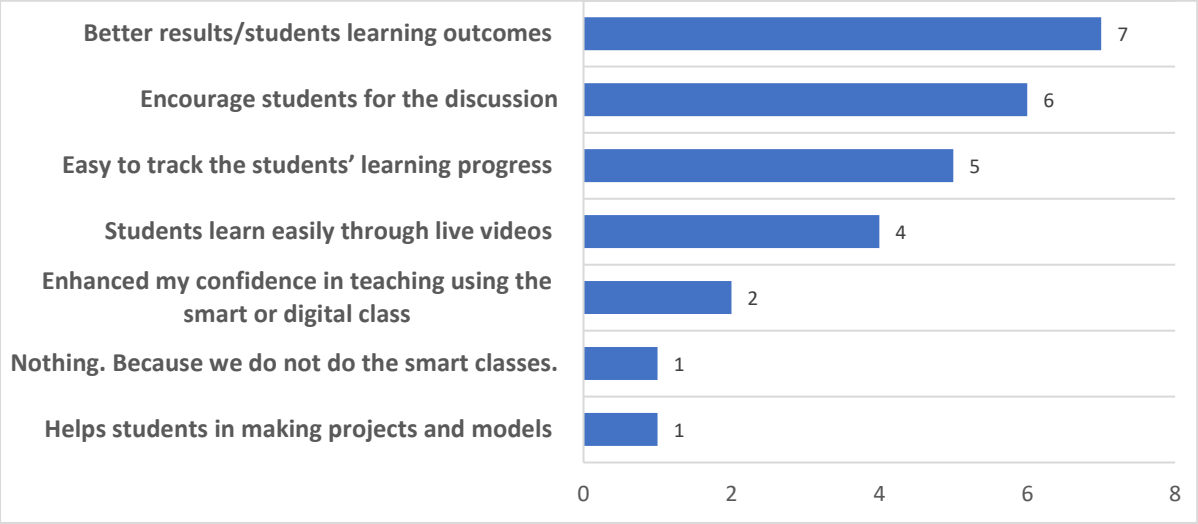
2	Very effective learning process in visual form
3	Easy to explain the concepts and topics
2	Easy in lesson planning
2	Easy in providing the lesson summary

However, none of the teachers reported that it contributed to a joyful learning environment, suggesting a need for improved content engagement. This could be due to insufficient training making teachers struggle to operate digital tools efficiently.

Advantages of Using Digital Content

Teachers were also asked about the key advantages of using digital content. All the teachers unanimously agreed that students learn concepts and principles through live videos, which is one of the prime advantages. The other advantages are shown in the following graph.

Graph 8: Advantages of Using Smart Class (N=8)



When asked about the advantages of using Smart or Digital Classes, 7 out of 8 teachers (88%) noted that students learn more easily through live videos. Five teachers (63%) mentioned that tracking students' learning progress becomes easier, while 6 teachers (75%) reported that it encourages student discussions. Additionally, 2 teachers (25%) indicated that using digital tools boosts their confidence in teaching, and the same number observed that it assists students in making projects and models.

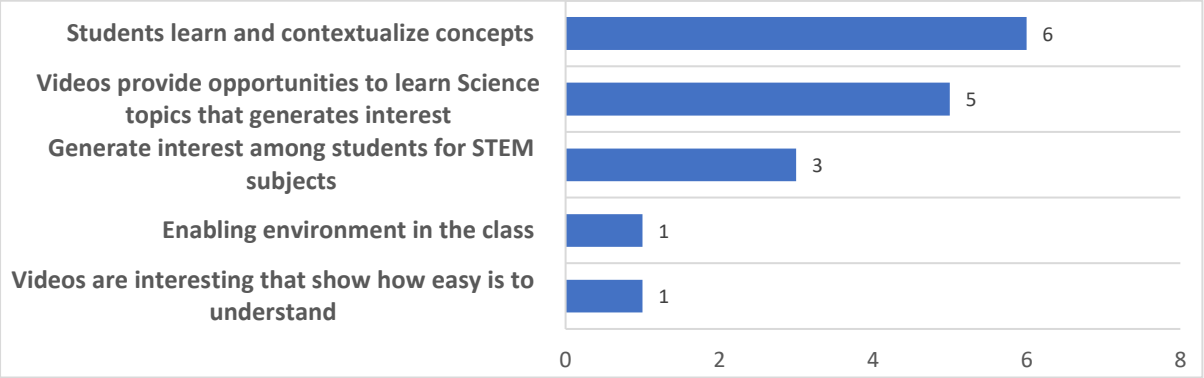
While discussing with students, almost all the students favoured smart classes for all the subjects. Many of them claimed that it is easier to learn topics and concepts through live demonstrations in the smart class as it caters to different learning styles and enhances engagement. Moreover, the smart class offers you the chance to raise queries and clarify the doubts being generated in your mind, as the interactive nature of the classes allows for real-time discussions and feedback.

Additionally, half the students mentioned that we could prepare projects related to the curriculum, which were mainly encouraged through smart classes, as they provide access to a wide range of resources and multimedia tools that facilitate project-based learning and creative expression.

The majority of teachers (6 out of 8) reported that computer and digital content-based teaching generates subject-specific interest, particularly in STEM subjects. Five teachers noted that videos effectively simplify complex science topics, making them more engaging for students. Additionally, some teachers observed that digital content helps students contextualize concepts and enhances their analytical skills.

The following graph illustrates the ways in which digital content generates interest in these subjects.

