Impact Assessment of FRDP - 100 Smart Schools Development Project in Jharkhand State

Impact Assessment Report

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Impact Assessment of FRDP 100 Smart Schools Development Project in Jharkhand State

– Impact Assessment Report

Project ID	P0526

Study Team

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Abbreviations

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

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Executive Summary

1. Background

HDFC Bank supported the efforts of the government education department by providing them with need-based support to many 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 improved 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, stakeholders, and teachers, who are also equipped with techno-pedagogy.

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	**Wockhardt Foundation (WF)**
Project Location and coverage	Jharkhand – 100 schools – 5 districts
Project Duration	January 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, Science Lab, Interviews with Teachers Qualitative – In-depth interviews with school principal and Focus Group Discussion with students
Sample Covered	Out of 100 schools covered in five districts, 30 (30%) schools were selected to get a representative sample spread across Ranchi (14), Giridih (6), Bokaro (5), Khunti (3) and Dhanbad (2).

2. Key Observations and Impact

2.1 Smart Class Intervention

The physical verification process was conducted to evaluate the current state of smart classrooms, focusing on their availability, functionality, and utilization by the designated user groups, namely teachers and students. The outcomes of the physical verification and the insights gathered from discussions with teachers, principals, and students are presented as follows:

The smart classrooms were available in all 30 schools; however, they were functioning and accessible for students and teachers in only 11 schools (36%). A dedicated or common classroom equipped with all the necessary smart class assistance helped teachers conduct interactive lessons tailored to the grade-level curriculum.

- All 30 schools have confirmed the receipt of the smart class set-up, but only 28 could initiate the smart classes. The setup includes a flat TV interactive panel, a sound bar, a web camera, e-content for Grades 6-10, and Android-based applications. This comprehensive support was intended to meet all the teachers' classroom teaching needs.
- In two schools, smart classes never became functional because the supplier/vendor did not provide any training on using interactive TV panels. More than half of schools are still facing the issue of the non-availability of trained teachers who can run a smart class. Of course, there are schools where teachers who take a personal interest are implementing smart classes.
- Focus group discussions with students revealed that most students were interested in smart classes. They mentioned that smart classes allowed them to acquire knowledge through videos, animations, and sounds, which helped clarify their doubts. Some students stated that smart classes are beneficial as they allow for interactive discussions with teachers. Many students (more than two-thirds) also expressed their opinion that teachers are not adequately trained to conduct smart classes. One-third of students expressed dissatisfaction with teachers' issues while operating the smart interactive TV panels, particularly related to technical operations.
- Teachers in 26 out of 30 schools (87%) reported receiving formal training for operating a smart class. The same 26 teachers (100%) shared that digital content, due to its visuals and sounds, is very effective in learning. 92% of teachers thought that using digital content generates a joyful learning environment in the class as students demonstrate their anxiety about seeing newer videos, animations, and audio for the topics.
- All of the teachers concurred that watching live videos helps pupils understand ideas and concepts, which is one of the main benefits. Teachers indicated that smart classrooms have many advantages, including helping students with project work (75%), encouraging class discussion (86%), making it easier to monitor students' progress (79%), and helping students acquire concepts and principles (96%). Merely 61% of teachers believed that it contributes to greater learning outcomes (higher grades or scores) (67%). Overall, it seems that teachers were pleased with using digital resources for instruction because they could show that they understood the benefits for both themselves and the students.
- More than four-fifths of teachers (86%) opined that digital content sparks students' interest in STEM subjects since it offers chances to learn STEM subjects and related topics that pique students' curiosity and encourage further study. Students generally worry that science and math will be tough for them to succeed in and that they won't be able to score well in these courses.
- Most teachers (88%) have noted an improvement in their students' learning outcomes, meaning that their grades and marks have improved. Approximately 62% of teachers said student attendance had increased, and 58% said the school's reputation had become more credible. A few increases in enrolment indicate the support's overall beneficial effects on academic standing and the quality of education.

- HDFC's support has significantly advanced educational practices by integrating digital tools, leading to better student attendance, increased engagement, and improved learning outcomes.

2.2 STEM Lab

During the FDP, HDFC Bank extended assistance to establish STEM labs in the project schools. The outcomes of the on-site verification and engagements with teachers, school principals, and students are presented as follows:

- Only 11 out of 30 schools (37%) confirmed receiving support for STEM labs. Seven of these eleven schools already had functional STEM labs.
- 80% of educational institutions have received instructional models, equipment, charts/posters, and other laboratory resources, while 60% have obtained materials for practical applications and project-based learning to enhance understanding of theoretical principles and contextualise various processes.
- The key outcomes observed were comprehensive coverage of learning topics and subjects aligned with students' grades and knowledge levels (100% of teachers reported); heightened student interest in specific science-related topics (reported by 90% of teachers); enhanced engagement facilitated by practical demonstrations with teacher support (70%); and improved attendance (60%). However, only 60% of the participants demonstrated improved performance in STEM subjects.
- Due to STEM lab, students in focus group discussions could easily perform practical work for many topics using models, and teachers could effectively explain related concepts. In Biology, teachers described body parts and their functions. Most students expressed that they do not use the STEM lab very often and that it is up to the teachers to decide whether to bring in models, charts, or other learning materials.
- Most students in schools with STEM lab support expressed that the lab is well-equipped. They were happy with the new models and equipment, which helped them better understand the topics and sparked their interest in them.
- The principals and teachers stated that HDFC Bank assistance has strengthened the schools' resources through support for labs.

2.3 Other Support under the Project

Library Support (Books and Textbooks)

- Out of the 30 schools surveyed, 18 reported receiving support for their libraries. Among these 18 schools, 93% confirmed the receipt of storage shelves or racks, while 71% acknowledged receiving tables, chairs, or benches for their library rooms. Additionally, 57% of the schools reported receiving books as part of the HDFC Bank support.
- The provision of library support has significantly impacted students, as reported by 71% of teachers, who noted increased access for students in need. Additionally, 71% of teachers observed improved students' reading habits, while 43% noted increased student participation in projects and science fairs. 29% of teachers perceived an increase in average marks among students.
- More than half of the teachers (57%) expressed that they observed a heightened interest in using the library and spending time with books, indicating a positive trend.
- Students in schools with library support reported a positive experience with library visits and reading storybooks. The majority of students felt motivated by the library support. Almost all students mentioned having weekly library periods, and teachers would direct them to the library to read books aligned with the curriculum and to work on projects. Many students expressed a

need for more books on a regular basis and a more efficient book issuance system. Not all schools had a process for students to borrow books for home use.

Sports Items

- In a survey of 30 schools, 12 schools reported receiving sports equipment from HDFC support. Prior to receiving the support, 11 out of the 12 schools (92%) already possessed some sports equipment. Half of the schools (50%) had sports materials in good condition that were actively utilized by students.
- HDFC's support provided a significant quantity of new sports goods for the students, which was mandatory for their physical and mental strength. This has probably improved sports activities and fostered greater student engagement and participation in physical education.
- During the discussions, students were found to be fascinated with sports goods, particularly badminton. No remarkable differences were seen between boys and girls; both were equally interested in games, probably due to Punjab being a sports enthusiast state. Students expressed the desire for more sports items and games in the future. A few students expressed their aspiration to participate in state and national-level games to excel and win medals for their Punjab state.
- All the principals acknowledged the need-based support for sports items to the students that help in physical activities and cognitive skills.

Repair and Refurbishment of WASH Structures (Toilets)

- Seventeen schools (57%) confirmed receiving support for repairs and renovation of WASH structures within the schools (toilets). Among the 17 schools, 13 schools (76%) were equipped with functional toilets, while eight schools (18%) had toilets with damaged doors, and four schools had toilets lacking water supply. Minor maintenance tasks such as floor plastering, wall painting, and ensuring water availability were carried out with the support of HDFC Bank.
- The support had a significant positive impact on students by improving hygiene (76%), preventing diseases (53%), and increasing toilet usage (88%). It also improved school attendance, particularly among girls (65%), which decreased dropout rates (53%). The new toilets also made female students feel more comfortable.
- The improved facilities led to increased toilet usage in two schools; three schools saw better hygiene maintenance, two reported disease prevention, and three observed improved regularity, particularly among girls. One school noted reduced dropout rates. The toilet has majorly benefitted girls' students.
- The principals conveyed their happiness and praised HDFC Bank's assistance in streamlining the WASH systems in the schools. The HDFC grant addressed repairing existing toilets and constructing new ones, but feedback on the quality remains mixed. Despite the support, still, three out of ten principals (29%) felt that the toilets are inadequate for the current number of students, and the limited school funds for maintenance could result in them becoming unusable over time.

Repair and Refurbishment of WASH Structures (Drinking Water)

- Out of 30 schools, 28 reported receiving assistance with their drinking water facilities. Among these 28 schools, 13 (46%) indicated that new drinking water stations and platforms had been constructed, while 4 schools (14%) reported receiving water coolers. Additionally, 75% of the schools received Aqua Guard UV filters.
- According to teachers' perceptions, ensuring access to drinking water through HDFC Bank support provided significant benefits to students, including a reduction in illnesses (82%) and help in the prevention of waterborne diseases (50%).

- All students participating in the discussions have verified that the drinking water facilities are clean and well-maintained and equipped to provide filtered water for drinking purposes.
- The principals were satisfied 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 FRDP in Jharkhand.

OECD Criteria	**Score**
Relevance	5
Coherence	5
Efficiency	3
Effectiveness	3
Impact	2.5
Sustainability	2
Overall Score	**3.4**

4. Key Recommendations

- Ensure the maximum number of teachers are trained to optimise equipment use and digital content in smart classes. If teachers are transferred to other schools, those available could continue using the smart class for students. Provide a maintenance budget for at least 2 years so that these smart classes remain functional for a longer duration.
- In the future, the implementation partner should be asked to conduct the needs assessment and submit the narrative report with pictures to HDFC Bank. Then, the next tranche should be released after verification to supply the desired equipment and civil works.

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 to creating 2500 smart classrooms in partnership with non-profit organizations under its key objective of promoting 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 Bank provided support to government schools in Jharkhand through the Wockhardt Foundation intending to transform 100 government schools into Smart Schools. HDFC Parivartan granted support for 15 months from January 2022 to March 2023. These schools were in 5 districts across Jharkhand—Ranchi (45 schools), Khunti (10 schools), Bokaro (16 schools), Giridih (22 schools), and Dhanbad (7 schools). The initiative involved repairing and refurbishing the schools as needed, upgrading the libraries and science labs, installing Smart Class technology, water purifiers (RO), sports materials/items, and setting up activity corners in primary schools as well as BaLA work.

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

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 was entrusted to undertake the impact assessment of the FRDP—100 smart schools development project. The ensuing chapters of this report present the study's methodology and findings.

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 Wockhardt Foundation. The matrix also includes the indicators proposed for the assessment.

Activity	Tasks achieved	Qualitative	Assessment Parameters
Upgradation of School Infrastructure	• Repair work / refurbishment of school building Repair work in toilets Drinking water facility • Supporting basic furniture in the school	• Improved school infrastructure with improved classrooms, re-strengthened common areas, and basic furniture • Improved interest and retention of students in attending classes • Empowered school with better facilities	• 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
Digital Learning in classroom	• Smart Class interactive boards installed in schools	• Availability of an improved digital mode for learning and teaching • Improved classroom interaction and teacher-student engagement	• 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
Library Setup and Strengthening	• Minor repair of library room • Provision of wide variety of reading materials and books • Provision of storage shelves and newspaper stand	• Improved libraries with a wide range of reading-learning materials • Inculcating and improved reading habits	• 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

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 • What proportion of students were regularly attending the library

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

	Indicators/Questions
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 checklists 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 impact assessment study was conducted in 30 out of 100 schools across five districts of Jharkhand state. Districts-wise coverage has been shown in the following table:

Districts	Number of Schools
Ranchi	14
Giridih	6
Bokaro	5
Khunti	3
Dhanbad	2

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 **100 schools** included in the intervention, a total of **30 schools (30%)** were covered under the study. These 30 schools were randomly selected from all five districts, distributed in proportion to the total number of schools in each district— Ranchi (45 schools), Khunti (10 schools), Bokaro (16 schools), Giridih (22 schools), and Dhanbad (7 schools). In each selected school, **15 students, 2 teachers and 1 Principal** were included in the assessment to capture the information. For students, 4 FGDs in each school were conducted covering 5 students in each FGD that included 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	**30**
Checklists	**30**
Students	**120 FGDs**
	600 students (Boys = 299; Girls = 301)
Teachers	**60+**
Principals	**30**

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/SMC members

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. A dedicated researcher from IMPACT undertook the quality assurance during the data collection.

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, STEM labs and other supports 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.
- A researcher was deployed to undertake the quality assurance. Since this was a school-based study, the accompanied checks were undertaken, and data quality was ensured.

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

- In a few schools, a letter from the department was demanded
- Wherever new Principals have joined, they requested to produce the due permission for the data collection. Later Principals provided permission after discussing it with the partner NGO.
- Examinations were scheduled in the schools, due to which delays were faced.

