Impact Assessment of Smart School Development Project

Uttar Pradesh

Impact Assessment Report

HDFC BANK | PARIVARTAN
A step towards sustainable progress

IMPACT
Partners in Social Development

Impact Assessment of Smart School Development Project - Uttar Pradesh

Impact Assessment Report

Project ID	P0478

Abbreviations

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

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Introduction

1.1 Background

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

During the last few years, HDFC Bank supported the efforts of the government education department by providing them with need-based support to 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, including SMART classes and digital classrooms along with developed infrastructure led to improvement in student learning outcomes, and an increase in enrolment and attendance. The HDFC Bank's support for the schools enhances the school's reputation among the local communities and stakeholders and teachers get equipped with techno-pedagogy also.

1.2 About the Project

HDFC Parivartan provided a grant to **Ambuja Cement Foundation** to work with 50 schools across Varanasi (30 schools) and Mirzapur (20 schools) for a period of 18 months (December 2021 to June 2023) and strengthen these schools through infrastructure development and capacity development support. Key support provided to the target 50 schools under the grant included setting up Digital Classrooms, Libraries, Sanitary napkin vending machines, incinerators and sports facilities, along with the needed repair and maintenance of the infrastructure. The capacity-building component included training of teachers on using the Kyan projector (along with the application software for smart classrooms); online training of a few teachers on sports; SMCs to improve their effectiveness in the school development and capacity building of adolescent girls on menstrual hygiene practices.

The project was implemented in 50 schools across two districts of Uttar Pradesh. This included 30 schools in 3 blocks of Varanasi (14 in Araji Lines, 7 in Kashi Vidya Peeth and 9 in Harahua). The other 20 schools were from 3 blocks of Mirzapur district (10 in Jamalpur, 6 in Majhwa, and 4 in Narayanpur). Through these 50 schools, the project directly benefitted almost 2500 students and 500 teachers.

1.3 Key Activities Undertaken under the Project

Repair work/refurbishment of the school building such as walls, verandah, etc.
Repair work for Toilets
Repair work for Drinking water facilities
Provision of RO and Filter for Drinking Water
Supporting basic furniture in the school or smart class
Upgrading library with books and/or sitting arrangements

Installation of a Smart class
Setting up Digital classrooms
Activity Corner in Primary Schools
Set up of mini science lab government schools
SMC training and exposure visits for the SMC members to model schools

1.4 Objective of 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 smart school development project. The ensuing chapters of this report present the methodology and findings of the study.

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 Ambuja Cement Foundation. Also included in the matrix are the indicators proposed for the assessment.

Activity	Outcome achieved		Assessment Parameters
	Quantitative	Qualitative	
Set up Digital Classroom	50	• 50 digital classrooms in 50 schools. • Training of 500 teachers in 50 schools, to accesses Kyan set up and functioning for betterment of education.	• 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
Digital Class Training of Teachers	5	• Organized digital class training on methods used for its operations which helps easy learning for students, allows teachers to track their progress, and highlights to the students' performance. • Enhance skill of students and increase their interest of education.	
Power backup for K-yan	50	• Inverter & Battery for K-yan power backup	
Sitting arrangement in SMART Class	35	• Sitting arrangements in smart class at 35 schools	
Library established	50	• Books for all class students in 50 Schools • It instils confidence in reading. • It will increase their reading habit	• 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
Establishment of Library Corner	50		
Installation of Incinerator machine for menstrual hygiene	50	• Installed 50 incinerator and 50 vending machines.	• Average monthly consumption of sanitary pads through vending machines • Utilization of incinerator • Change in KABP regarding menstrual hygiene due to training
Training on MHM	3	• Organized MHM training in 3 schools of Varanasi	
SMC Training	8	• SMC training events to strengthen the capacity of SMC members	• Average attendance of members in SMC meetings (before and after the training) • Recall of issues discussed during the training
SMC Exposer	1	• Organized the one days SMC members exposer visit to strengthen the capacity of SMC members for 30 SMC members.	

Activity	Outcome achieved		Assessment Parameters
	Quantitative	Qualitative	
			• Perception on usefulness of the training (including exposure visit, wherever applicable)
Repair and Manitainace of school	50		• 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
Sports Promotion/ Events Khel Mela	03	• Organized the 3 Khel mela	• Participation in Khel Mela • Change in sports related practices of students • Recall of sports training by teachers • Perception of teachers on usefulness of the sports training • Utilization of sports equipment
Sports Promotion/ Events	50	• Virtual training for the teachers to enhance their Capacity in sports teaching and use of sports materials as a teaching aid.	
Capacity Building of Teachers	5	• Organized the 3 days training on science subject and 1-day training on Math's subject and 1-day training on Hindi subject for the teachers to enhance their Capacity in different methods of teaching and use to new technologies as teaching aid	• Teachers' perception on usefulness of the training • Utilization of new technologies as teaching aids
Establishment of Mini science cum labotary (Middle School & above)	50	• Established Mini science Lab. • Organized the 12 days STEM science lab training to strengthen the capacity of teachers	• Use rate of STEM Lab (average students accessing STEM lab per week) • Perception of teachers on their capacity to effectively use STEM lab
Drinking water facility	50	• Installed the 50 Voltas Water Cooler and 50 Aqua guard UV Purifier in 50 schools of Varanasi & Mirzapur. It will be benefited to approx. 24474 students at both districts. Students taking safe drinking water.	• Functionality of equipment
Awareness session to children on health and hygene	56	Organized the 56 awareness sessions on WASH to develop understanding about the importance of hand washing with soap.	• Recall of activities conducted on WASH • Change in WASH related KABP of students