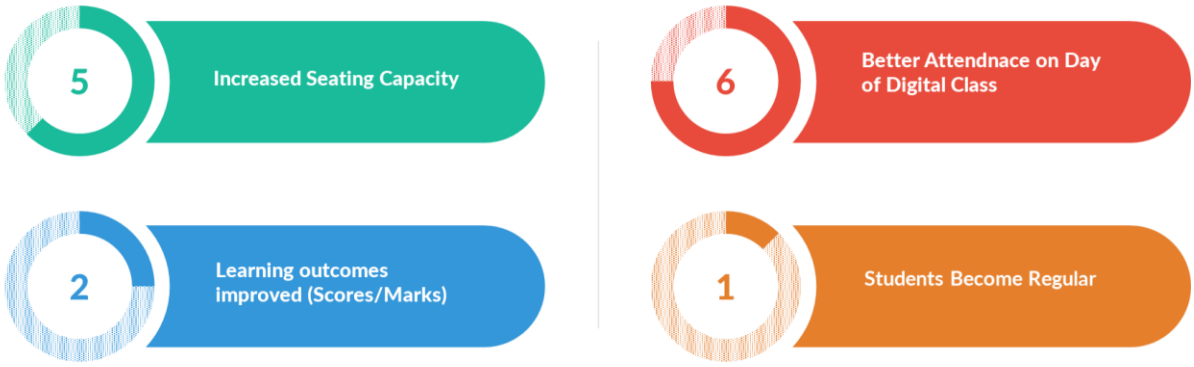
Graph 9: How Digital Content Boosts Interest in Subjects (N=8)



Upon asking, seven out of eight teachers expressed that techno-pedagogy is effective to very effective.

Teachers were also asked if the HDFC's support in setting up smart classes and promoting digital education through techno-pedagogy has demonstrated a varied level of impact. The responses are illustrated in the given graph.

Graph 10: Impact of Smart Class on Student's Regularity and Learning Outcomes (N=8)



Teachers expressed varying opinions regarding the impact of Smart Classes on students' regularity and learning outcomes. While most teachers noted increased attendance on digital class days (N=6) and

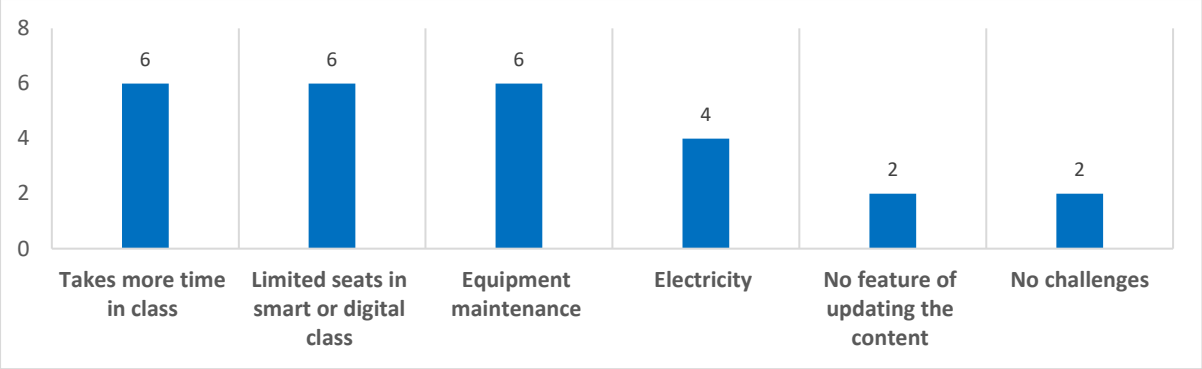
greater seating capacity (N=5), only a few believed that Smart Classes had improved overall learning outcomes and student regularity.

This suggests that while Smart Classes have sparked interest among students, as shown by better attendance on digital class days, it has yet to be established whether smart classes have impacted learning outcomes and regular attendance.

Type of Challenges for Smart Class

The most significant issues reported by the majority of teachers (6 out of 8) were equipment maintenance and limited seating capacity, which made the digital classes time-consuming. Other challenges are shown in the following graph.

Graph 11: Challenges in Smart Classes (N=8)



These challenges can lead to interruptions in teaching due to power outages, reduced teaching efficiency as more time is spent on setup, and limited student participation because of seating constraints. The lack of features for updating content can also diminish student engagement and learning outcomes. Furthermore, technical difficulties from equipment maintenance issues can further impede the learning process.

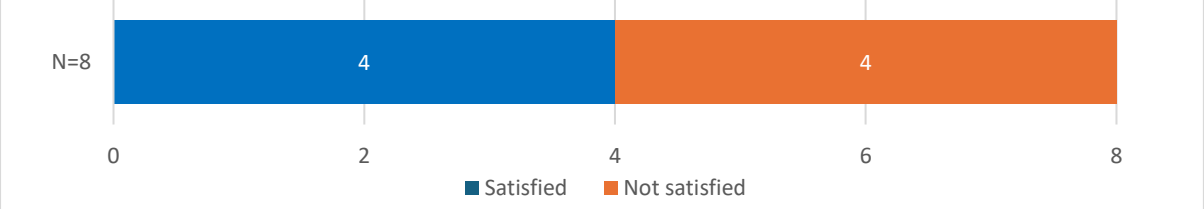
The students expressed their frustration with the frequent and prolonged power outages at their schools. These outages have reduced the number of instructional sessions, and teachers have been forced to address the issue verbally. When asked about the power backup, most students indicated that the battery is weak and takes a long time to charge or power backup not available.