Current Status of Support

This section provides assessment results obtained from physically verifying the support provided as part of the smart schools' development project across 30 selected schools. The findings delve into the existing status of various amenities, including smart classrooms, WASH facilities (such as drinking water provisions and toilet-related work), library resources, sports gear, and STEM laboratories.

3.1 Smart Class

All 30 schools in Jharkhand were visited to undertake the impact assessment study across 5 districts. The purpose of physical verification was to assess the current status of HDFC Bank support in terms of availability, functionality and current usage by the intended target groups (teachers and students). The results of the physical verification are discussed as follows:

A classroom equipped with all the necessary smart class assistance from HDFC Bank has been set up. This allows subject teachers to conduct interactive lessons tailored to the grade-level curriculum. The setup includes a flat TV interactive panel, a sound bar, a web camera, and Android-based applications, providing comprehensive support for all the needs of classroom teaching for the teachers.

A 65 inches Flat TV interactive panel having multiple features that add value to the technology support from HDFC Bank which includes the following:

- Android-based Apps
- Internet connectivity provisions
- The screen can be split into multiple screens
- The screen can be used as a Green or White Board
- Google Features and apps such as YouTube
- Interactive board with Smart Pen option
- Storage with saving options for daily lectures

In all the schools, smart classrooms were found available with proper installation on the wall but the functioning of smart classes in all schools was not found. During the assessment, it was found that smart classes are not functional in 11 out of 30 schools (36%; almost one out of three schools). The smart class setup has been appropriately installed on a wall available in all the schools.

In two schools, the principals expressed their dissatisfaction that the smart class could not be initiated because none of our teachers have training on operating the interactive panel. The schools were informed that a representative from the supplier or implementation partner organization would visit to train the teachers. These two schools are still waiting to receive training on the operations so that teachers can start using the interactive panels for teaching. This seems to be a serious issue because the implementation partner did not confirm or verify the status of the use of smart class, as well as whether training has been provided for the teachers or not.

Nine other schools faced various issues that prevented their smart classes from functioning properly. These issues included a lack of trained teachers who could operate the interactive panels, as well as a lack of competence among teachers to run a smart class. In one school, the smart class became non-functional just four months after installation due to internal damage to the interactive panel. Two schools had problems with outdated or corrupted software, which rendered their interactive panels

inoperable. Additionally, four schools experienced issues with long power cuts or unreliable electricity supply.

All these schools were in touch with the supplier as well as the implementation partner but did not receive any support.

In schools where smart classes were functional, students expressed satisfaction with the support provided by smart classes. While most attendees were not as regular as expected, a few only participated in a lesser number of sessions. Mostly, students emphasized numerous advantages, such as improved comprehension of subject matter and the capacity to visually grasp experiments, contributing to better retention. They also cited the immediate nature of learning, as they can simultaneously observe motion and hear sound, facilitating instant clarification of doubts.

Many students shared their concerns over internet issues and erratic electricity supply which hampers the smart class functions. Teachers also observed that students pose numerous questions when smart classes and digital content are utilized for instruction.

Teachers opined that smart classes in their schools provided an enabling environment for both students and teachers. Science, Mathematics, and English are the subjects where teachers feel comfortable taking smart classes.

Findings from the assessment suggest that the smart class support has been an excellent addition to the schools, benefiting both subject teachers and students. The flat-screen interactive panel is a modern and advanced device that is easy to operate. The teaching process through the LED panel serves its purpose and provides a great learning experience for the students.

The main concern is that most schools are facing challenges such as a lack of onsite or remote support from any source. These schools do not have dedicated funds for repairs or maintenance. The implementation partner reported that all the schools were provided with contact numbers for grievance redressal, and these numbers belong to the supplier or installation company. Nowhere were these numbers found written in the smart classes, and school authorities were dependent on the partner organization entrusted by HDFC Bank. None of the schools reported having warranty papers, and no one knows whom to contact for their problems.

The training of teachers to conduct smart classes and operate interactive panels was an issue. There was no established process to ensure that teachers in the schools were comfortable using the interactive panels.

At the implementation partner's end, there was no monitoring mechanism to ensure the use of interactive panels or to address any issues related to equipment or operating the panels. As a result, 36% of the schools did not use the smart classes and remained unused, even though HDFC Bank had provided them with top-quality equipment for the students.

The support has played a catalytic role in strengthening digital learning in some government schools, but not all of the included schools under the intervention.

3.2 STEM Lab

Only 11 out of 30 schools confirmed receiving support for STEM labs. Seven of these eleven schools already had functional STEM labs. These schools had received instructional models, equipment, charts/posters, and other laboratory resources while obtaining materials for practical applications and project-based learning to enhance understanding of theoretical principles and contextualize various processes.

Mostly, STEM labs in schools have been established and are being used for their intended purpose. The teachers opined that smart classes in their schools provided an enabling environment for both students and teachers. Science, Mathematics, and English are the subjects where teachers feel comfortable taking smart classes.

The assessment team expressed satisfaction with the suitability of the STEM Labs, as students confirmed their integration into teachers' lectures. Due to space limitations, many schools could not allocate a separate room for STEM labs, and in some cases, STEM activities were conducted in classrooms designated for other classes. Notably, in three schools, the STEM lab and library shared a larger classroom space. The provided items and materials for the STEM labs were deemed adequate and appropriate for the respective grade levels. Overall, the support from HDFC Bank was found to be highly beneficial.

3.3 Library Support

To promote students' reading skills and bolster their confidence in academic pursuits, HDFC Bank extended support to schools by providing library resources. This assistance included the provision of bookshelves for storage and books for designated reading areas.

The assessment findings revealed that support was provided to 18 out of 28 schools, and it was very beneficial. However, only 6 schools already had established libraries with seating arrangements and bookshelves for storing books. The support was unnecessary for these schools as they already had functional libraries and did not need assistance with seating arrangements.

Among those who received library support, the school authorities were satisfied with the type of support, such as tables, chairs, storage almirahs, and books. However, it was found that the libraries were functional and being used as intended. There were a few schools where the labs, library, and sports room were in the same classroom. This was primarily due to a shortage of classrooms in the schools. There were about 9 schools with a dedicated library for the students.

About four schools did not use almirahs for storing the books and kept the storage almirahs in a corner. These schools probably had fewer books and reference materials than were accommodated in one or two almirahs.

Largely, schools claimed that the library-related support was very useful and acknowledged HDFC Bank for this initiative.

The library support provided to the 18 schools proved to be meaningful and appropriate. Teachers and principals have acknowledged the students' keen interest in reading library books, with students frequently taking books home for reading. The assessment team is pleased to note that the library support has effectively generated interest among the students, as observed during discussions with them.

Additionally, the implementation partner should have assessed each school's specific library needs before finalizing the materials. It would have been beneficial to provide more books for the libraries.

3.4 Sports-related Support

Under the support of HDFC Bank, all the schools received sports items. According to the assessment, 12 schools confirmed that they had received sports items for the students. The teachers and principals were satisfied with the support and expressed their appreciation.

Students who participated in the discussions expressed their satisfaction with the sports materials. They reported using them and enjoying all the board games and sports.

The assessment team acknowledges the valuable sports-related support provided to the schools, which has been essential and well-received by both students and teachers. While school officials have expressed a desire for additional materials, the assessment team asserts that the quantity and types of materials provided have been deemed satisfactory. Some educational institutions have raised concerns regarding the potential for future improvements in the quality of sports equipment.

3.5 Drinking Water Facilities

Under the Smart Schools Development Project by HDFC Bank, all 100 designated schools were equipped with water coolers and/or water purifiers (Aqua Guard), along with assistance for facility renovations such as repairing water taps and platforms. In the assessment, 28 out of 30 schools confirmed the receipt of support for drinking water facilities.

During the physical verification, the assessment team discovered that the implementation partner, WF, had supplied two sets of Aqua Guard RO water purifiers. Regrettably, the current status of these RO purifiers revealed a concerning issue. In 16 out of 28 schools (57%), the water purifiers were found to be non-functional. Principals from 8 schools reported that these water purifiers had not been operational since their installation. They indicated that although issues were present during the installation, the supplier did not address them despite follow-ups and communication with the WF team. This matter appears to be significant, as highlighted by the principals. The assessment team has identified that inadequate management of the water purifiers may have played a role in the current situation.

In total, 12 schools have operational water purifiers, providing clean and filtered drinking water to the students. All of the schools have received support for the repair and improvement of water-related facilities and structures. Additionally, some schools have been equipped with new drinking water stations to better serve the students. Except for a couple of schools, the situation of drinking water facilities was found to be satisfactory.

The assessment team has highlighted the deficiency in services-related provisioning and the high cost associated with filter replacement and minor repairs as the principal causes for the inadequate management and maintenance of the supplied equipment, specifically the water purifiers. Despite satisfactory support levels, the equipment remains unused. It is recommended that schools be advised to seek financial assistance from local communities or government departments for the necessary repairs to ensure optimal functionality of the equipment for the benefit of the students. In future projects, it is imperative to incorporate such provisions in the budgets or ensure the availability of funds within schools.

3.6 Repairs and Renovation of Toilets

In the smart schools' development project context, educational institutions were tasked with delineating the required repairs and renovations for their restroom facilities. Specifically, support was provided to address the maintenance and revitalization of toilets, including restoring water supply, pipes, seats, doors, and latches. Out of the 30 schools participating in the initiative, 17 schools reported completing specific toilet-related tasks under the HDFC Bank project.

The assessment team's findings indicated that the overall condition of school toilets was deemed satisfactory. However, a noteworthy concern was the lack of cleanliness in government schools, where a dedicated sanitation person for maintenance was found to be lacking. Although repair and renovation tasks were completed as scheduled, the quality of work delivered by the service provider did not consistently meet expectations. Specifically, 6 schools (35%) rated the work as satisfactory, while 9 schools (53%) expressed excellent satisfaction with the quality of support. Notably, in two

schools (12%), toilets were non-functional, and issues with water supply and maintenance were observed.

The feedback received from teachers and school principals was predominantly favorable. However, four out of seventeen schools (24%) reported substandard conditions, particularly concerning cleanliness and inadequately maintained washroom facilities.

The assessment team wishes to highlight the importance of the support provided to schools for toilet facilities. However, it is crucial to note that the quality and maintenance of the toilets were found to be lacking in some schools. Teachers expressed satisfaction with the positive impact on girls, noting an increase in their comfort and school attendance due to the support from HDFC Bank. Nevertheless, students in focus groups reported that despite renovations and repairs, the usability of the toilets remains a concern.

It has been recognized that schools need to conduct orientation sessions for teachers and students on maintaining cleanliness and hygiene in washrooms.

The following pictures portray the condition of toilets in the schools.

3.7 Building as a Learning Aid (BaLA) Support

Twenty-four out of thirty schools have reported implementing wall paintings featuring artwork and communication messages as part of the BaLA support initiative. This support primarily encompasses boundary wall paintings, as well as those on verandahs and classroom walls.

The assessment team has observed that the BaLA support has proven to be highly advantageous. It offers valuable insights into schools and fosters a supportive environment for students. Students consistently encounter messages that exemplify behaviour change communication and artwork,

providing guidance on appropriate conduct, as well as outlining recommended practices related to water conservation and hygiene maintenance.

The artwork encourages creative thinking among students in both academic and general studies, thereby keeping them abreast of national and international events and milestones. Additionally, it facilitates meaningful engagement with the themes and subjects depicted in the wall paintings. Almost all 24 schools had the BaLA paintings, which are relevant and effective for the students.

Some of the excerpts are presented as follows:

Study Findings

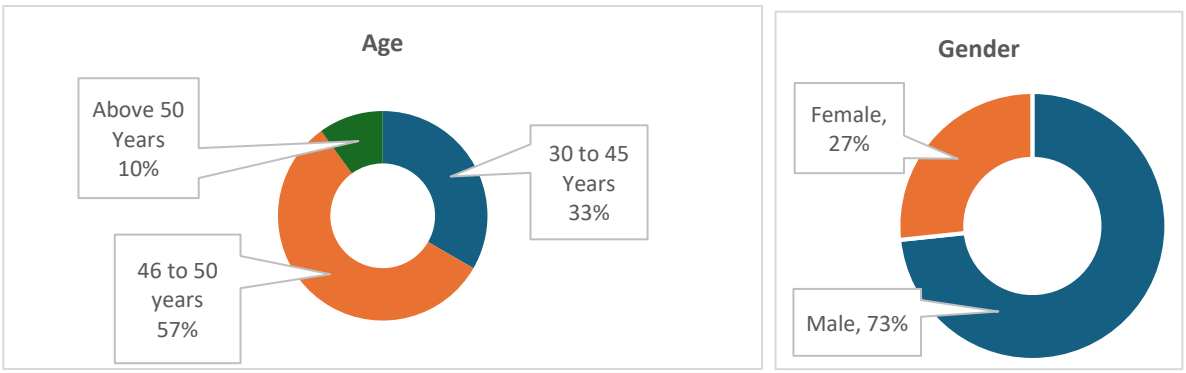
In this chapter, we will discuss the findings based on conversations with principals, teachers, and students from the project schools. The results offer insights into HDFC Bank's support in various areas such as smart classes, STEM labs, toilets, drinking water facilities, library resources, sports equipment, and other interventions. Through the analysis of the gathered data, this chapter will highlight the key benefits, challenges, and areas for improvement as reported by the respondents.