Study Methodology

The project carried out several activities in the target schools. The table below provides the list of activities, as reported by the Ambuja Cement Foundation. Also included in the matrix are the indicators proposed for the assessment.

2.1 Assessment Framework

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

Using this framework, the following questions/indicators were suggested to assess each program, using the six parameters stated above.

	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 supprot 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

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

	Indicators/Questions
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
Effectiveness	• The extent to which Digital Classroom contributed in improving the retention and regularlity of students in classes • To what extent WASH support helped girls and boys students

Impact	• Proportion of teachers and students stated the type of benefits and achievements
	• Proportion of teachers/principal reported:
	  ○ Increase in attendance or participation of students
	  ○ Improvement in learning outcomes of students
	  ○ Improvement in critical thinking and analytical skills of students

Sustainability	• Teachers and Principal have the understanding on how Digital Classroom and library must be used to support students and in achieving the desired and improved results/learning outcomes. • Mechanism in place for regular maintenance and repairing, availability of vendors' contacts and allocation of funds for smooth functioning of Digital Classroom and upkeep of infrastructure

2.2 Research Methods

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

2.3 Geographic Coverage

The project was implemented in 50 schools across two districts of Uttar Pradesh. This included 30 schools in 3 blocks of Varanasi (14 in Araji Lines, 7 in Kashi Vidya Peeth and 9 in Harahua). The other 20 schools were from 3 blocks of Mirzapur district (10 in Jamalpur, 6 in Majhwa, and 4 in Narayanpur). The assessment covered both the districts in Uttar Pradesh.

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 50 target schools, **18 schools** (approximately 30%) were covered under the assessment, including 11 schools from Varanasi and 7 schools from Mirzapur (distributed in proportion to the number of schools in each district). These schools were identified from all the 6 blocks of the two study districts—Varanasi and Mirzapur.

In each selected school, **20 students, 3 teachers, 2 SMC members 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

From each of these schools, we propose to include **20 students, 3 teachers, 2 SMC members and 1 Principal**. For students, we propose to conduct 4 FGDs in each school, with 5 students in each FGD, including 2 FGDs with boys and 2 FGDs with girls. For other stakeholders, we will conduct IDIs using a semi-structured discussion guide.

The following sample was covered under the assessment:

Target Group	Varanasi	Mirzapur	Total
Schools	11	7	**18**
Checklists	11	7	**18**
Students	44 FGDs	28 FGDs	**72 FGDs**
	373 students (Boys = 171; Girls = 202)		
Teachers	22	14	**36**
Principals & SMC Members	22	14	**36**

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 and 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.

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 ACF officials.
- Both team members completed the data collection in one day covering the qualitative and quantitive interviews and physical verification of the infrastructure support.
- 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 the smart class teaching were interviewed.
- Later, physical verification was undertaken which was facilitated by the teachers and/or principals to give the details of the features and status of the support.
- In the end, a request was made to the teachers to allow and interact with the students who have undergone sessions in the smart class and information was gathered in mini-groups without disturbing the classes.
- Before the return, the principals and teachers were duly acknowledged for their coordination and support offered for the impact assessment study.

2.10 Data Analysis and Report Writing

Post-data collection, all the collected data were processed at the IMPACT office including data cleaning and scrutiny. All the data analysis was undertaken in MS Excel and/or SPSS and frequency runs were obtained. For the qualitative data, a thorough content analysis was done to obtain the results based on the components of the projects. Post-completion of tabulation and crosstabs, the interpretation of results was undertaken. The report writing was undertaken by the senior researchers.

2.11 Challenges Faced

- Principals provided permission for the data collection after discussing it with the partner NGO.
- Examinations were scheduled in the schools due to which delays were faced.
- Festive season (sawan) in the city troubled the timely travel to the schools due to multiple processions ongoing on the roads.

Current Status of the Equipment and Supplies Provided through the Support

This chapter discusses the assessment findings of the physical verification of the support provided under the smart school infrastructure development project to the sample of 18 schools. The findings discuss the current status of smart classes, toilets, drinking water facilities, library materials, sanitary pads vending machines and incinerators for disposal, sports equipment and STEM labs.

3.1 Smart Class

Under the HDFC Bank Project, all 18 schools covered under the assessment confirmed the receipt of the smart class set-up. Each school was provided with 1 smart class where a smart projector named 'K-Yan' was installed. Along with the smart projector (K-Yan), a keyboard and mouse are also given which eases the operations for the teachers when they operate the equipment. The K-Yan device is also supplied with digital content stored in a folder within the projector to access the desired content instantly and continue the discussion on the topics being taught during the class.