Teachers were asked how these challenges could be addressed. The most common solutions included ensuring a timely and regular supply of digital content (all 8 teachers), increasing the number of Smart Classes (6 out of 8), and expanding seating capacity in Smart Classes (7 out of 8). Additionally, 7 teachers identified regular maintenance of equipment as a key solution.

In terms of parents' perceptions, 3 out of 8 teachers reported that parents are pleased with the digital classes, believing they contribute to their children's good marks. However, 5 teachers either noted parents' indifference or mentioned that they had not interacted with them about their views, suggesting a lack of engagement or possibly differing opinions.

Teachers expressed mixed responses. Four out of eight teachers (50%) reported feeling satisfied, while the other four were not.

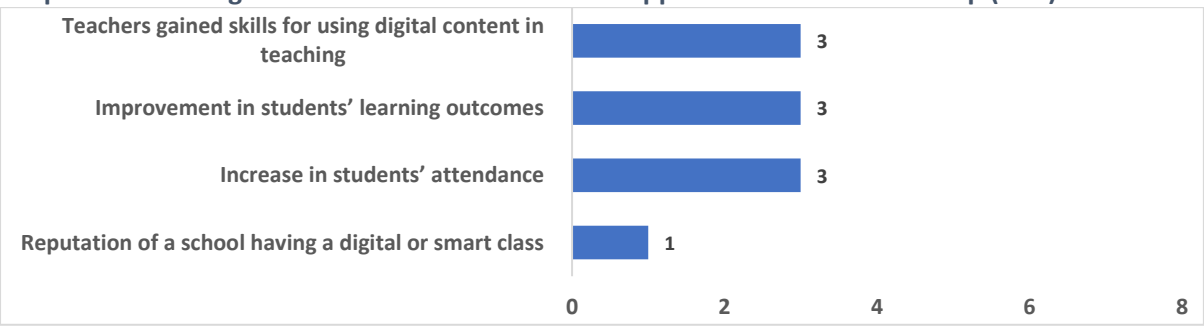
Graph 12: Teachers' Satisfaction towards Smart Class (N=8)



Among the satisfied teachers, all 4 found digital content easy and helpful for teaching. Three noted that students enjoyed it, while 3 experienced increased confidence. One teacher observed improvements in learning outcomes. However, no teachers reported that it made lesson planning easier or helped them gain teaching skills.

Teachers were asked whether the HDFC support had brought any advantages to their schools, and their responses are illustrated in the following graph.

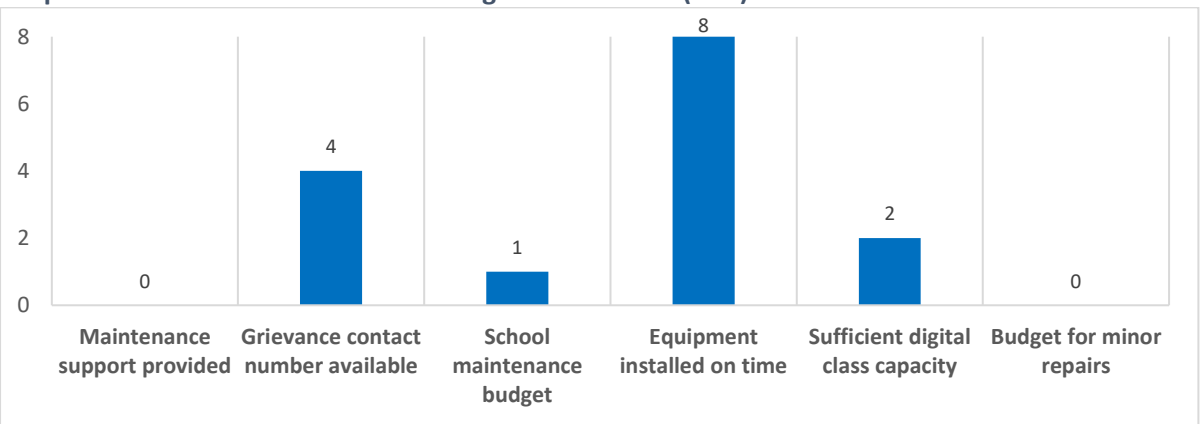
Graph 13: Advantages to Schools from HDFC Bank Support for Smart Class Set up (N=4)



These teachers (4) also observed several advantages due to HDFC Bank's support. 3 teachers reported increased student attendance, improved learning outcomes, and that teachers gained skills in using digital content for teaching. Additionally, one teacher mentioned that the school's reputation has improved by having a digital or smart class.

The discussion also covered various aspects related to Smart Classes, including maintenance mechanisms, grievance redressal, and repair budgets. The following graph illustrates the status of these critical factors for the smooth functioning of Smart Classes.

Graph 14: Needs for Smooth Functioning of Smart Class (N=8)



A concise summary based on the responses of the smart class teachers as seen in the graph has been presented as follows:

- ***Maintenance Support:*** None of the schools received maintenance support, highlighting a serious gap in the regular upkeep to ensure functionality and sustainability. Most schools (N=7) lack a maintenance budget.
- ***Contact for Grievance Redressal:*** Four schools (50%) reported having a grievance contact number, leaving 50% without this critical support and vulnerable to unresolved issues.
- ***Installation Timeliness:*** All schools (100%) confirmed that the equipment was installed on time. However, without proper maintenance, this advantage may diminish over time.
- ***Equipment Quality:*** All schools have rated the equipment as satisfactory.
- ***Seating Capacity:*** 6 schools (75%) indicated that the current smart class arrangement is insufficient, underscoring the need for urgent expansion.