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, which may differ from the results of physical verification of the support provided at the schools.

4.1 Profile of the Respondents

A total of 30 principals were surveyed to collect information about the infrastructure support their schools received. The following graphs illustrate the age distribution and gender of the principals.

Graph 1: Distribution of Principals by Age and Gender (N=30)



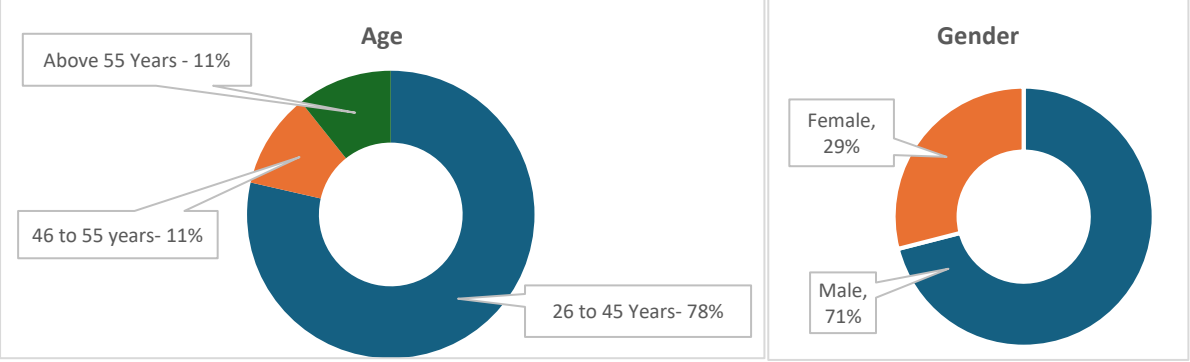
Out of a total of 30 principals, the majority (57%) were experienced and fell within the 46-50 age range, followed by those in the younger age group of 30-45 years. Almost three out of four principals (73%) were males, while the remaining quarter (27%) were females. Gender disproportion was observed in the state.

Three out of five principals (60%) had more than 20 years of teaching experience, and 30% had 11 to 20 years of experience. More than half of the principals (57%) worked at the current school for up to 10 years and the remaining 43% were there for 11+ years.

The majority of principals had a long-duration experience, and most were aware of the issues related to their schools' functioning. While discussing, all the principals shared their views related to HDFC Bank support received through the implementation partner.

In each school, two teachers, associated with the smart class operations, were interviewed to capture the details related to smart classes. The following graphs illustrate the age distribution and gender of teachers who participated in the study.

Graph 2: Distribution of Teachers by Age and Gender (N=60)



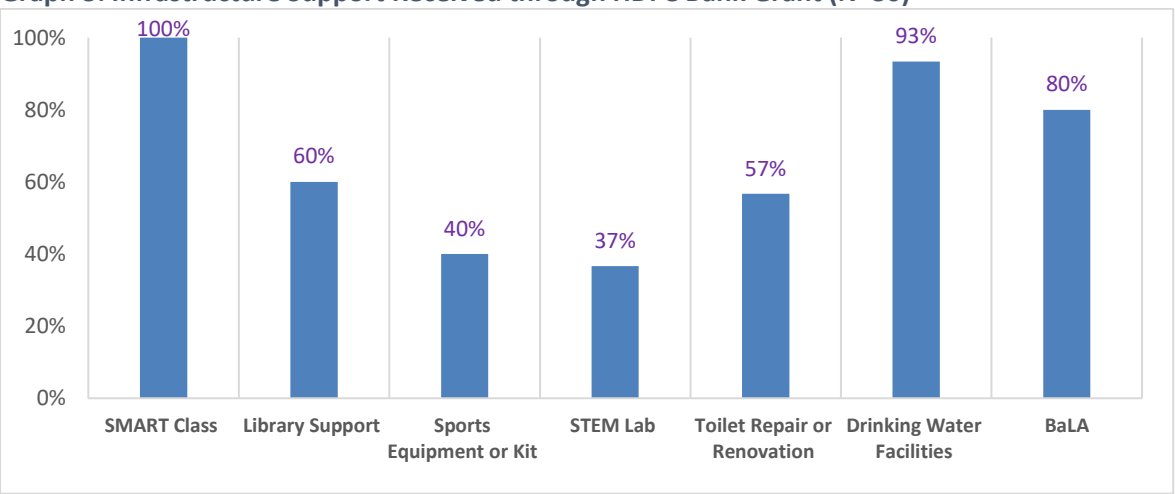
The majority of the teachers (78%) were between 26 and 45 years old, followed by 11% aged 46-55, and 11% over 55. The schools employed teachers in the younger age group had significant experience in teaching Science and Mathematics. Out of 60 teachers, more than two-thirds (71%) were male and the remaining (29%) were female.

Two out of five teachers (39%) had less than 10 years of experience, while 43% had 11-20 years, and the remaining (18%) were exceeding 20 years.

4.2 Information on Infrastructure Support

Principals were asked to specify the type of support received by schools under the FRDP from HDFC Bank. The following graph portrays the type of infrastructure support received by schools.

Graph 3: Infrastructure Support Received through HDFC Bank Grant (N=30)



HDFC Bank aimed to promote digital education by providing technology support to schools for implementing smart classes. All 30 schools (100%) confirmed receiving a SMART Class setup. Additionally, 93% of schools received support for drinking water facilities, and 80% confirmed extensive implementation of BaLa work in the schools. Six out of ten schools (60%) were provided with library infrastructure including books for reading and seating options, while more than half (57%) received renovation work for toilet facilities. Furthermore, 40% of the schools received sports-related goods. To promote STEM subjects, STEM labs were supported, as confirmed by more than one-third of schools (37%).

The support provided by HDFC Bank was excellent in ensuring that students had the necessary assistance in all aspects of school life. The interventions were relevant and necessary to help students stay focused on their academics.

The schools were asked about the capacity-building initiatives offered to the teachers. Only four schools (13%) received teacher training for smart classes so that they can operate the smart classes efficiently and use them for teaching.

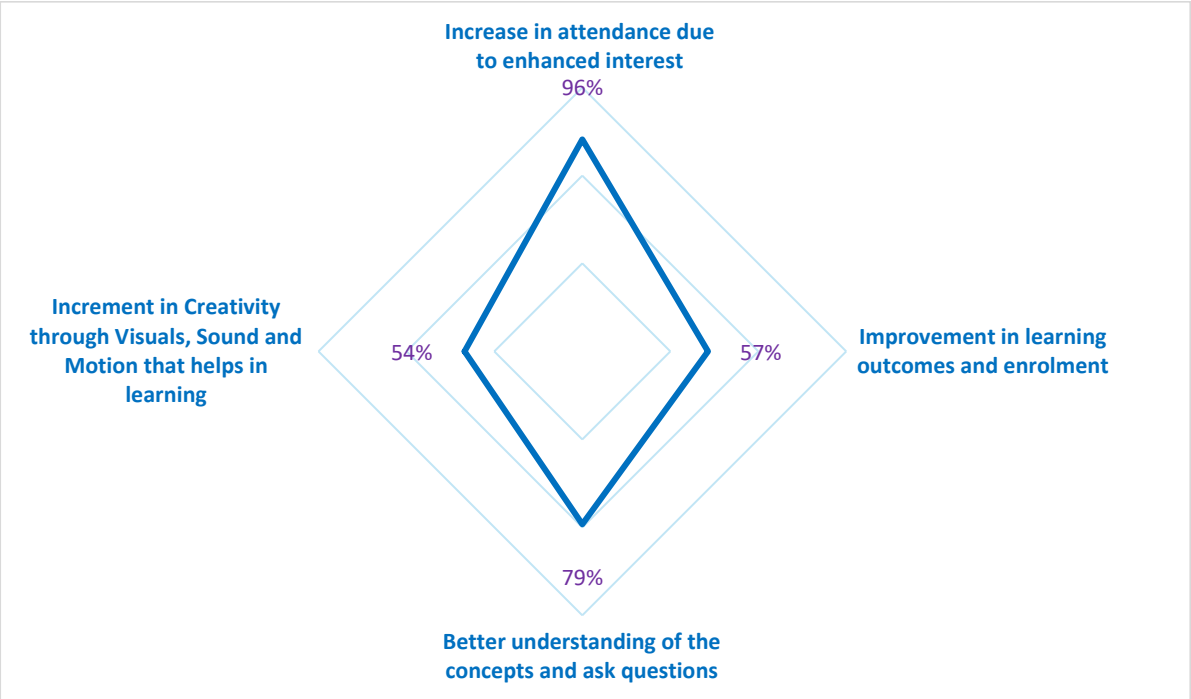
4.2.1 SMART CLASS

As stated earlier, all the schools reported receiving smart class setups. Two principals outrightly mentioned that smart classes could not be undertaken as the implementation partner representatives informed us that the training would be given for the smart class operations, but nobody turned up after the installation. Hence, the smart class was not conducted even once. Thus, the findings have been presented for 28 schools that initiated and implemented smart classes.

All 28 schools that reported initiation and implementation of smart classes received a flat LED TV interactive panel for running the smart classes. Along with the interactive panels, the schools were provided with digital content for middle and secondary classes. In addition, smart classrooms were renovated according to the requirements and painted to create a joyful environment for the students.

The supplier/vendor was primarily responsible for setting up the smart class and installing the equipment in all schools. The installation of the smart class set-up was outsourced to the supplier/vendor identified by the implementation partner, under the guidance of their representatives.

Graph 4: Observed Improvements Among Students – After Initiation of Smart Class (N=56)



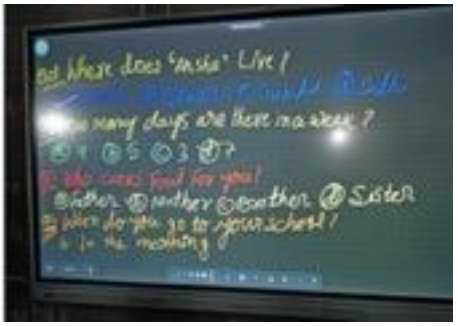
The teachers were asked about the improvements they observed among the students after the introduction of the SMART class. They reported several positive changes. 96% of them noticed an increase in students' attendance, attributing it to a greater interest in the subject as a result of the

new teaching methods. 79% of the teachers observed that students had a better understanding of concepts, and 57% noticed improvements in enrollment and outcomes (scores and grades). Additionally, 54% of the teachers found that students' creativity had increased through the use of visuals, sound, and motion.

During the focus group discussions, most students expressed their interest in smart classes. They mentioned that smart classes allowed them to acquire knowledge through videos, animations, and sounds, which helped clarify their doubts. However, the main issue informed by the students was that smart classes were not conducted regularly. Some students stated that smart classes are beneficial as they allow for interactive discussions with teachers. Many students (more than two-thirds) also expressed their opinion that teachers are not adequately trained to conduct smart classes. One-third of students expressed their dissatisfaction with the issues teachers faced while operating the smart interactive TV panel, particularly related to technical operations. Electricity was identified as a major issue for operating the equipment. Additionally, students in some schools reported software issues faced by teachers due to a lack of training. Students also mentioned their unawareness of any actions taken by teachers or principals to address these problems.

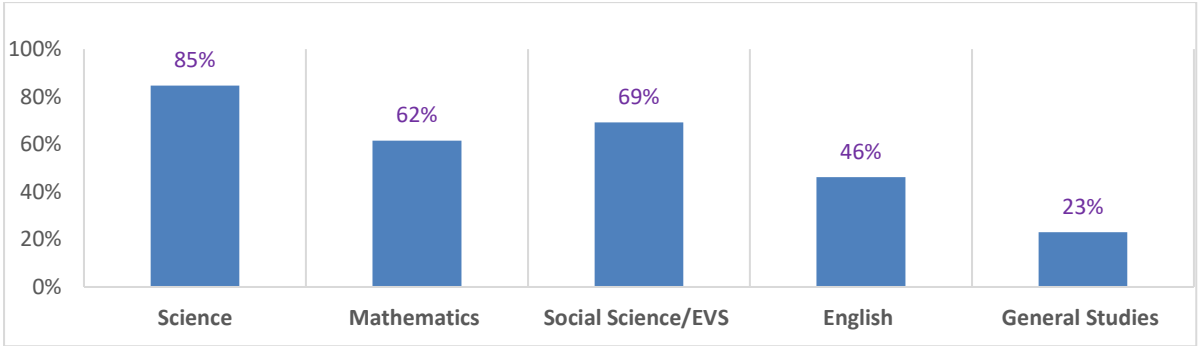
Training Receipt for Operation of Equipment

One key component of the smart class setup was to provide teachers with training on how to operate the interactive panel in the smart class and how to access digital content. When asked, only 32 teachers (29%) accepted that they were given training and demonstrations, primarily from the supplier company that installed the equipment, in coordination with the implementation partner representatives. All these teachers found the training valuable and useful in preparing for digital content-based education.