K-Yan is the Integrated Digital Teaching Device developed in collaboration with IIT Mumbai in 2004. It is a portable, easy-to-use, plug-and-play device that converts any wall into an Interactive surface. It offers an unparalleled use experience within a classroom and is a powerful device that makes group learning easy. It is comprised of a High-End Computing System, a High Luminosity Projection system with a Virtual Interactive Board feature to convert any projection surface into an Interactive board. This is Internet-ready and embedded with High high-quality audio System, a DVD Drive, and 6 USB ports etc.

In all 18 schools, K-Yan devices were available but none of the schools had a smart class with a K-Yan projector fixed and ready to use. Out of 18 schools, 15 K-Yan devices were found functional but not being used for teaching at all. The reason for not using was the availability of Smart TVs supplied by the Government (LED with touch screen feature). In 3 schools, K-Yan projectors are not working and there is no provision for repair and maintenance.

All three schools informed that they requested ACF to manage it but did not receive a suitable response. None of these 3 schools had the warranty papers or other related documents for contacting the supplier.

The K-YAN projector is not being used in schools, and none of the schools have been using its pre-loaded content. It was observed that this is primarily due to the insufficient training provided to the

teachers. Teachers have mentioned that the projector is a complex and delicate technology and hence it has been out of order in a few schools.

In Varanasi, one of the principals mentioned that initially, for a few months, the teachers used the K-Yan projector. Around June 2023 (over a year ago), the school received a Smart TV from the Education Department. To install the TV, they removed the projector and installed the TV in the smart class. Since then, the projector has not been used and is kept in safe custody. The principal could not confirm if the teachers at the school have the technical skills to use the projector. She did mention that the teachers struggled initially to use the content of the K-Yan projector. Now, when the Smart TV is not operational, the school intends to start using the K-Yan projector again but has not been able to find a technician to install the projector. Hence, K-Yan is still not in use.

In Mirzapur, the school received a K-Yan projector but couldn't use the content that came with it. When it was installed, a password was set to access the content, but it didn't work. The school informed the ACF team, and they agreed to visit and reset it, but it never happened. Currently, the K-Yan projector is sometimes used by connecting an Android mobile phone to show YouTube videos to students.

One of the schools in Varanasi reported a problem with its projector to the ACF team, which provided a helpline number. A representative visited the school and took some parts from the projector for repair, mentioning that the school might have to pay for the replacement of the part if it couldn't be repaired. The principal stated that they don't have a budget for this and it's likely that the projector may never be used again.

Most schools have received a Smart TV from the Education Department, allowing them to connect to E-Vidyashakti, a live classroom for children, and other content provided by the government. This has made the K-Yan projector almost redundant.

The principals and teachers have informed that initially, K-Yan projectors were used for the smart classes for some time. However, last year, the government provided Smart TVs for the live e-classes. Because of the limited number of classrooms, Smart TVs were installed in the existing Smart classroom supported by HDFC Bank. It is easier to operate the touch screen Smart TVs compared to the K-Yan projectors, which require multiple components. As a result, the K-Yan projectors have been placed in storage and are rarely or never used for teaching.

It seems that the support for HDFC Bank has become outdated. However, the K-Yan projectors can still be used for smart classes if the newly received smart TVs malfunction.

3.2 STEM Lab

Under the project, all 18 schools (as claimed by ACF) were provided with a mini-science lab or STEM Lab in which a variety of science models, charts and equipment were given. Only 15 schools confirmed the receipt of STEM Lab support. All 15 schools had STEM lab materials and racks that were provided under the support. Not all the schools had a dedicated room for the STEM Lab and also, and there were three schools where STEM labs and Smart Classes were in the same rooms.

In almost all schools, the STEM Lab is utilized by science teachers as informed by the science teachers in the schools during the visit. The support is crucial for students as they use models and equipment according to the academic curriculum and lesson plans. In Mirzapur, one teacher felt that the support provided for the STEM Lab was insufficient. The expectation was to have a complete STEM Lab set up so that the entire curriculum could be covered.

In Varanasi, one of the schools received materials for the STEM Lab, but it had not been used for months, as evidenced by the status of the equipment (see adjoining picture). The STEM lab setup was arranged in a room where the principal had a desk, storage for sports goods, and other stock such as valuable materials. The reason for not using STEM Lab was the non-availability of a science teacher and the class teacher with expertise in different subjects was teaching science.

The assessment team found that the support for the STEM Lab was adequate for the purpose for which these materials were provided. The Science teachers are using STEM Labs. It was noted that the implementation partner should have assessed the specific needs of each school before finalising the materials for the STEM Lab. Currently, it was seen that fixed support was provided to each school, which is not advisable. HDFC Bank must pay attention while making decisions on interventions and seek detailed information from the implementation partners. This would give the appropriate estimate for what is to be given and the volume of it.

Some of the pictures depict the status of STEM Labs in the schools.