During the installation phase, the quality of the digital classrooms is generally satisfactory, and initial support is adequate. However, ongoing maintenance and support present significant challenges. Many schools face resource and budget constraints, which hinder their ability to maintain and support digital classrooms effectively. As a result, the sustained effectiveness of these digital learning environments is compromised, impacting the overall learning experience for students.

4.2.2 STEM or MINI-SCIENCE LAB

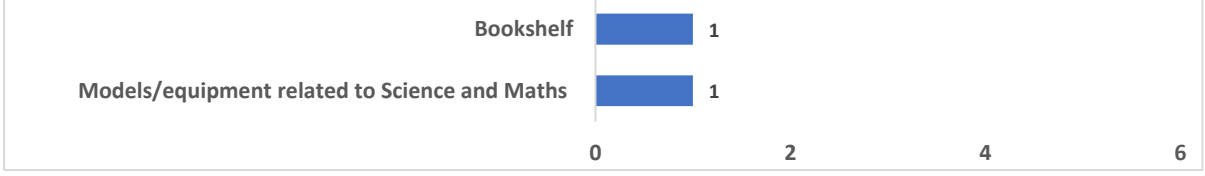
In West Bengal, government schools face challenges with science teachers effectively explaining experiments and concepts using functional models, charts, and other teaching aids. Research shows that students engage more when they can observe live experiments and practical applications of their learning. Recognizing this need, HDFC Bank has prioritized the establishment of Science or STEM labs as part of their school development initiatives.

Regarding the status of the STEM lab, the principals of the 6 schools indicated that some work had been carried out in the STEM/Science lab. However, during discussions with teachers, it was found that only painting and whitewashing were performed in the 4 science labs. Enrichment of the STEM lab with equipment was confirmed in only 2 schools.

Prior to receiving the HDFC Grant, five out of six schools lacked a usable STEM lab, while only one had an operational lab.

Among the 6 schools, there were five male teachers and one female teacher. Only 2 schools received STEM-related support, which included a bookshelf in one school and STEM models and equipment in the other. The type of support received by schools is shown as follows:

Graph 15: Type of Support Received for STEM Lab (N=2)



In terms of student access, the STEM labs are utilized by students in grades 9 and above. With this support, only one teacher observed improvements among students due to access to the STEM learning lab, stating that practical activities made subjects easier to understand. However, the other teacher indicated that the school had received only tables and had completed painting the lab without further enhancements.

When asked how the STEM Lab generates interest in specific topics, one teacher noted that students learn subjects based on their relevance, while the other did not know. The benefits of the STEM Lab for teaching included hands-on experience with models for one teacher, while the other reported that the lab is currently not in use. Notably, neither teacher received formal training to teach with the STEM Lab setup, and both stated that they felt comfortable delivering topics using the digital content provided.

Overall, both teachers expressed dissatisfaction with the STEM Lab setup, indicating that it has not significantly benefited the school. They noted that the school's reputation did not improve, and they did not see an increase in enrollment. Both teachers also stated that the STEM Lab is currently non-functional and expressed concerns about the sufficiency of the materials and equipment for their student population.

The evaluation found that the support provided for the STEM labs was insufficient. This may be attributed to a lack of clear needs assessment during the project's initiation. The allocated resources, which primarily included a bookshelf and some STEM models and equipment, were deemed inadequate for promoting student engagement and facilitating effective learning.

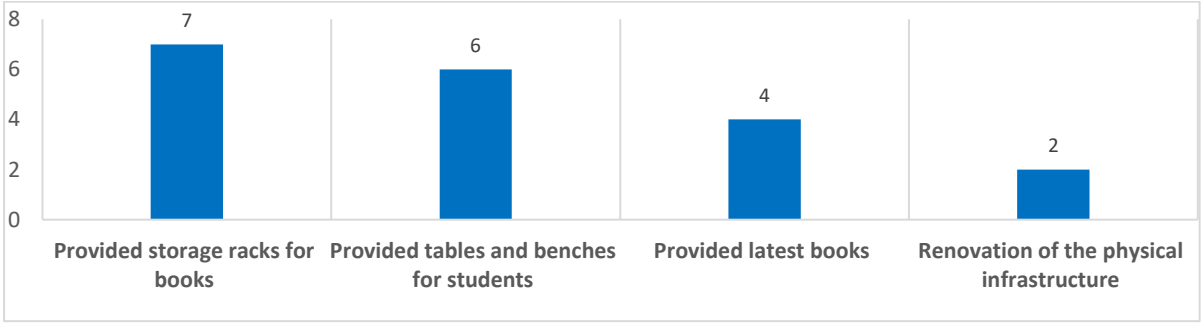
Both STEM labs were non-functional at the time of assessment, indicating a concerning state of STEM education in schools. This situation underscores the urgent need for a comprehensive review and overhaul of the current approach to STEM education in the region.

4.2.3 LIBRARY SUPPORT

HDFC Bank considered providing library support under the schools' infrastructure development project. It was envisaged that the library support would be fruitful in developing reading habits among the students of rural areas. Moreover, schools will have upgraded facilities or support to improve the current infrastructure of the library.

Seven principals reported receiving HDFC support for library development. Of the seven schools surveyed, two had a well-equipped library with sufficient books and furniture for student use. Five schools had dedicated library rooms, but they either contained old books, lacked enough resources, or were not in usable condition.