Only 32 teachers (46%) agreed that they received digital content during the installation. The digital content provided to the schools covered various subjects, including Science (85%), Social Science/EVS (69%), Mathematics (62%), English (46%), and General Studies (23%) as seen in the following graph.

Graph 5: Subject-wise Receipt of Digital Content (N=32)

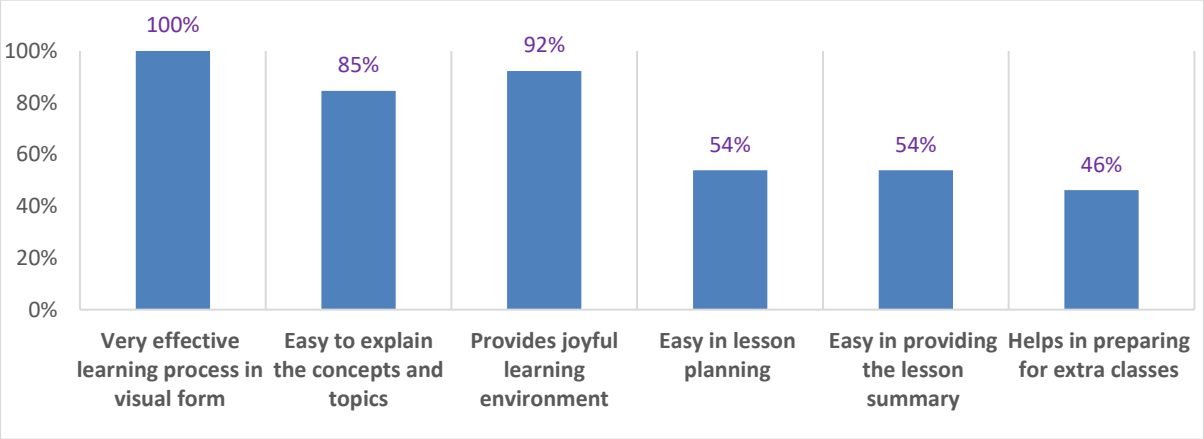


Of the teachers (N=32) who reported receiving digital content, 85% said they felt very comfortable using it to teach themes. The other teachers felt the same way and had no problems using it in their lessons. Their confidence stems mostly from their extensive teaching experience (62%) and a professional degree (B.Ed.) (46%). They are also well-versed in digital teaching approaches (54%).

Teachers' Perception of Benefits of Using Digital Content in Teaching

All 32 teachers (100%) shared that digital content, due to its visuals and sounds, is very effective in the learning process. A slightly lesser proportion of teachers (92%) also thought that the use of digital content generates a joyful learning environment in the class as students demonstrate their anxiety about seeing newer videos, animations, and audio for the topics. The following graphs present the benefits of digital content in teaching.

Graph 6: Benefits of Digital Content in Teaching (N=32)

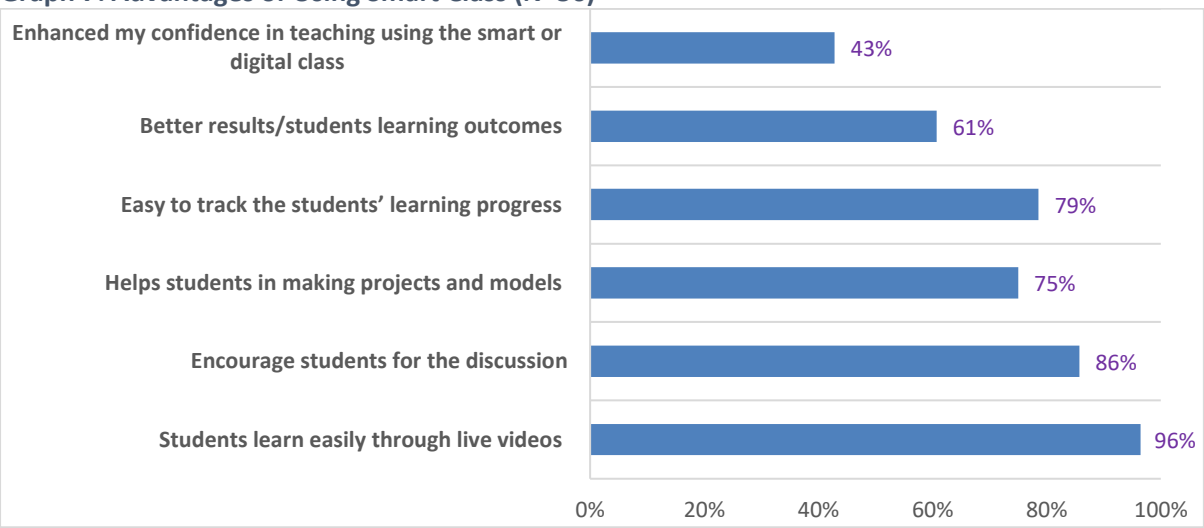


Teachers feel that using digital content improves their ability to teach because it offers various advantages, such as simplifying concepts (85%) and helping them prepare lessons (54%). Slightly fewer than half (46%) said it supports the preparation of additional classes by giving students more material for improved learning.

Advantages of Using Digital Content in Smart Classes

Another question about the main benefits of adopting digital content was sent to teachers. All of the teachers concurred that watching live videos helps pupils understand ideas and concepts, which is one of the main benefits. The accompanying graph displays the additional benefits.

Graph 7: Advantages of Using Smart Class (N=56)



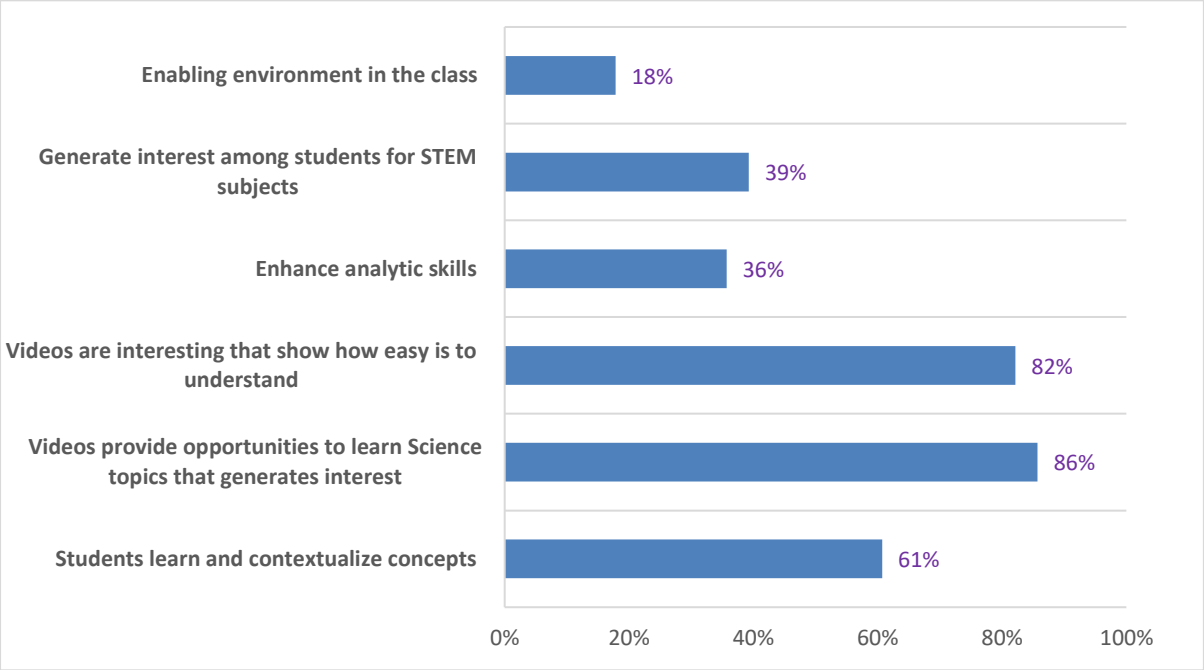
The results from the discussion with teachers indicate that smart classrooms have many advantages, including helping students with project work (75%), encouraging class discussion (86%), making it

easier to monitor students' progress (79%), and helping students acquire concepts and principles (96%). Merely 61% of teachers believed that it contributes to greater learning outcomes (higher grades or scores) (67%). Overall, it seems that teachers were pleased with using digital resources for instruction because they were able to show that they understood the benefits for both themselves and the students.

Students expressed their inclination towards smart classes for all subjects because these smart classes provide clarity of doubts through visual animation and step-by-step explanations. Many students feel that they can learn topics and concepts easily through live demonstrations in smart classes after theory classes. They appreciate the ability to ask questions instantly when they have doubts or need clarification on concepts, principles, or practical demonstrations shown through visuals. Additionally, many students have reported being able to better understand the workings of machines and principles, which has helped them in preparing projects and models after the classes.

According to the majority of teachers (86%), digital content sparks students' interest in STEM subjects since it offers chances to learn STEM subjects and related topics that pique students' curiosity and encourage further study. Students generally worry that science and math will be tough for them to succeed in and that they won't be able to score well in these courses. The graph that follows shows how interest in certain topics is sparked by digital information.

Graph 8: How Digital Content Boosts Interest in Subjects (N=56)



Digital content-based teaching in smart classes generates subject-specific interest by making topics easier to understand through videos (82%) and specifically aiding in learning and contextualising concepts (61%). It enhances analytic skills (36%) and creates an enabling classroom environment (18%).

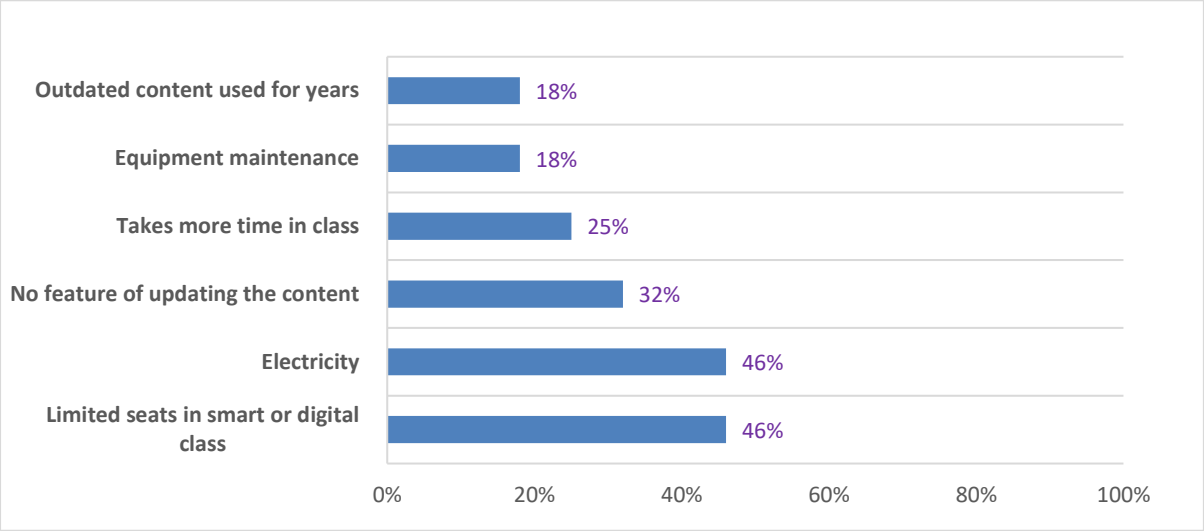
Ninety-three per cent of teachers said they thought techno-pedagogy was effective, whereas four per cent said it wasn't and four per cent weren't sure.

Overall, by integrating digital resources, HDFC's help has greatly advanced educational methods, improving learning results, student attendance, and engagement.

Type of Challenges for Smart Class

To comprehend the type of challenges teachers normally face while using smart classes, a query was posed. The biggest challenge was found to be long power cuts as indicated by 46% of teachers. Other challenges included the number of limited seats (46%) as shown in the following graph.

Graph 9: Challenges in Smart Classes (N=56)



The teachers also informed equipment maintenance (18%) and lack of content updates (32%) as key challenges. One out of four teachers (25%) thought it takes more time in the smart class.

Students have raised concerns about electricity supply issues in their schools. They have reported that the irregular power supply affects their ability to attend smart class sessions regularly. Teachers also prefer to discuss lessons verbally due to the inconsistent power supply. Many schools do not have power backup arrangements which leads to disruptions in smart class sessions. Students from more than ten schools have expressed their worry about the limited frequency of smart classes due to electricity problems and inadequate seating arrangements. The discussion with students revealed that there is a need for supplying inverter backups with longer battery life.

The manageable ways included, largely, regular updation of digital content and timely supply to the schools (50%) and an increased number of smart classes (50%).