3.3 Library Support

To enhance the reading skills among students and their confidence in their studies, HDFC Bank provided library-related support to all the schools. Under the support, books, plastic folders to display books on walls and stools (sitting options) for the reading corners were provided.

The assessment findings showed that the support was provided to 17 schools and it was very helpful. However, it was found that half of the schools (47%) already had established libraries with seating arrangements and bookshelves for storing books. For these schools, the support was not necessary as they already had functional libraries and did not need assistance with seating arrangements. Additionally, it was noted that principals and teachers were unlikely to refuse any offers or inquiries. Thus, the assessment team felt that all schools with existing libraries setup should have been given new books for students to read and enjoy, but the storage and display provisions offered were not deemed suitable.

It was mentioned that ACF provided “racks” for the storage of books in the library. These are essentially plastic bags with several pockets that can be put on walls. One of the principals mentioned that the books provided were outdated and not relevant for children. One of the principals in the school mentioned that they did not receive any desks or benches for the library. All they got were 8 casual plastic stools, which are not child-friendly.

One of the principals complained about receiving the same set of books that they already had in the library and considered those as older books.

The assessment team found that the library support for the schools was meaningful. The teachers and principals were happy in sharing that students have a keen interest in reading the books in the library and they get them issued also for their leisure time reading. Basis the discussion with teachers, the assessment team sensed that this support could have been better coordinated for the students.

Additionally, the implementation partner should have assessed the specific library needs of each school before finalizing the materials. It was observed that the same material support was provided to each school, which is not advisable. Some of the schools already had a library and seating arrangement and therefore this support did not add any additional value for students.

3.4 Sports-related Support

Under the HDFC Bank support, all the schools were provided with sports items to all the schools. Under the assessment, 17 schools agreed that they received sports items for the students. The teachers and principals were satisfied with the support and appreciated the support.

Students included in the discussions expressed their satisfaction with the sports materials and they reported using them and enjoying all the board games and sports.

The assessment team appreciates the sports-related support to the schools which was essential and being used by the students and teachers demonstrated their satisfaction. Though school officials still feel more materials should have been given, the assessment team suggests that whatever numbers or types of materials were provided were found to be satisfactory.

3.5 Drinking Water Facilities

Under the HDFC Bank support, all the schools were provided with water coolers and/or water purifiers (Aqua Guard). Under the assessment, 14 out of 18 schools agreed that they received support for the drinking water facilities.

The status of drinking water facilities support was found to be **unsatisfactory**. In a few schools, both the supplied items are functional (RO and water cooler). In 7 schools water coolers are not functional and lying unattended. In 6 schools, the RO equipment(s) are not in use due to non-maintenance or some fault in the functioning or needful replacements are required. These schools do not have funds to get them repaired or avail maintenance from external service providers. Though principals reported that they informed the ACF team, no response was received from them. Still, they are trying to get them repaired and expect to make all these functional.

In a few schools, there are no safety provisions and/or a lack of water supply, the principals have stored them in a separate room. In Mirzapur, one of the principals managed to mobilise the Gram Panchayat to construct a separate structure for the installation, the facilities are functional.

In most schools, the RO filters often experience functionality issues, such as the need for a filter change or problems related to water quality and supply. Consequently, the filters are not used, and instead, drinking water is obtained through a normal supply or students and teachers bring their water bottles.

The assessment team noticed that the lack of services-related provisioning and the cost of replacing filters as well as carrying out minor repairs are the main reasons for not managing and maintaining the supplied equipment. The support is satisfactory but lying unused, but schools need to seek financial assistance from the local community or government departments for the repairs to make the equipment fully functional for the benefit of the students.

In future programming, all these aspects need to be focused while budgets are being finalized.

3.6 Repairs and Renovation of Toilets

Under the project, schools were asked to specify the repairs and renovation works required for the toilets. Based on the requirements and budget availability at the implementation partner's end, essential support was provided. Out of 18 schools covered, 11 schools reported that some works related to toilets were undertaken under the HDFC Bank project.

Physical verification of toilets showed the pathetic condition of toilets in the schools because most government schools do not have a dedicated sanitation worker or sweeper. Moreover in schools that have sanitation staff, the workload is too much for dusting, cleaning and mopping the floors and one person cannot manage cleanliness daily. The repair and renovation work was completed, but the quality was not as good as expected, shared by the teachers. Some schools needed more focused work, but due to budget constraints with the implementation partner, only limited work was done. One principal reported that they asked for support to improve the girls' toilet, but they only received support for minor plastering for the boys' toilet, which was also of inferior quality.

The assessment team observed that the support related to toilets provided to the schools was somewhat crucial, but nobody ensured the quality and maintenance of the toilets. The responsibility largely lies with the schools, but due to a lack of resources, they do not have control over the management of cleanliness and maintaining the hygiene in the toilets. Additionally, the assessment team noted that all the schools are located in rural areas where the community and children lack awareness of health, hygiene, and the importance of sanitation. People expect cleanliness and hygiene for themselves but do not adopt behaviours to maintain them for the use of others.