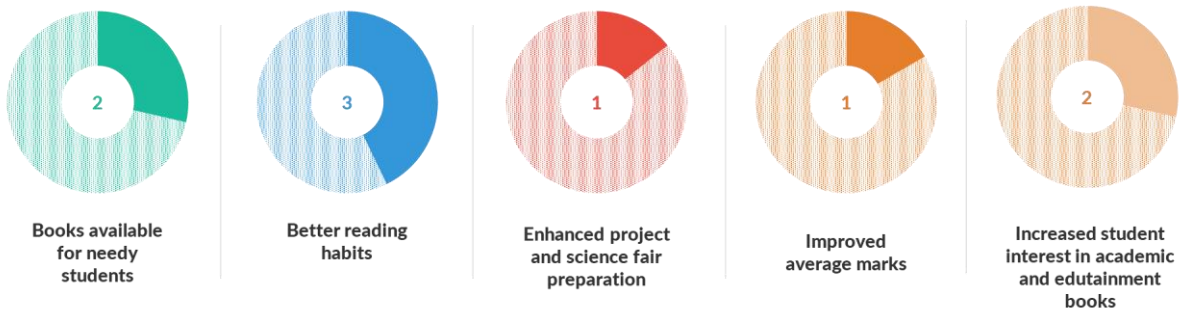
Graph 16: Type of Library Support Received (N=4)



All 7 (100%) schools received library support from the HDFC Grant. The support included the provision of storage racks for books in all seven schools (100%) and tables and benches for students in six schools (6). Additionally, four schools received the latest books, while two schools benefited from renovations to their physical infrastructure. This library support enriches educational content and enhances students' access to a diverse range of learning materials, creating a neat, clean, and vibrant library experience.

Except for one, the majority of the schools (6 out of 7) have a library period scheduled for grades 6-12.

Graph 17: Ways Students Benefitted from Library Support (N=7)



The library renovation has yielded limited benefits, with only 3 out of 6 teachers noting improved reading habits and 2 reporting increased accessibility for needy students. While 2 observed heightened interest in library use, only 1 teacher each cited improvements in project participation, science fair involvement, and average marks.

This indicates that while renovations have made strides in fostering a more functional library space, the desired transformative impact on students' engagement and performance remains limited.

During discussions, most students expressed that they enjoy their library periods and love reading books and stories. Many of them (three-fourths) shared that they find solace and joy in the world of storybooks, considering them to be the best investment of time. Some students (almost half) even mentioned that they love engaging in storytelling sessions with their families or relatives whenever they get time, fostering a love for literature from a young age. Additionally, a good proportion of students expressed their enthusiasm for borrowing books from the library to read at home, highlighting the impact of the library in promoting a culture of reading beyond the school premises. However, a few students raised concerns about the limited space in the school library, expressing the need for a larger area to accommodate the growing collection of books and provide a more comfortable reading environment.

Information on the functionality of the library and other related aspects has been summarized:

- ***Functional Status:*** 5 out of 7 libraries are currently functional as mentioned by the teachers.
- ***Timeliness of Provision:*** All schools (N=7) received books and materials on time.
- ***Quality of Materials:*** 3 teachers rated the quality as satisfactory, while 4 rated it as not good.
- ***Sufficiency for Student Strength:*** Only 1 teacher felt the resources were sufficient, while 6 said they were inadequate.
- ***Budget for Repairs****:* Only 1 school has a budget for minor repairs; 6 do not.

Overall, while the intervention has made some positive impact, further improvements are necessary to enhance the quality and accessibility of library resources for students.

4.2.4 INFRASTRUCTURE SUPPORT – DRINKING WATER

Under the HDFC Bank support, schools were asked to specify the source of drinking water and other drinking water-related facilities available in the schools. Upon receiving the information, a physical verification was undertaken, and different support was provided for the students. All 8 schools (100%) covered under the study reported receiving support related to drinking water, whereas the implementation partner claimed that they furnished their support to all targeted schools.

Out of 8 schools surveyed, all (100%) received the installation of Aqua Guard UV purifiers (N=8), significantly improving water quality. Three schools (N=3) benefitted from the construction of new drinking water stations or platforms, while four schools (N=4) had their existing platforms repaired.

Graph 18: Type of Support Received – Drinking Water (N=8)

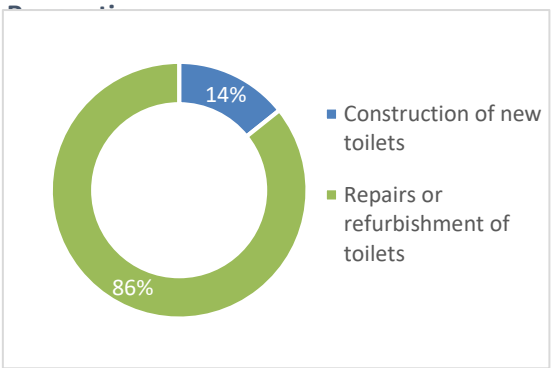
Principals recognized HDFC's contribution to enhancing drinking water facilities. In 5 out of 8 schools, students now have access to purified water, reducing illnesses and preventing waterborne diseases. Additionally, 2 schools reported that students no longer bring water bottles from home. However, 1 school highlighted a non-functional RO system, limiting the impact.

However, 7 out of 8 schools rated the quality of the materials as "not good." While only 2 schools felt that the drinking water facilities were sufficient for their student strength, 6 believed they were inadequate. Additionally, 7 schools reported lacking a budget for regular maintenance of the equipment.

4.2.5 SUPPORT FOR REPAIRS & RENOVATION OF TOILETS

HDFC Bank provided support for repairing and renovating school toilets and associated facilities to ensure students can utilize them. Out of 8 schools, 7 confirmed that toilet-related support was provided. 1 school reported new toilet construction, while the majority of the schools (6) had repairs. Before HDFC support, only 5 schools had usable toilets.