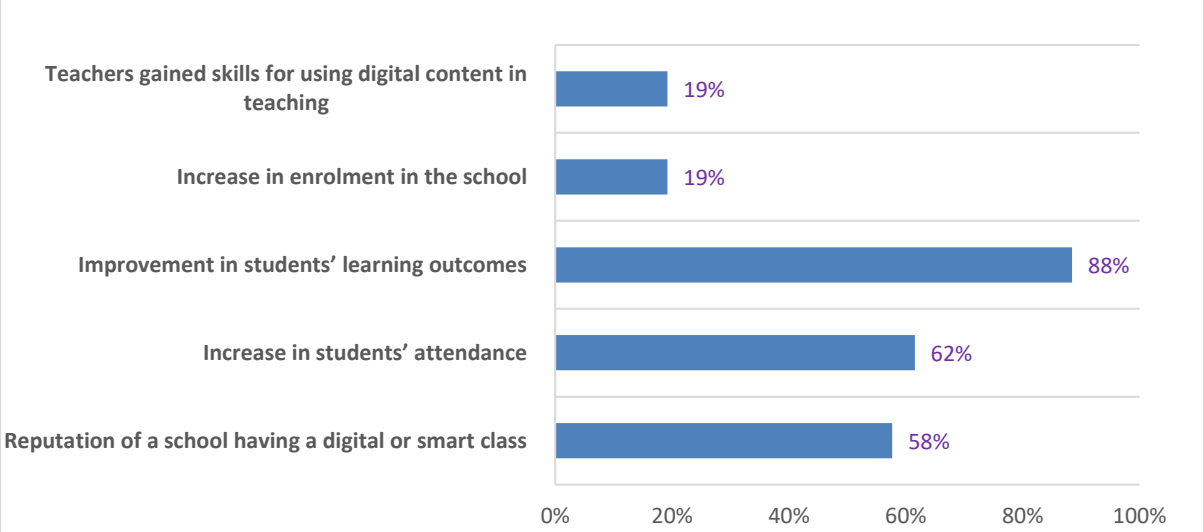
The majority of teachers (96%) stated that they had received favourable feedback from parents, with 79% of them stating that smart classes had improved their students' grades.

The majority of teachers (93%) expressed satisfaction with digital content-based education in the smart classes.

On asking reasons for their satisfaction, more than three-fourths of teachers (76%) cited benefits such as improved teaching skills (41%), increased confidence (53%), easier lesson planning (59%), and enhanced student learning outcomes (65%), which make teaching both easy and enjoyable (76%).

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

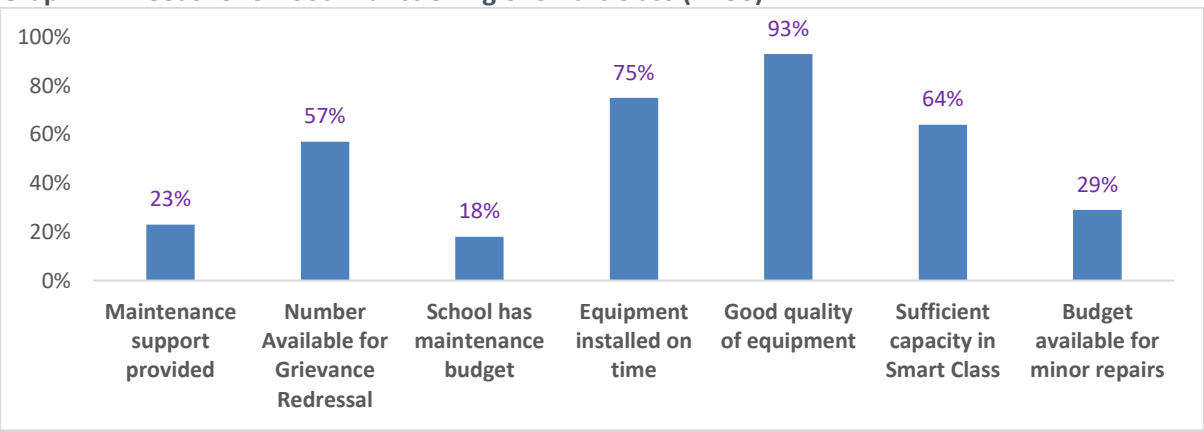
Graph 10: Advantages to Schools from HDFC Bank Support for Smart Class Set up (N=52)



Schools have benefited greatly from the help of HDFC Bank in several ways. Most teachers (88%) have noted an improvement in the learning outcomes of their students, meaning that their grades and marks have improved. Approximately 62% of teachers said that student attendance had increased, and 58% said that the school's reputation had become more credible. A few increases in enrolment are indicative of the support's overall beneficial effects on academic standing and the quality of education.

Other topics pertaining to the smart class, such as the availability of maintenance procedures, grievance procedures, repair budgets, etc., were also discussed. The following graph depicts the state of the elements necessary for the efficient operation of smart classes.

Graph 11: Needs for Smooth Functioning of Smart Class (N=56)



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

- ***Maintenance Support:*** Three out of four schools (77%) did not receive maintenance support for smart classroom equipment. Among those who received the support (23%), half of the schools (50%) received it from the education department through suppliers and vendors.
- ***Contact for Grievance Redressal:*** More than half of schools (57%) claimed to have a contact number for grievance redressal for the functioning of the smart class.

- ***Maintenance Budget:*** Four out of five schools (82%) did not have any provisions for the maintenance budget.
- ***Installation Timeliness:*** Three out of four schools (75%) reported that smart class equipment setup was undertaken within the committed timeline as informed by the implementation partner.
- **Equipment Quality:** 40% of schools rated the quality of equipment supplied for the smart class as **Satisfactory**, while 43% rated it as **Excellent** and the remaining 7% did not find it good.
- **Seating Capacity Sufficiency:** Three out of five schools (64%) perceived that the seating capacity in the smart class is insufficient as compared to the students' strength.
- ***Budget for Minor Repairs:*** Only 8 out of 28 schools (29%) reported having a budget for regular minor repairs of the equipment, but the amount is much less.

Even though initial quality and installation are usually excellent, maintenance and continuous assistance continue to be major obstacles. There is a lack of funding and resources in many schools, which affects the long-term viability of digital classrooms.

4.2.2 STEM LAB SUPPORT

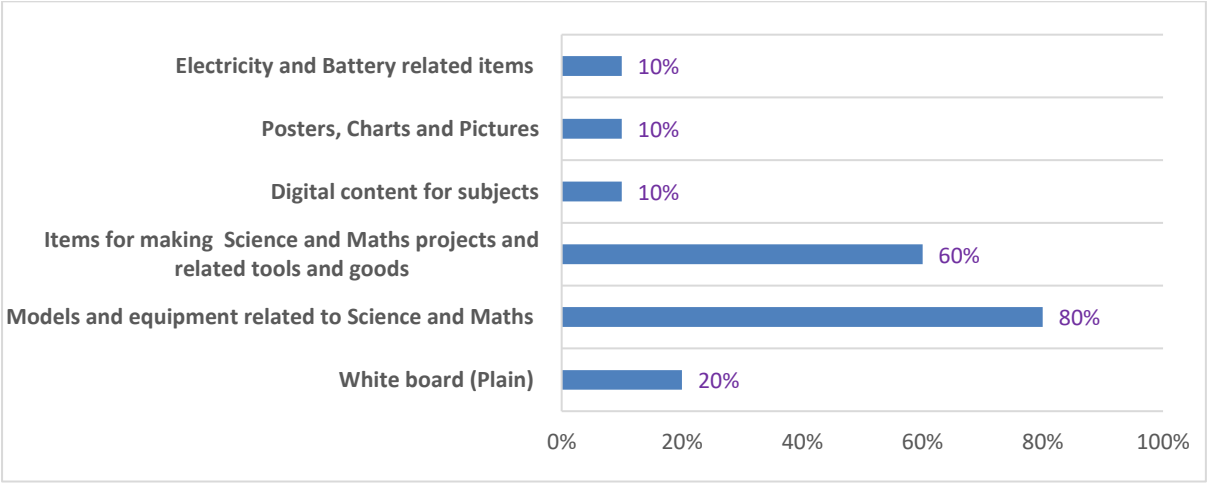
Science teachers in government schools frequently struggle to communicate scientific experiments, concepts, and principles to their students by employing functional models, charts, or other frameworks. The same holds true for Mathematics teachers also. It has been shown time and time again that when students observe objects moving or working or are involved in real-world experiments using models and instruments, they become more engaged in the material being covered in class. As part of the schools' development initiative, HDFC Bank acknowledged the need to set up a science or STEM lab.

Out of 30 schools covered, 11 schools received HDFC Bank support for STEM or Science Lab setup. Five STEM teachers were males, and six were females.

Out of 11 schools supported for STEM Lab support, seven schools already had STEM labs that were being used. However, 3 schools did not have STEM Labs, and one school had a lab that was not in use.

All the 11 schools confirmed receiving the STEM lab support in which models for the Science subjects were provided. The type of support received by schools is shown as follows:

Graph 12: Type of Support Received for STEM Lab (N=11)



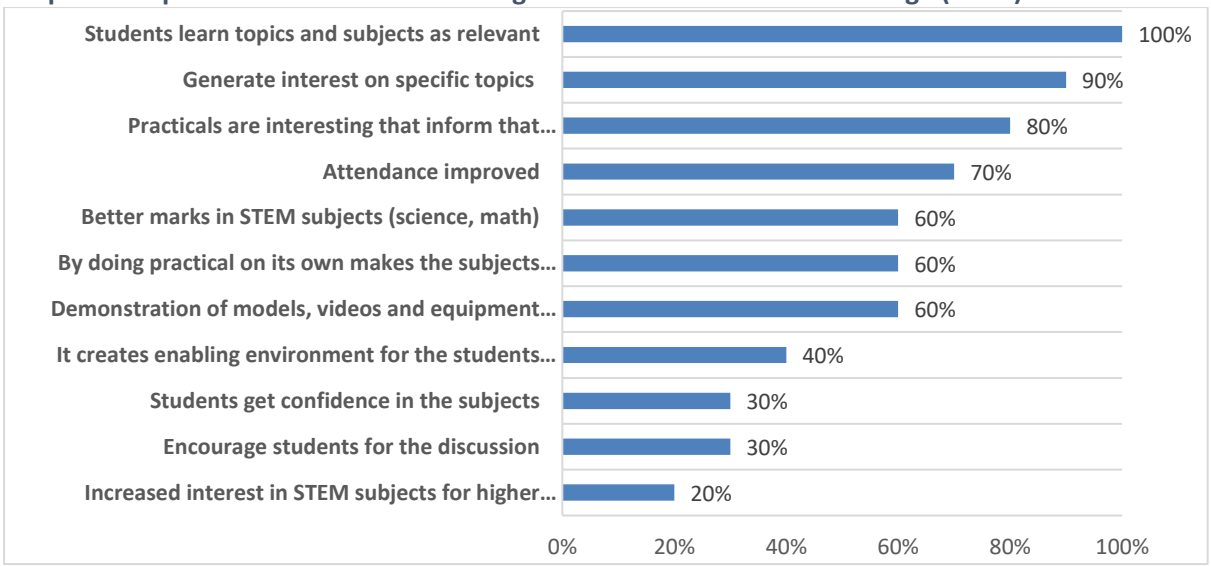
The teachers mentioned that the support included items such as science and mathematics-related models, equipment, and charts (80%), materials for making projects in science and mathematics (60%), and conventional whiteboards (20%). Some schools also mentioned items related to electricity and batteries and various educational materials such as posters and charts (10% each).

Comprehensive support was expected to enhance the quality and effectiveness of STEM education in these schools. We attempted to confirm this in the following sections. Seventy percent of the schools reported that the installation setup was handled by the supplier company with assistance from the implementation partner, which is considered a good practice.

All schools (100%; N=11) confirmed that the materials supplied for the STEM or science lab are used by students in Grades 7 to 8, and four schools (40%) also claimed that science materials are also used by students in Grade 6 or below.

The teachers who responded reported improvements due to the support of the STEM lab. This includes relevant learning topics and subjects for their grades and knowledge levels (100%), increased student interest in specific science-related topics (90%), improved engagement through practical demonstrations with teacher assistance (70%), and increased attendance (60%). However, only 60% observed better marks in STEM subjects. The following graph shows the type of improvements noted by the teachers.