It was also observed that even teachers and staff of the schools are ignorant towards maintaining cleanliness and appropriate sanitation levels in the students' toilet areas.

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

3.7 Menstrual Hygiene Management

To promote menstrual hygiene management, all 18 schools were provided with sanitary pads vending machines and incinerators. All schools confirmed the receipt of MHM support and reported the installation of vending machines and incinerators in the girls' toilets.

The assessment team observed that these machines and incinerators are not in use in any of the 18 schools covered in the study. One of the school principals mentioned that vending machines are not being used primarily because a girl needs to pay 5 Rs to get the pad and students would not have the money to pay nor their parents give them money for this purpose. The principal also continued with the next fact that incinerators operate on electricity and may not be safe for female students to use, so they do not switch on the incinerator machine.

Another principal mentioned that both machines are not functional and have continuously been out of order for more than a year now and have never been used. The school has created its incinerator to dispose of the pads that work on fire and is currently functional (see the adjoining picture). It was seen that both machines are installed in the girls' toilets but are not functional. The funds spent on this component do not demonstrate the effectiveness and impact in any sense.

The assessment team has arrived at the finding that the funds that were spent on the MHM component by providing sanitary pads vending machines and incinerators are of no use. The need assessment for such support was not undertaken in the project. In the majority of schools, both machines are either out of order or lying idle. Principals already informed us that the quality of the machines is not good and these have been out of order for a long.

Some of the pictures illustrate the conditions of the machines as follows:

3.8 Building as a Learning Aid (BaLA) Support

A total of 13 out of 18 schools claimed that wall paintings having artwork and communication messages were provided under the BaLA support. The BaLA support mainly included boundary wall paintings, verandah and classroom walls, etc.

The assessment team has noted that the BaLA support has been extremely beneficial. It provides a better insight into schools and creates a supportive environment for students. Students regularly see messages and artwork that guide them on what to do and what not to do, as well as what they should practice. The artwork helps stimulate creative thinking among students in both academic and general studies. As a result, students remain informed about national and international events and milestones. It also fosters a connection with the nation when they see images featuring the Indian flag or those related to the armed forces.

Some of the excerpts are presented as follows:

Study Findings

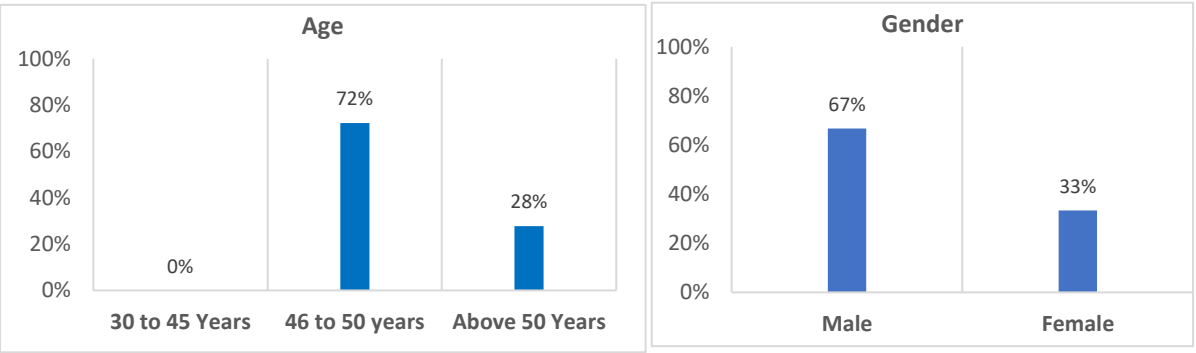
This chapter presents the findings based on the discussions with principals, teachers, and students across the project schools. The results provide insights towards the HDFC Bank's support in various areas, including smart classes, STEM labs, toilets, drinking water facilities, library resources, sports equipment, and other educational interventions. Through analysis of the collected data, this chapter highlights 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. These findings may differ from the results of the physical verification of the support provided at the schools.

4.1 Profile of the Respondents

A total of 18 principals were covered who were contacted and information was collected about the infrastructure support received for the schools. The following graphs show the age distribution and gender of the principals.

Graph 1: Distribution of Principals by Age and Gender (N=18)



The majority (72%) of the principals were found to be experienced and falling within the 46-55 years age range. Two out of three principals (67%) were males and the remaining one-third (33%) were females.