Graph 19: Type of support for Toilet

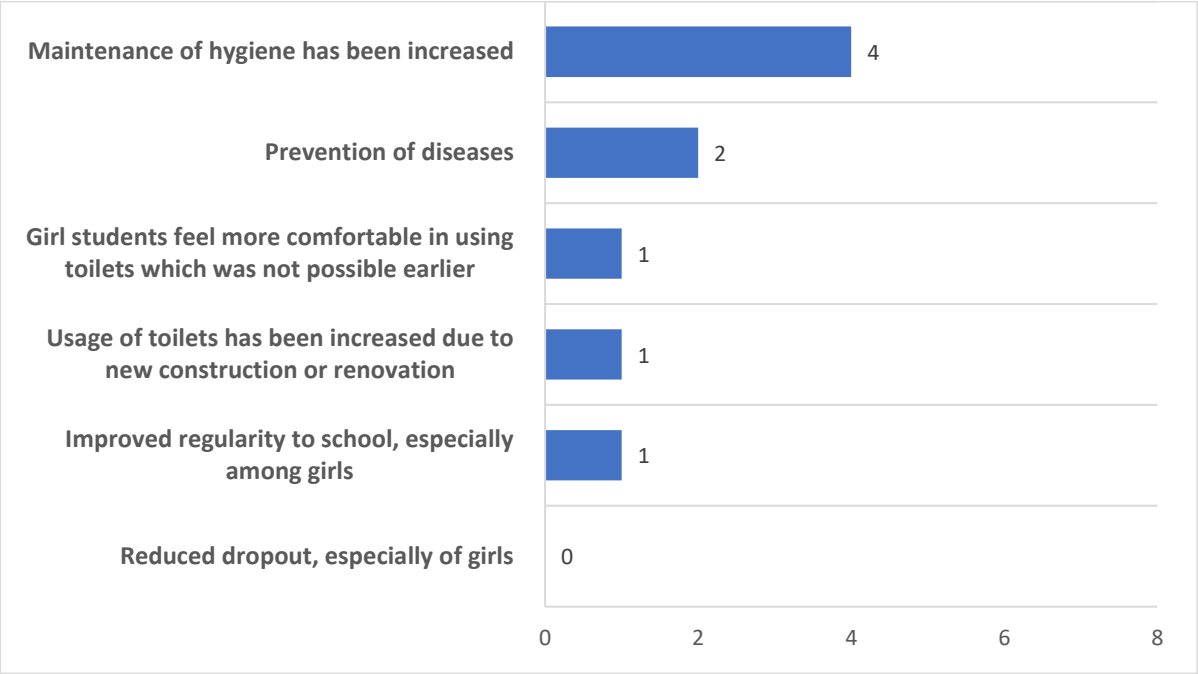


Out of 7 schools, 1 received new toilet construction, while 6 benefited from repairs or refurbishment of existing facilities.

This support has helped increase hygiene maintenance (4) and prevent diseases (2). Additionally, 1 school noted improved regularity among girls and increased toilet usage due to the renovations. Girl students in 1 school also reported

feeling more comfortable using the toilets, which was not possible before. How students benefited from the support is shown in the following graph.

Graph 20: Type of Benefits from the Toilet Support (N=7)



The observed benefits of toilet-related support appear limited, with only a few positive responses from teachers. The data revealed that perhaps the poor quality of construction and the lack of maintenance appear to be the main factors behind the lower perceived benefits.

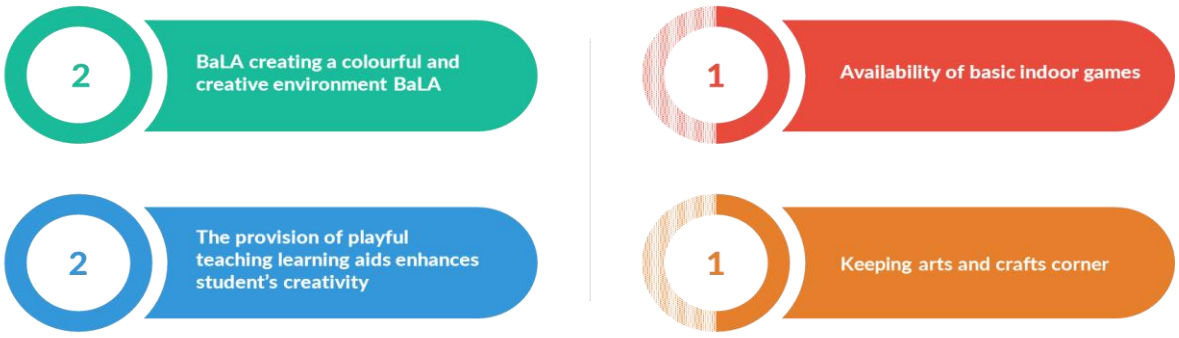
Although the toilets were built on time in most cases, 5 out of 7 teachers rated their quality as "not good," and none of the schools reported having a budget for regular cleaning or minor repairs. This lack of upkeep likely affects the functionality and hygiene of the facilities, making it harder for students, particularly girls, to benefit from the intervention. Without proper maintenance and quality infrastructure, the intended improvements in attendance, hygiene, and comfort are limited.

The HDFC Bank grant aimed to improve sanitation facilities by repairing existing toilets and constructing new ones. However, feedback on the quality of the upgraded facilities has been mixed. Some principals feel that the toilets are still inadequate to cater to the current number of students. Moreover, there are concerns that the limited school funds allocated for maintenance may not be sufficient, potentially leading to the facilities becoming unusable over time. It is crucial to address this issue at the school level to ensure that students have access to safe and functional sanitation facilities.