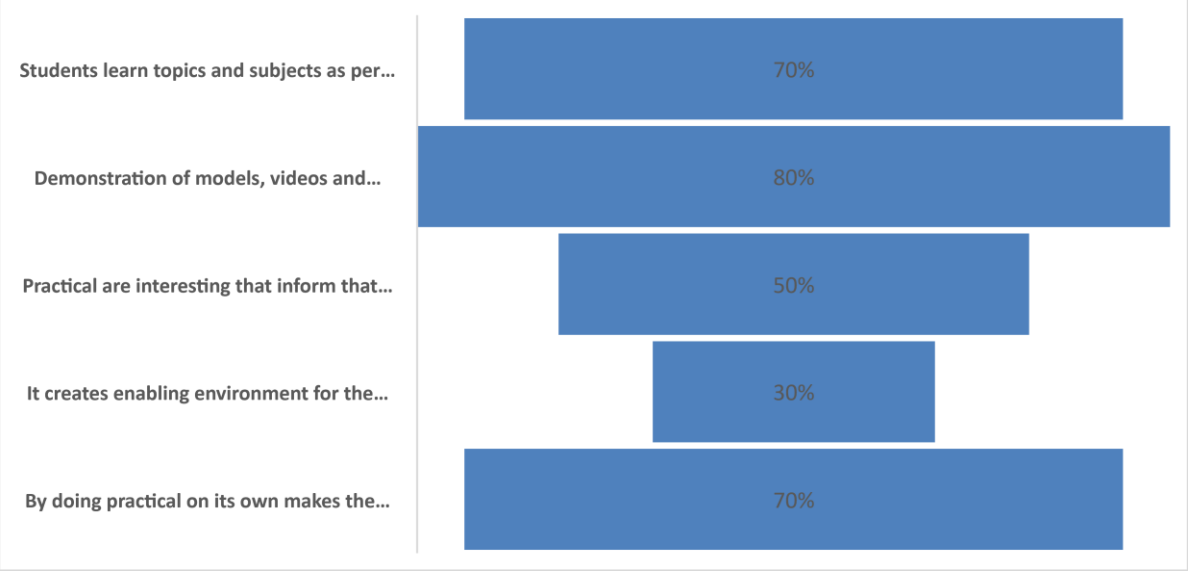
Graph 13: Improvements Observed Among Students Due to STEM Lab Usage (N=11)



This suggests that the STEM lab has effectively sparked interest and improved understanding, despite affecting attendance, but overall confidence remains moderate.

When asked about how STEM labs generate interest in specific topics, 80% of teachers mentioned that students become more interested in science subjects after they see demonstrations of models and practical experiments, which give them a better understanding of functions and concepts. The following graph illustrates how students become more interested in science and mathematics.

Graph 14: Ways in which STEM Labs Generate Interest in Specific Topics (N=11)

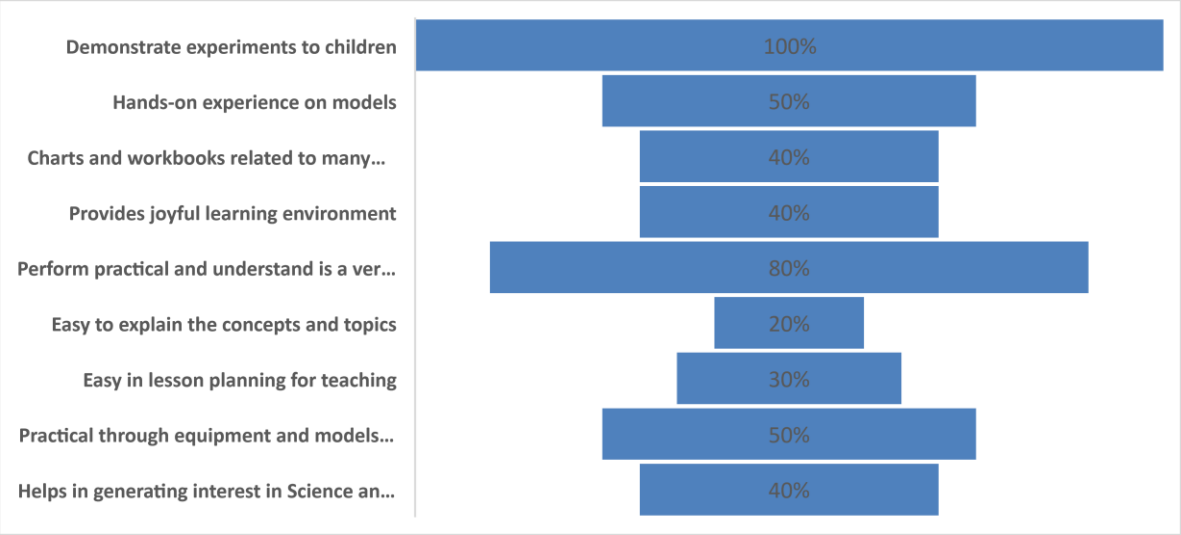


The discussion on the advantages of STEM lab support revealed that students could easily perform practical work for many topics using models, and teachers could effectively explain related concepts. In Biology, teachers described body parts and their functions. However, most students expressed that they do not use the STEM lab very often and that it is up to the teachers to decide whether to bring in models, charts, or other learning materials.

The majority of students in schools with STEM lab support expressed that the lab is well-equipped. They were happy with the new models and equipment, which helped them better understand the topics and sparked their interest in them.

All the teachers were asked how the STEM lab support helps them teach subjects. 100% of the teachers reported that STEM labs help demonstrate experiments so that students can learn the concepts and principles behind the activities. The following graph shows other ways in which STEM labs are helpful.

Graph 15: STEM Lab Helpful in Teaching (N=11)



Four out of five teachers (80%) agreed that practical work is a very effective way to provide context and engage students in hands-on learning. Half of them (50%) emphasized that hands-on experience with models is very helpful in generating interest in Science and Math. A similar proportion of teachers (50%) found that it is easier to explain concepts and summarize the lessons using practical work. In summary, a STEM lab provides an opportunity for students to see the concepts and principles behind the equipment, machinery, and concepts. All teachers were found comfortable using the STEM lab for teaching.

Functionality of the STEM Lab

- ***STEM Lab Status:*** 91% of schools (10 out of 11 schools) had a functional STEM lab.
- ***Installation Timeliness:*** 91% of schools received the setup on time (10 out of 11 schools).
- ***Material Quality:*** 40% of schools rated STEM labs materials as excellent, and 60% as satisfactory.
- ***Sufficiency for Students:*** 70% of teachers believed the STEM lab materials were adequate compared to the students' strengths.

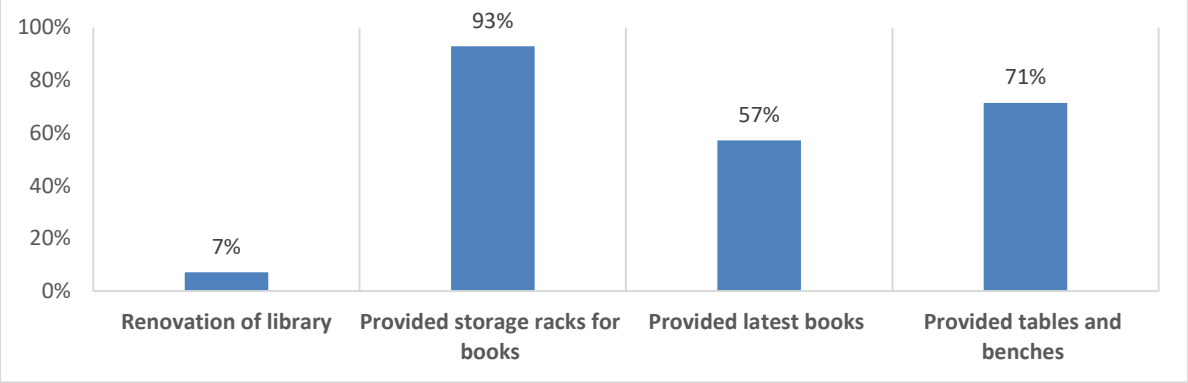
In most schools, the STEM labs were found to be functional at the time of assessment and were used by both students and teachers. However, the materials supplied for the STEM labs were deemed satisfactory, and 70% of the schools felt that the lab materials were adequate for their number of students.

4.2.3 LIBRARY SUPPORT

HDFC Bank considered providing library support as part of the school infrastructure development project. This initiative was aimed at promoting reading habits among students in target 100 schools in Jharkhand. The goal was to enhance the library facilities and improve the overall infrastructure of the schools.

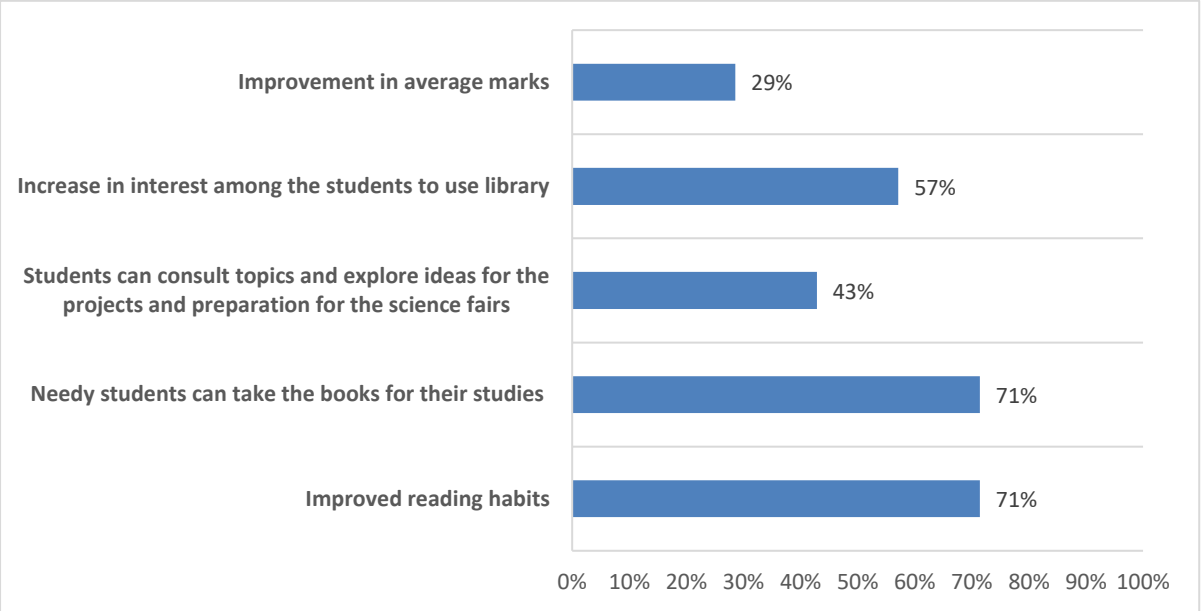
Out of the 30 schools included in the assessment study, 18 reported that they received library support. Before receiving support, six schools (33%) had a well-equipped library with books and furniture. Three schools (17%) had a dedicated room for the library, but the condition of the room was poor and unusable, and 10 schools (56%) did not have enough books available despite having a dedicated library. The graph below illustrates the type of library support received by the schools.

Graph 16: Type of Library Support Received (N=18)



Out of the 18 schools that received support for their libraries, 93% (N=13) received storage racks, 71% received tables and benches for sitting arrangements, and more than half (57%) received the latest books to enrich educational content as well as motivational story books and enhance students' access to a diverse range of learning materials. While 93% of schools (N=13) have a library period, it is predominantly scheduled in 62% of schools for middle school classes (grades 6-8).

Graph 17: Ways Students Benefitted from Library Support (N=16)



As per the teacher respondents, the provision of library support has had a significant positive impact on students, as reported by 71% of teachers, who noted increased access for students in need. Additionally, 71% of teachers observed an improvement in students' reading habits, while 43% noted increased student participation in projects and science fairs. Furthermore, 29% of teachers perceived an increase in average marks among students. More than half of the teachers expressed that they observed a heightened interest in using the library and spending time with books, indicating a positive trend. These findings demonstrate that the support provided by HDFC Bank has influenced students' behavior, fostering an increased interest in utilizing the library and cultivating improved reading habits.

Students at schools where library support was available expressed their enjoyment of visiting the library and reading storybooks. Most of the students felt encouraged by the library support. Almost all the students mentioned having library periods every week, and sometimes teachers would send them to the library to read books related to the curriculum and to do projects. Many students expressed that there were too few books and they needed more books regularly as well as a better book issuing system. During discussions, it was found that not all schools had a process for students to take books home. Overall, students were satisfied with the library support, but they were particularly eager for a larger selection of storybooks. This indicates that students appreciated the library support in terms of infrastructure and available books, even though the quantity of books was minimal.

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

- ***Functional Status:*** In 14 schools, libraries are currently functional as mentioned by the teachers.
- ***Timeliness of Provision:*** Under the project, 8 schools received books and reading materials within the committed time provided by the implementation partner.

- ***Quality of Materials:*** About 57% of teachers rated the quality of books and materials as excellent, while 43% of teachers found these materials 'satisfactory'.
- ***Sufficiency for Student Strength:*** About 57% of schools believe that library resources are inadequate for the student population, while 43% consider them to be sufficient.