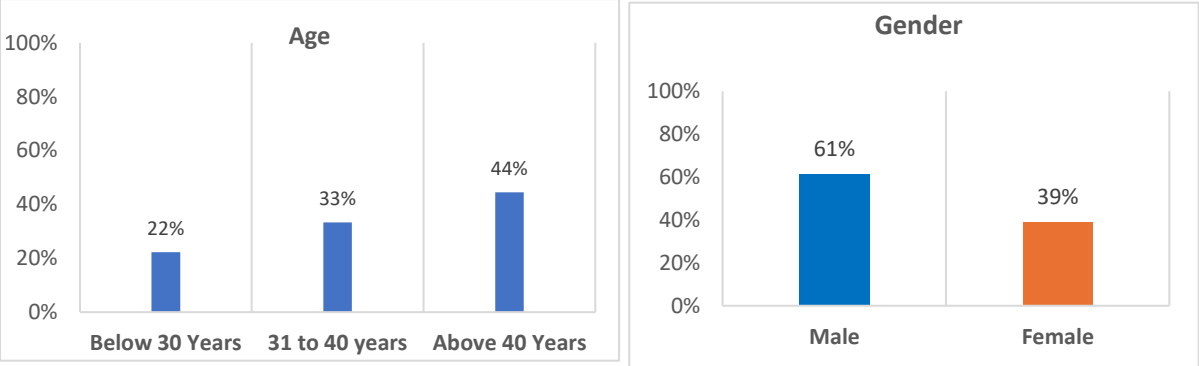
An overwhelming proportion of the principals (89%) have more than 20 years of teaching experience, with only 6% having less than 10 years or 11 to 20 years of experience. On further exploration, it was observed that most of the principals (89%) have been working at the current school for more than 20 years and the remaining 11% were there for either 1-10 years or 11-20 years.

Because the majority of these principals have been in the position for a long time, most principals were knowledgeable about the issues regarding the development of their school, which facilitates better decision-making for school improvement, greater community links, and consistent leadership.

In each school, two teachers were interviewed as a majority of the schools had on average 2 teachers who were associated with the smart class operations and managing the school-related aspects along

with the principals. 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=36)



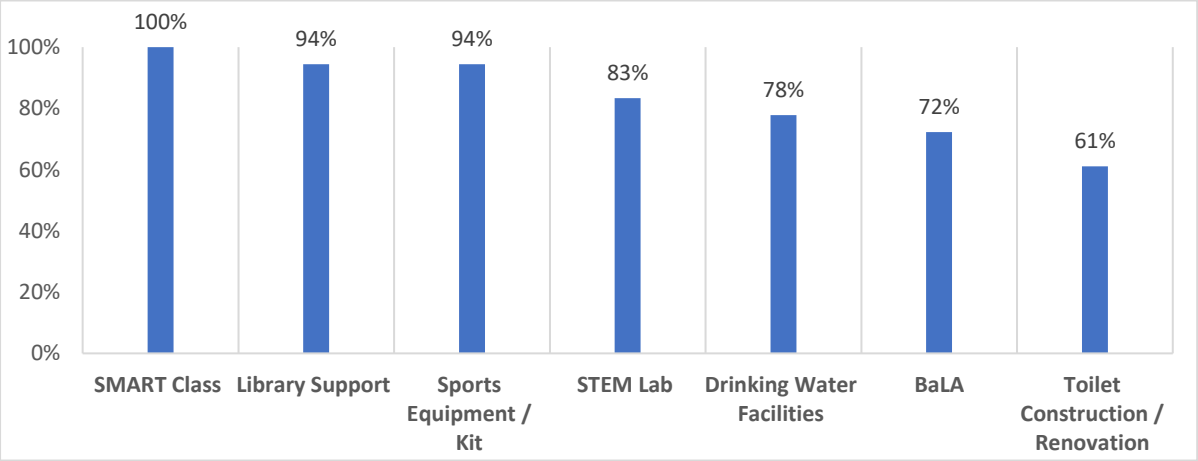
Among all, two out of five teachers (44%) were more than 40 years of age followed by one-third (33%) in the age range of 31-40 years and less than a quarter (22%) were below 30 years. This indicates that the schools had teachers who were more than 30 years old and had substantial experience in teaching. However, three out of five (61%) were males and the remaining (39%) were females.

About half the teachers (50%) had less than 10 years of experience, while 39% had 11-20 years, and the remaining (11%) were exceeding 20 years.

4.2 Information on Infrastructure Support

Under the project, different types of infrastructure support were provided to the targeted 50 schools incorporating the needful components. As the name of the project implies smart schools development project, smart classrooms were the common support that was given to all the schools. The following graph portrays the type of infrastructure support offered to schools.

Graph 3: Infrastructure Support Received through HDFC Bank Grant (N=18)



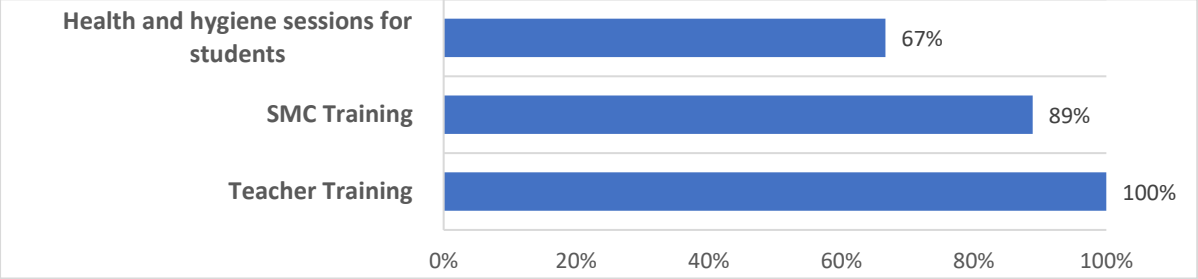
As the HDFC Grant focused on digital learning, 100% of schools were given a SMART Class setup. In addition to the smart class, 94% of schools received library support such as books for reading and sitting options and sports-related goods. More than four-fifths (83%) were supplied with models, equipment and charts for mini-labs for Science teaching so that students could gain interest in Science subjects. Regarding other infrastructure support, 78% of schools got improved drinking water facilities

in terms of RO and water filter machines, 72% received benefits of wall paintings under BaLA initiatives, and 61% of schools also underwent toilet(s) renovation (minor repairs).