4.2.6 INFRASTRUCTURE SUPPORT – BaLA (Building as Learning Aid)

To make the school environment joyful and learning-friendly, HDFC Bank incorporated the BaLA component in the support. Findings revealed that only 2 schools received support for BaLA, where school walls were painted with colourful artwork.

Graph 21: Type of BaLA Support Received by Schools (N=2)



The BaLA (Building as Learning Aid) initiative provided limited support to the two surveyed schools (N=2), primarily focusing on creating a colorful and creative environment. Both schools (N=2) reported enhancements such as playful teaching aids aimed at fostering student creativity.

While the BaLA initiative has introduced some creative elements to the two surveyed schools (N=2), its overall influence remains modest. The changes are appreciated but highlight the need for more comprehensive support to further enrich the learning experience.

The BaLA support program has very limited coverage, with only a small number of students benefiting from it. The specific benefits and impact of the program on students remain unidentified, making it difficult to assess its effectiveness and potential for improvement.

Conclusion and Recommendation

Following a comprehensive review of the study findings, we have reached a determination regarding the support provided to the schools and have formulated a set of recommendations. The ensuing discourse delineates the conclusions drawn from engagements with the principals, teachers, and students, along with the recommendations for forthcoming projects.

5.1 CONCLUSION

Eight principals representing eight schools in West Bengal were interviewed to gain insights into the infrastructure support received under HDFC Bank's intervention. All principals demonstrated significant teaching and administrative experience.

Under the HDFC Grant, all 8 schools received Smart Class and STEM Lab setups, emphasizing a strong commitment to digital and enhancing their drinking water facilities. Additionally, 7 schools benefited from toilet renovations and 6 schools got STEM-based support for their respective labs. Furthermore, 7 schools received library support, and only 2 implemented BaLA (Building as Learning Aid) initiatives.

The Smart Class Project in West Bengal's government schools has made significant strides in improving educational infrastructure, particularly through the establishment of Smart Classes, drinking water facilities, and toilet facilities. However, while the material support has been extensive, the limited capacity-building initiatives, such as teacher and SMC training, highlight a gap in ensuring that these resources are effectively utilized. To fully realize the potential of the infrastructure enhancements, further investment in training and support for educators is essential.

Furthermore, a total of 21 teachers were interviewed, responsible for managing Smart Classes, STEM Labs, and Libraries across 8 schools. Most teachers (81%) were aged 26-45, with 76% being male. Regarding experience, 52% had 11-20 years of teaching experience, and 57% had been at their current school for 1-10 years, indicating a relatively young, moderately experienced teaching staff.

Smart Classes

HDFC Bank's Smart Class Project has successfully provided all 8 surveyed schools with critical digital education tools, such as LED screens, and reliable power systems, helping enhance the learning environment. Six teachers reported improvements in student engagement, attendance, and better understanding of concepts, particularly in STEM subjects. However, challenges persist, with only 3 teachers receiving digital content, and just 2 teachers having received training to operate the equipment.

Maintenance and seating capacity remain significant concerns, as 6 out of 8 schools lack sufficient space for students, and none have received maintenance support, jeopardizing long-term functionality. Additionally, while digital tools have sparked student interest, the lack of ongoing technical support and limited parental engagement have prevented optimal outcomes. The project

holds promise, but further investments in training, infrastructure expansion, and continuous content updates are necessary to sustain and maximize its impact.

STEM Lab

The STEM labs in six schools received minimal support, with only two schools reporting any equipment, and most receiving just painting or whitewashing. Prior to the HDFC Grant, only one school had an operational lab. Although one teacher noted improved student understanding through practical activities, the overall impact has been limited. Both teachers expressed dissatisfaction, citing non-functional labs and inadequate resources. The lack of training and clear needs assessment has hindered the effective use of the STEM labs, which remain largely underutilized and fail to significantly enhance learning or the schools' reputations.

Library

HDFC Bank's library initiative has positively impacted seven surveyed schools by promoting reading habits and enhancing access to educational materials. All seven schools received storage racks and tables and benches, while four schools were provided with new books and two benefited from renovations, creating a vibrant library environment. Teachers reported improved reading habits, with three noting increased student interest in using the library. However, the majority of teachers (six out of seven) expressed concerns that resources are insufficient to meet the needs of the student population.

Although the project has improved library facilities, further investment is essential to expand the collection of materials and sustain the positive effects on student engagement and learning outcomes.

Toilet Facilities

Before HDFC's support, only five schools had usable toilets. HDFC Bank assisted in toilet repairs or renovations at seven schools, with one receiving new construction. However, the benefits have been limited, with poor construction quality and lack of maintenance cited as major issues.

While four schools reported better hygiene, and two noted disease prevention, only one saw improved attendance among girls. Despite timely construction, five out of seven teachers rated the quality as poor, and none of the schools had a budget for cleaning or repairs, limiting the long-term impact on hygiene and attendance.

Drinking Water Facilities

HDFC Bank's support for drinking water infrastructure has had a notable impact on the eight schools surveyed. All schools (100%) reported receiving Aqua Guard UV purifiers, significantly enhancing water quality. Three schools benefited from the construction of new drinking water stations, while four had their existing platforms repaired.

Principals acknowledged the improvements, with five schools reporting that students now have access to purified water, reducing illnesses and waterborne diseases. Additionally, two schools noted that students no longer need to bring water from home. However, one school mentioned a non-functional RO system, which has limited the initiative's overall benefit.