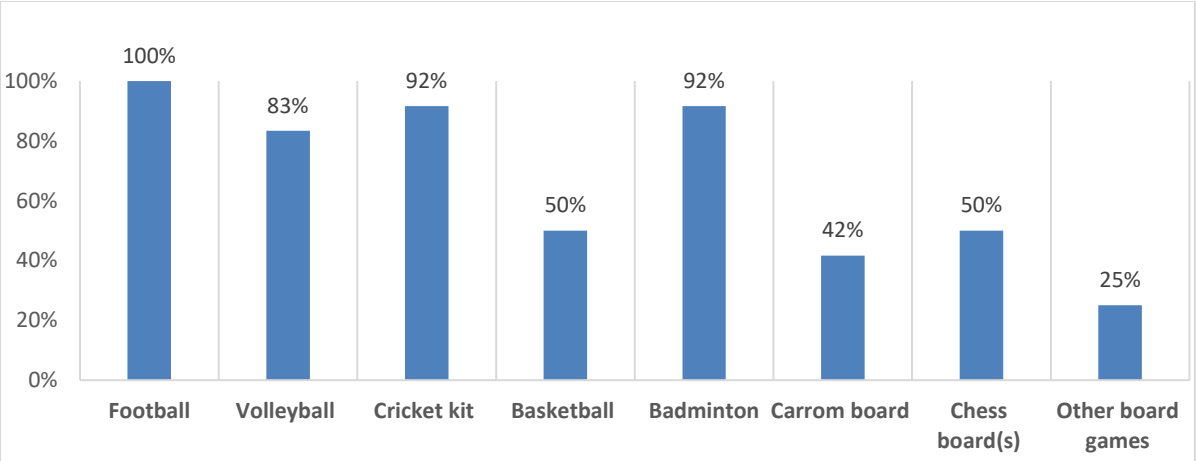
The library refurbishment and materials were completed on time and were generally well-received with high satisfaction levels. However, most schools feel that the resources are not adequate for the current students. Additionally, the limited seating and space could impact the long-term sustainability and usability of library resources.

4.2.4 SPORTS SUPPORT

Out of 30 schools surveyed, 12 received sports equipment from HDFC support. Before receiving the HDFC Grant, 11 out of 12 schools (92%) had some sports equipment. Half the schools (50%) had sports materials in good condition and were actively used by students, while one school had in usable condition but were not being used.

All 14 schools received various sports materials, including footballs, volleyballs, cricket kits, and more as seen in the following graph, enhancing their sports resources.

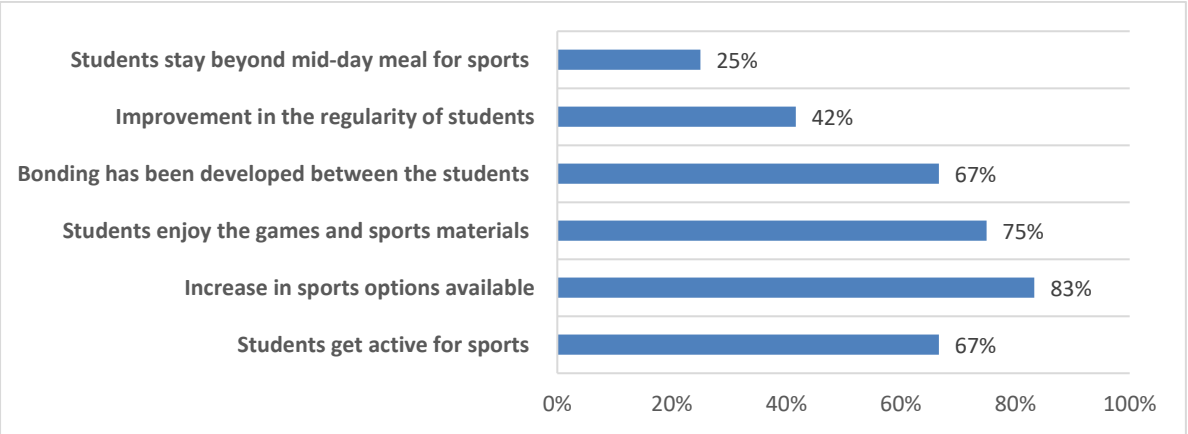
Graph 18: Sports Goods Received from HDFC Bank Support (N=12)



Despite the presence of existing sports equipment, HDFC's support has provided a significant quantity of new sports goods. This has likely enhanced the quality and variety of available sports activities, leading to increased student engagement and participation in physical education.

All twelve schools (100%) agreed that the timetable has a sports period for students all twelve schools claimed that they organize annual sports events. On further exploration of the benefits of sports support, teachers highlighted significant benefits from enhanced sports opportunities, as shown in the following graph.

Graph 19: Benefits of Sports Goods (N=12)



Certainly, a wide variety of benefits were shared by teachers, which mainly included – an increase in the type of games and materials (83%), 75% cited that students enjoy the games and sports items, 67% thought that students became more active for sports and bonding between them has been developed. 42% felt that students are regular now, which indicates improved regularity. It can be seen that sports-related support has been beneficial for the students as it not only provides physical and motor skills development but also generates mental bonding with their peers.

All schools acknowledged the timely delivery of sports goods and materials. However, half of the schools (50%) found the provided sports materials sufficient, while the other half considered them inadequate given the student population. Around 50% of schools rated the quality of sports goods as excellent, 33% as satisfactory, and 17% as not good. This component needs to be taken into consideration that the materials supplied to the schools must be quality-certified and durable enough for long life.

Based on discussions with the students, it was found that they have a keen interest in sports. Some students, particularly boys, expressed a desire to have more time for sports during school hours and were even willing to skip their mid-day meal for it. The students also raised concerns about the quality and quantity of sports materials concerning the number of students. Overall, the students expressed their appreciation to HDFC Bank for their valuable support.

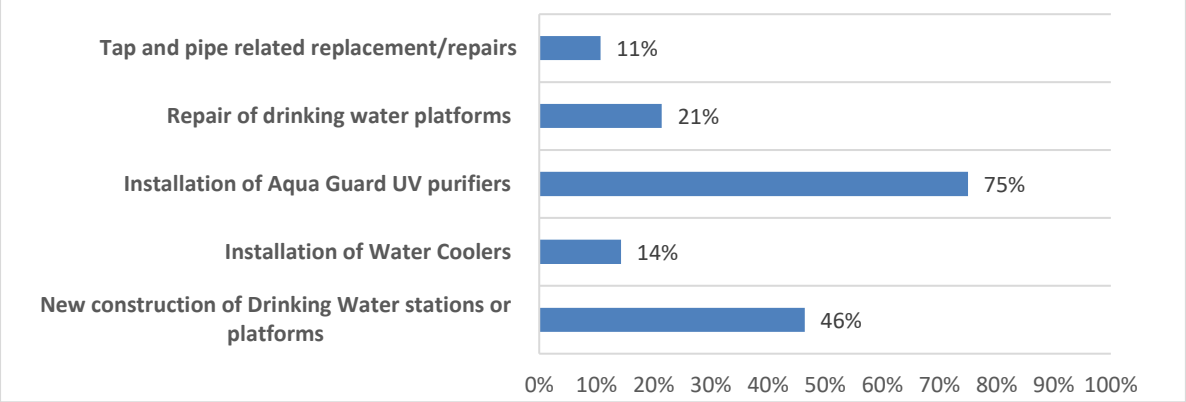
4.2.5 INFRASTRUCTURE SUPPORT – DRINKING WATER

Under the support of HDFC Bank, all the target schools in Jharkhand were required to indicate the source of drinking water and the availability of other drinking water-related facilities. After receiving this information, a physical verification was conducted, and various support was provided to the students.

Out of 30 schools, 28 (93%) reported receiving support related to drinking water, while the implementation partner claimed that they supported all targeted schools under the project.

Of the 28 schools that accepted that they received the support, 13 schools (46%) claimed that new construction of drinking water stations and platforms was undertaken, followed by 14% (4 schools) that received water coolers at their premises. Three out of four schools (75%) received Aqua Guard UV filters. The following illustration depicts the type of support received by the schools.

Graph 20: Type of Support Received – Drinking Water (N=28)

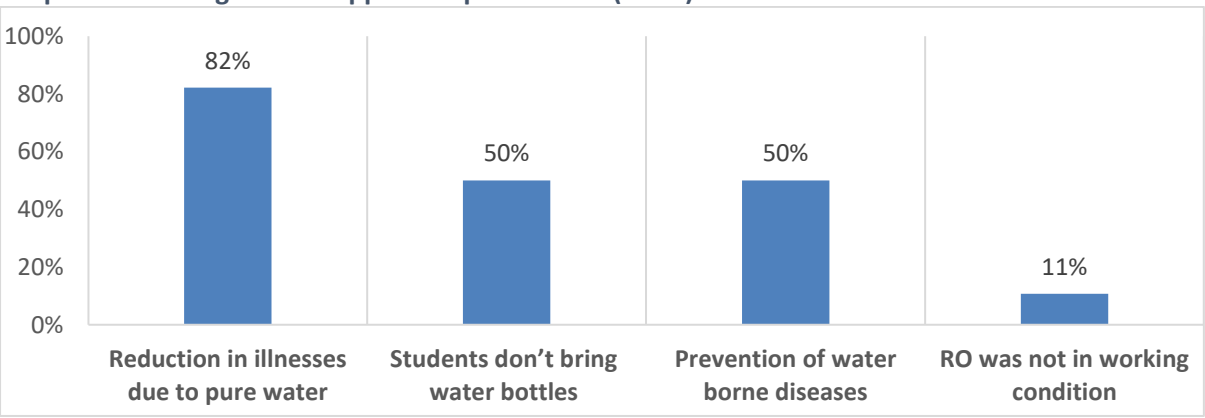


To make them functional, many schools received repair and replacement support for taps and pipes.

Benefits from HDFC Bank Support

The principals and teachers were asked to specify the type of support received under drinking water-related support. According to their perceptions, ensuring access to drinking water through HDFC Bank support provides significant benefits to students, including a reduction in illnesses (82%) and help in the prevention of waterborne diseases (50%).

Graph 21: Drinking Water Support Helps Students (N=28)



Furthermore, an impressive 50% of students now find it easier to stay hydrated as they no longer need to bring water bottles from home. This positive change reflects improved convenience for everyone.

About 89% of schools (25 out of 28 schools) confirmed that the drinking water facilities were provided and installed on time, and improvement works were completed on time. About two-thirds of schools (71%) reported that the drinking water facilities are sufficient for current student needs.

The feedback on the quality of the products or materials provided was mixed. Thirty-two per cent of the schools rated it as excellent, 43% found it satisfactory, and 25% considered the quality as 'not good' and were unhappy. This indicates a range of opinions on the quality of the support provided, and it suggests that the expectations of the school officials were not fulfilled.

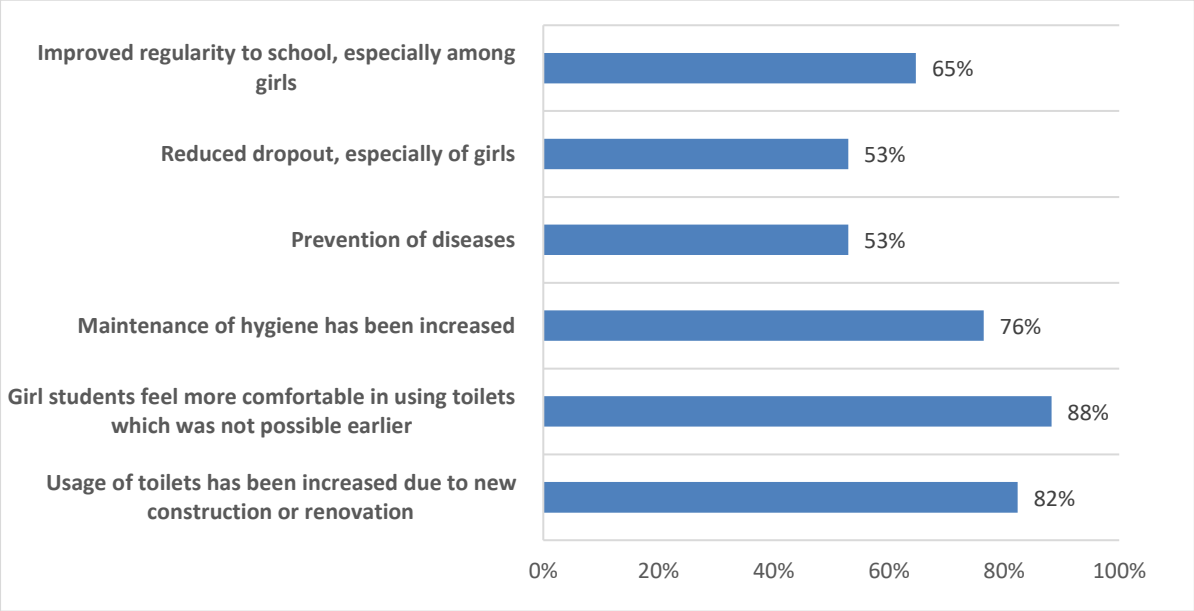
4.2.6 SUPPORT FOR REPAIRS & RENOVATION OF TOILETS

HDFC Bank supported repairing and renovating school toilets and related facilities to ensure students could use them. Out of 30 schools, 17 confirmed that they received support for toilet-related issues.

Only 1 school reported the construction of new toilets, while all 17 schools confirmed that repairs were carried out in their existing toilets. Among the 17 supported schools, 13 (76%) already had functioning toilets, eight (18%) had toilets with broken doors, and four (schools had toilets without water. Minor repairs such as floor plastering, wall painting, and ensuring water availability were provided under HDFC Bank's support.

Information regarding how HDFC Bank's support for toilets has helped students reveals that toilet usage has increased among students, and girls feel more comfortable using the facilities. Approximately 88% of schools have confirmed this fact. The following graph illustrates how students have benefited from this support.