It can be seen that all sorts of support were provided by HDFC Bank for making the schools equipped with smart classrooms and other needed infrastructure support so that students could get adequate facilities in the schools to make learning easier and ensure their regularity in the schools.

In addition, the schools were asked about the capacity-building initiatives offered to the stakeholders. The HDFC grant focused on capacity building with 100% of schools receiving teacher training for smart classes so that they can operate the smart class with efficiency and use them for teaching as shown in the following graph.

Graph 4: Capacity Building Support Received (N=18)

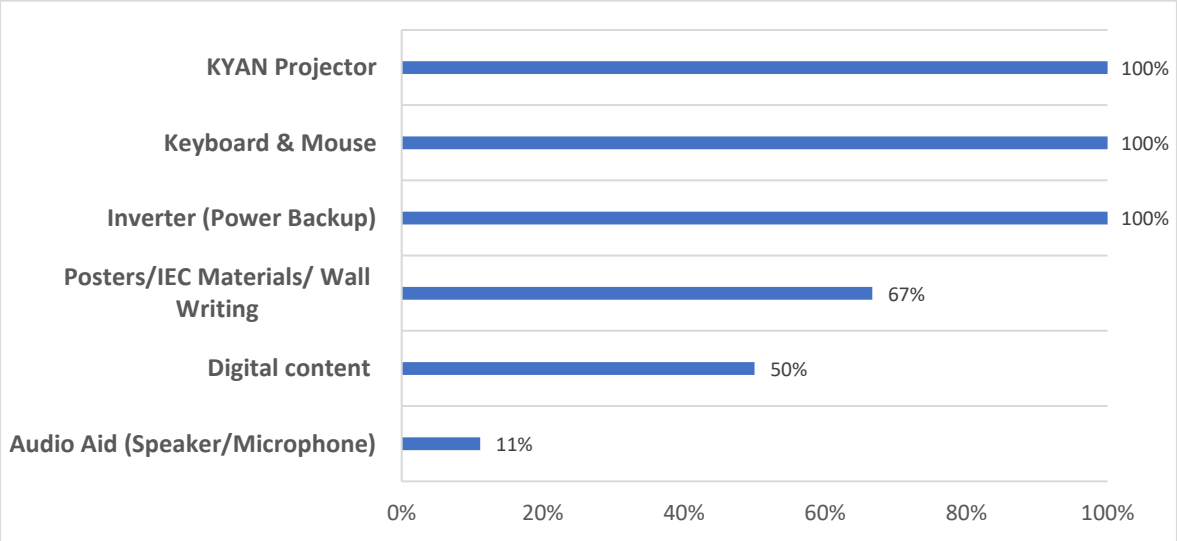


About 89% of schools reported receiving training for SMC members, and 67% of schools agreed that the health and hygiene sessions were conducted for students.

4.2.1 SMART CLASS

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

Graph 5: Support Received for Smart Class (N=18)

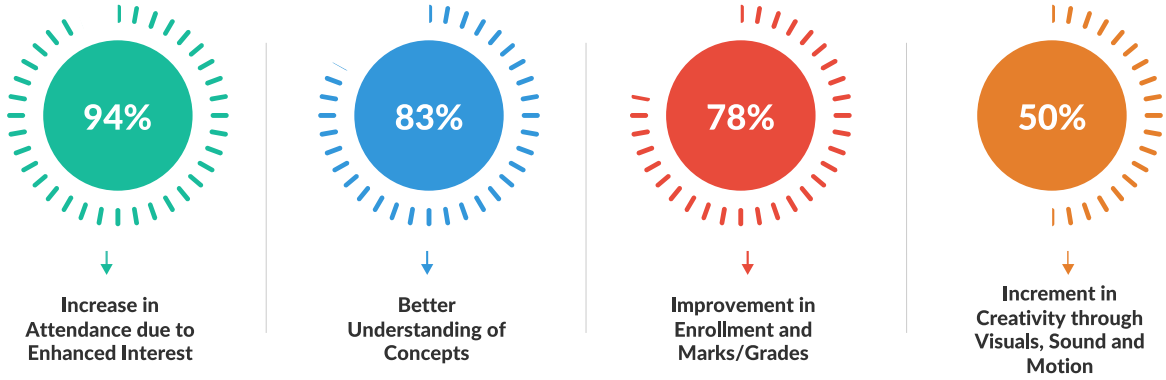


Within the SMART Class setup support, various components were provided to the schools. All the schools reported receiving KYAN projectors, keyboards, computer mouses and power backup (inverters along with the batteries). Other items reported by schools were digital content (50%) and audio aids (Speakers and microphones – 11%).