Despite these improvements, 7 out of 8 schools rated the quality of materials as "not good." Only two schools felt that the drinking water facilities were sufficient for their student population, while six found them inadequate. Moreover, seven schools reported having no budget for regular maintenance of the drinking water equipment, raising concerns about the long-term sustainability of these upgrades.

BaLA Initiatives

The BaLA (Building as Learning Aid) initiative under HDFC Bank's support was implemented in only two schools, where walls were painted with colourful artwork to create a more joyful and learning-friendly environment. Both schools reported receiving playful teaching aids aimed at fostering creativity.

While these changes were appreciated, the overall impact of BaLA remains modest, highlighting the need for more comprehensive support to significantly enhance the learning experience and environment across more schools.

5.2 RECOMMENDATIONS

Here is one critical recommendation for each thematic area:

Toilet: Implement a regular maintenance budget for toilet facilities in all schools, ensuring ongoing repairs and usage of toilets are upheld.

Drinking Water: Implement a regular maintenance budget for the repair and upkeep of drinking water facilities. This should include prompt repairs to guarantee continuous access to safe drinking water for all students.

MHM (Menstrual Hygiene Management): Expand the coverage by providing all schools with sanitary pad vending machines and incinerators, along with comprehensive training for girls on menstrual hygiene management to foster a supportive environment that encourages regular use of sanitary products.

BaLA: Expand the BaLA initiative to more schools by incorporating a wider range of engaging and educational visual elements.

Smart Class: Develop a comprehensive training program for all teachers on the effective use of Smart Class resources and ensure curriculum-related digital content to maximize their impact on student.

Library: Increase investment in library resources by expanding the collection of books and educational materials to meet the diverse needs of the student population.

STEM Lab: Conduct a thorough needs assessment for STEM labs to identify specific equipment and resource requirements, followed by targeted investments ensuring that all labs are well-equipped to facilitate hands-on learning experiences for students.

Findings on the OECD Criteria

This chapter provides the impact assessment findings considering the OECD research framework or criteria to oversee the overall impact of the HDFC Bank-supported project on smart school development.

Relevance

The project was deemed highly relevant for the government schools in West Bengal, spanning four districts. Focused on enhancing digital learning in rural and peri-urban areas, it has the potential to equip schools with adequate infrastructure and advanced smart classroom features. By focusing on essential infrastructure like drinking water, toilets, libraries, STEM labs, Smart Classes, and BaLA initiatives, the project addresses critical areas that enhance the overall learning environment. The inclusion of menstrual hygiene management also reflects a pertinent understanding of the barriers faced by female students. **However, a gap exists between expectations and the actual needs of the schools, particularly regarding the enrichment of STEM Labs and the development of library resources.** **Under this component, despite some gaps, HDFC Bank support is RELEVANT.**	5

Coherence

The project exhibits coherence in its strategic approach by integrating multiple components to establish a comprehensive educational framework. All key stakeholders—principals, teachers, and School Management Committee (SMC) members—recognized the value of HDFC Bank's comprehensive support and its alignment with the educational goals of beneficiaries and stakeholders. However, there were notable disconnects in certain areas, where significant material development was undermined by insufficient training, causing daily activities to deviate from the project's goal of achieving optimal coherence. **The HDFC Bank's support has been labelled as COHERENT.**	5

Effectiveness

The project has shown effectiveness in some areas by delivering the objective of establishment of Smart Classes and improved access to drinking water and library facilities. However, challenges persist, particularly in toilet maintenance, STEM lab functionality, and the limited reach of menstrual hygiene management training. The feedback from teachers indicates the scope of improvements in student engagement and learning outcomes, especially in schools where adequate resources were provided. While the project demonstrated considerable effectiveness, disparities in overall project delivery and resource availability highlighted the need for ongoing monitoring and targeted interventions for diverse student populations. **The HDFC Bank support was found to be moderately effective.**	3.5

Efficiency

The project's implementation reflected a low to moderate level of efficiency, as resources were not optimally utilized due to challenges like poor upkeep of established facilities and lack of training. While the project successfully delivered essential infrastructure, issues regarding the maintenance and sustainability of these facilities raise concerns about efficiency. Limited budgets for ongoing upkeep and insufficient training for teachers on new technologies hinder the effective utilization of resources, impacting overall operational efficiency. **The intervention was identified as moderately efficient for the students as well as teachers.**	3.5

Impact

The HDFC Bank initiative has positively impacted student engagement, attendance, and learning outcomes in several areas, particularly in schools with effective resource implementation. However, the overall impact is varied, with significant challenges in maintaining infrastructure and ensuring consistent access to facilities like toilets and STEM labs, which affects long-term educational success. **The HDFC Bank support has demonstrated the moderate IMPACT on the students and teachers and principals partially endorsed the improvements in students learning outcomes.**	3

Sustainability

While the HDFC Bank project provided considerable benefits, sustainability remains a critical concern, particularly regarding the maintenance of newly established facilities and resources. The lack of dedicated budgets for ongoing repairs and training programs jeopardizes the long-term benefits of the project. Ensuring ongoing support, training, and resource allocation is essential for the continued success of smart school initiatives in these government schools.	2.5

Overall Average Score – 3.8 out of 5

IMPACT PSD Private Limited
Urbtech Trade Centre | INS-430 – Tower A
B-35, Sector 132, Expressway Noida-201 304 (UP)

www.impactpsd.org | helpdesk@impactpsd.org
Call: 0120 - 6025 025