Graph 22: Type of Benefits from the Toilet Support (N=17)



The support had a significant positive impact on students by improving hygiene (76%), preventing diseases (53%), and increasing toilet usage (88%). It also improved school attendance, particularly among girls (65%), which decreased dropout rates (53%). The new toilets also made female students feel more comfortable.

The assessment of the toilet support showed that 94% of the schools reported that toilets were constructed within the promised timeframe. However, out of the 17 supported schools, only 71% felt that the toilets were adequate for the current student population.

Only 47% of schools had a dedicated budget allocation for cleaning and minor repairs for the toilets. Inadequate maintenance could lead to toilets becoming less usable over time. This situation can particularly impact students' regularity, especially girls, who may face increased difficulties in accessing clean and functional facilities, potentially affecting their school attendance and overall comfort.

Principals and teachers were asked to comment on the quality of the constructed or renovated toilets. More than half of the schools (53%) considered the quality to be excellent, while 35% expressed that the quality was satisfactory. However, 12% (2 schools) found it to be 'not good' and considered it ‘bad’.

Out of 30 schools, only 17 received support for the construction of toilets, indicating a high demand for such improvements. The HDFC grant addressed this by repairing existing toilets and constructing new ones, but feedback on the quality remains mixed. Despite the support, still, three out of ten principals (29%) feel that the toilets are inadequate for the current number of students, and the limited school funds for maintenance could result in them becoming unusable over time. This issue needs to be addressed at the school level.

4.2.7 INFRASTRUCTURE SUPPORT – BaLA (Building as Learning Aid)

In order to create a joyful and conducive learning environment, HDFC Bank has incorporated the BaLA component into its support. Results have shown that 24 out of 28 schools (86%) reported receiving support for BaLA, with colorful artwork painted on school walls. According to principals and teachers, the BaLA initiative from HDFC Bank has made the school environment livelier. The artwork and paintings have helped students to enjoy and understand the visuals and interpret them. BaLA has also provided visibility to parents and the community, allowing them to see how their children study in a joyful environment.

The BaLA support has significantly enhanced the learning environment by promoting creativity and playfulness, leading to improved student engagement through colorful and creative spaces.

Conclusion and Recommendation

After analyzing the results of the study, we determined that the schools were provided with assistance and formulated a series of suggestions. The subsequent text outlines the outcomes of the conversations with the principals, teachers, and students, as well as the proposed actions for future projects.

4.1 CONCLUSION

A total of 30 schools were covered in the assessment and physically visited to assess the status of support in the schools. Under the assessment, the key respondents were principals, teachers and students who were the key beneficiaries of the support.

The vast majority of the principals demonstrated extensive expertise, with 67% being over 46 years of age. Their substantial teaching background and lengthy tenure (60% having served at their current school for over 20 years) equipped them with a profound understanding of their schools' requirements and obstacles, thus promoting consistent leadership.

The school principals have recognized the significant impact of the HDFC Grant in enhancing school infrastructure and strengthening educational capacity. All schools have been aided with the implementation of SMART classes. Additionally, 60% of the schools have received support for developing libraries, 40% have obtained sports equipment, and 37% have benefited from the establishment of STEM labs. Moreover, drinking water facilities were repaired and ensured in 93% of the schools, 80% received Building as Learning Aid (BaLA) support as wall paintings, and 57% received construction, repair, or renovation of toilet facilities.

Smart Classes

Under HDFC Bank's support for Smart Classes, all schools received the support, and support has played a significant role in enhancing teaching and learning. 96% of teachers opined that they could see an increase in student attendance, followed by 79% who witnessed an improved understanding of concepts and higher enrollment and outcomes (57%). Teachers find digital content-based education effective, with 100% rating it as very effective. Digital content-based education provides a joyful learning environment as shared by 92% of teachers.

Key resources provided include smart LED interactive panels and digital content for various subjects. Suppliers/vendors (89%) efficiently handled the installation.

Challenges remain in electricity issues (46%), limited seating (46%), outdated content (32%), and equipment maintenance (18%). While most teachers (93%) are satisfied with digital education, 77% of schools lack maintenance support, and only 29% (N=8) have a budget for minor repairs, potentially affecting the long-term sustainability of Smart Classes.

HDFC's initiative has positively impacted student engagement and learning outcomes. However, to ensure sustainable success, it is essential to address ongoing maintenance and resource constraints.

STEM Lab

Out of the 30 schools, 11 received support from HDFC to establish STEM labs. Prior to this initiative, 7 schools had functional STEM labs, 1 had an inoperative lab, and 3 did not have a lab at all. The support encompassed a range of equipment and materials, including science and math models (80%), whiteboards (20%), and tools for science projects (60%). While the STEM labs were accessible to all Grades 7-8 students, the availability for senior secondary students (Grades 9 and above) was notably limited.

Teachers reported significant improvements due to the STEM labs, including increased student interest (90%), enhanced engagement through practical demonstrations (80%), and better subject understanding (60%). However, 70% noticed improved attendance, and 60% saw better marks in STEM subjects, suggesting a moderate overall impact.

About 30% of the schools thought that the labs were inadequate for their student numbers, while the STEM labs were functional and mostly installed on time.

Library

HDFC's support has had a positive impact on 18 out of 30 schools, resulting in significant improvements. Specifically, 57% of the schools received new books, 93% received storage racks, 71% received library furniture for seating arrangements, and 7% benefited from infrastructure renovation. This support has enriched educational content, cultivated improved reading habits among 71% of students, enhanced projects-making and related searches for 43% of them, and boosted academic interest for 57%. Furthermore, 29% of teachers reported improved student marks as a result of this assistance.

All educational institutions have received the prescribed books and materials within the agreed-upon timeframe, with 57% of them rating the quality as excellent. As a result, the supported libraries are now fully operational. Nevertheless, 57% of the schools have reported that the library resources are inadequate for their student population. Furthermore, the allocation of library periods is predominantly limited to middle school classes, with only a few schools accommodating senior or secondary students.

Sports

HDFC's support for sports has had a positive impact on 12 out of 30 surveyed schools. The support entailed the provision of new sports equipment, including footballs, volleyballs, and cricket kits, thereby enhancing the quality and variety of sports activities. Prior to receiving the grant, 6 out of 12 schools already possessed some sports equipment in good condition, which was actively utilized by students. The introduction of new equipment likely led to increased student engagement and participation in physical activities. Additionally, nearly all schools organized a Khel Mela or annual sports event in the past year, and each school incorporated dedicated sports periods into their timetables.

The provision of support yielded significant benefits: 88% of students expressed enjoyment of the games, 76% reported increased physical activity, and 42% demonstrated improved consistency. Furthermore, 83% of teachers noted an expansion in sports options, and 67% observed enhanced student bonding. All schools received their equipment punctually, with 50% rating it as excellent, 33%

as satisfactory, and 17% as inadequate. It is imperative to consider this aspect, and the materials supplied to the schools should undergo quality certification to ensure durability for long-term use.

Toilet Facilities

Principals have reported notable advancements in toilet sanitation and usage, as 17 out of 30 schools have received assistance for toilet construction or renovation. A majority of principals (53%) express general satisfaction with the quality; however, 71% of the toilets are considered adequate for the student population. The absence of maintenance budgets raises concerns about potential usability issues in the future.

Drinking Water Facilities

Improvements in the provision of drinking water facilities encompassed the installation of new water coolers in 28 out of 30 supported schools, Aqua Guard UV purifiers in 75% of the facilities, and the establishment or refurbishment of water stations in 46% of the schools' sites. Although the projects were completed in a timely manner at an 89% rate, only 71% of the facilities were deemed sufficient to meet current needs. Principals provided varied feedback on the quality of the facilities, with 32% rating it as excellent, 43% as satisfactory, and 25% as not good.

BaLA Initiatives

Balanced and Literate Environments (BaLA) has implemented improvements in the learning environments of 24 out of 30 schools, leading to the creation of more vibrant and innovative spaces and the enhancement of sports facilities. These endeavours have had a notable impact on student engagement in school-related activities.

The HDFC Grant has significantly contributed to various aspects. However, to ensure a long-lasting impact, we need to focus on improving facility sufficiency and maintenance funding.

4.2 RECOMMENDATIONS

A few key recommendations are as follows:

- It is essential to ensure that a maximum number of teachers receive training to utilize equipment and digital content effectively in smart classes. In the event of teacher transfers to other schools, it is imperative that the remaining teachers are capable of continuing to use smart classes for student benefit. Furthermore, it is recommended that a maintenance budget of a minimum of two years be allocated to ensure the sustained functionality of these smart classes.
- In the forthcoming stages, it is recommended that the designated implementation partner undertake a comprehensive needs assessment and subsequently furnish HDFC Bank with a detailed narrative report accompanied by relevant photographs. Following a thorough verification process, the subsequent disbursement of funds should be contingent upon the successful procurement of the stipulated equipment and completion of civil works.

Findings on the OECD Criteria

This chapter presents the impact assessment findings within the framework of OECD research criteria, evaluating the overall impact of the project supported by HDFC Bank on the development of smart schools.

Relevance

The project has been identified as pertinent to government schools across 5 districts in Jharkhand. Its primary goal is to enhance digital learning in rural and peri-urban government schools by providing advanced infrastructure in smart classrooms. The selection of schools was carried out in consultation with the government department, and a rapid needs assessment was conducted. The support provided for infrastructure development in these schools has been highly beneficial. **The support provided by HDFC Bank under this section has been incredibly Relevant. This indicates that the requirements were recognized, and schools were chosen based on the data obtained from the needs assessment.**	5

Coherence

The project ensured that students had ample access to smart classrooms for interactive sessions in all subjects. They also received resources for general knowledge and current affairs. Additionally, students had access to library facilities, sports equipment, WASH facilities, and BaLA paintings to enhance the school environment. Moreover, they were able to utilize STEM Labs for practical exercises and a better understanding of concepts and principles. The principals and teachers expressed their gratitude for the valuable support from HDFC Bank, which has proven to be highly effective and efficient. The project not only introduced smart classrooms and STEM Labs but also granted access to sports and library facilities, contributing to the improvement of reading skills and overall personality development. **The assistance provided by HDFC Bank has been recognized for its Coherence. It has offered an equal opportunity for both students and teachers to access support for enhancing digital classrooms and digital content-based learning through e-content and interactive panels.**	5

Efficiency

The HDFC Bank project provided valuable support to government schools in Jharkhand, reaching 5 districts. All the schools involved in the project offered smart classes and STEM Labs to students in Grades 6 to 8. However, there was a reported lack of trained teachers in each school to effectively utilize the smart classes, leading to limited usage. Despite this, principals and teachers acknowledged the positive impact of the interventions, noting improvements in students' grades and understanding of topics through practical exercises. The two key challenges have been found to be equipment maintenance and teachers' willingness to take smart classes. No follow-up mechanism was found at the implementation partner level to ensure the usage of smart classes and STEM labs. **The intervention was identified as moderately efficient for the students as well as teachers.**	3

Effectiveness

The utilization of interactive panels in smart classes has greatly benefited students in Grades 6 to 8. However, challenges such as a shortage of adequately trained teachers and inconsistent support from the supplier and implementing partner have hindered the full potential of smart classes. It is crucial to address these issues to ensure the consistent and effective use of smart classes in schools. STEM Labs and Libraries have proven to be highly beneficial for students, fostering a deep understanding of science subjects and improving their reading habits. Teachers have expressed satisfaction with the support provided by the STEM labs and libraries, noting that these resources have had a positive impact on student learning outcomes. Other support for the library, sports, toilets and drinking water facilities were found satisfactory. **The support provided by HDFC Bank has been somewhat lacking in effectiveness. While some interventions have been beneficial and impactful, others have not been able to make a significant impression or bring about the desired results**	3

Impact

After one year of support, the students are not receiving smart classes regularly due to the non-availability of trained teachers. This lack of availability has limited the impact of smart classes on students, despite other forms of HDFC Bank support generating positive effects in schools. While teachers perceived that students benefitted from the smart classes when they were being conducted, the assessment team observed that smart classes were not being held regularly. Teachers have expressed a preference for focusing on completing the syllabus and utilizing smart classes when they deem it necessary based on the relevance of the topics. The STEM lab, Library, and sports-related support provided by HDFC Bank have had some impact on both students and teachers. Students have shown increased	2.5

regularity in attending school, and there have been noticeable improvements in their academic performance and scores. The modern resources received from HDFC Bank have not only enhanced the overall learning environment but have also contributed to the school's growing reputation and popularity within the community. **The HDFC Bank's support has not had a huge impact on students and teachers. Although their assistance has led to some improvements in students' learning outcomes, as endorsed by the teachers and principals, the support has not been able to affect various aspects of the educational environment, contributing to enhanced overall learning experiences for the students.**	

Sustainability

All the schools had the resources that will be available for longer time if they retain them functional. They would need some support for the maintenance and repairs or replacements. As of now, schools only have a limited untied fund but no dedicated fund for the maintenance and management of resources provided under the project	2

Overall Average Score – 3.4 out of 5

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