Wall paintings in the smart class were undertaken in only 67% of schools covered under the assessment.

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

Graph 6: Observed Improvements Among Students – After Initiation of Smart Class (N=36)



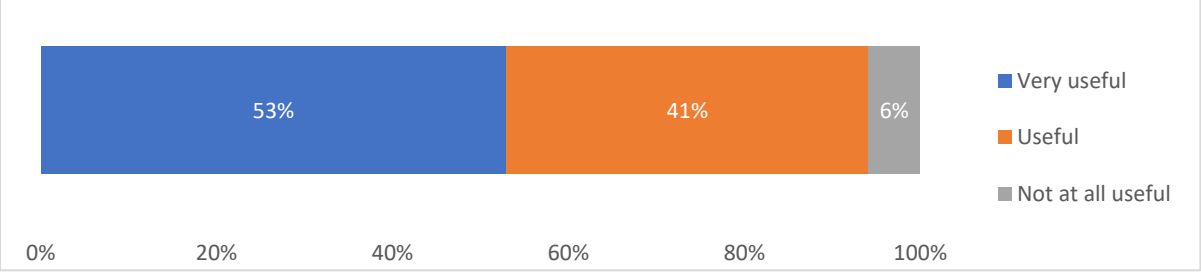
To capture the observation of teachers, a query was made on the type of improvements observed among the students after the initiation of the SMART class. Teachers shared that they observed several improvements since the initiation of the smart class. About 94% of them had an opinion that there was an increase in students' attendance due to greater interest in understanding the subject due to newer ways of teaching. Four out of five teachers (83%) reported they could see that students had a better understanding of concepts followed by three-fourths (78%) felt improvements in the enrollment and outcomes (scores and grades). However, half of them (50%) found increased creativity among the students through visuals, sound, and motion.

During the discussions, most students shared that smart class provided them an opportunity to gain knowledge through videos, motions, and sounds. Almost all students agreed that they became more regular when smart classes were initiated. Teachers initially teach through lectures and demonstrate the same topic using digital content or YouTube videos so that students can understand the topic.

Training Receipt for Operation of Equipment

To effectively operate the smart class, training on operating the equipment and digital content was crucial. On asking, almost all (94%; N=34) responding teachers reported receiving training and demonstrations, primarily from the supplier company that installed the equipment (71%), with additional support from the NGO (29%). Most teachers (94%) found the training valuable in preparing for digital content-based education as shown in the following graph.

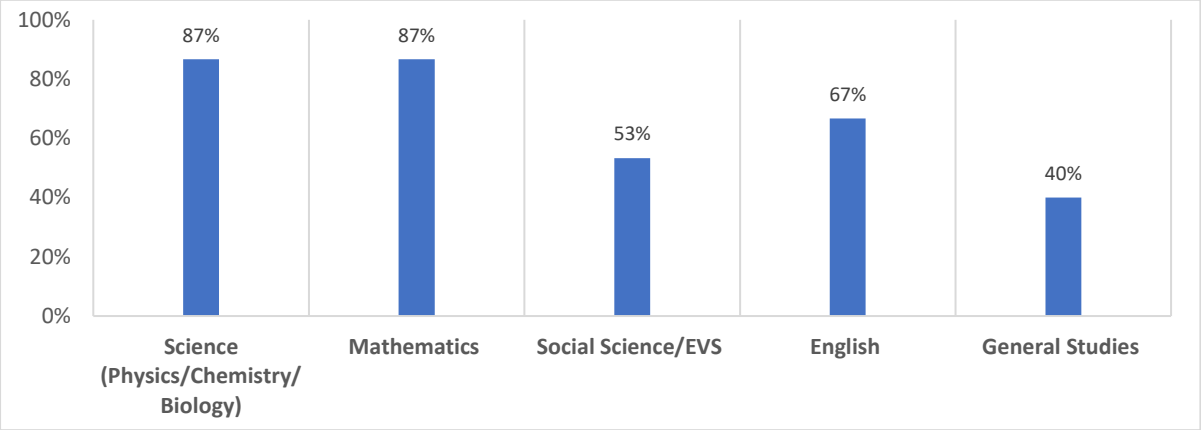
Graph 7: Perception of Usefulness of Training for the Smart Class Operations (N=36)



Out of 94% of teachers who considered the training as valuable – 53% considered it as very useful and 41% as useful. However, only 6% (N=2) found it not at all useful.

Concerning the receipt of digital content, 83% of respondents (30 out of 36 teachers) confirmed receiving digital content along with the Kyan projector. The digital content covered various subjects, including Science (87%), Mathematics (87%), English (67%), Social Science/EVS (53%), and General Studies (40%) as seen in the following graph.

Graph 8: Subject-wise Receipt of Digital Content (N=30)

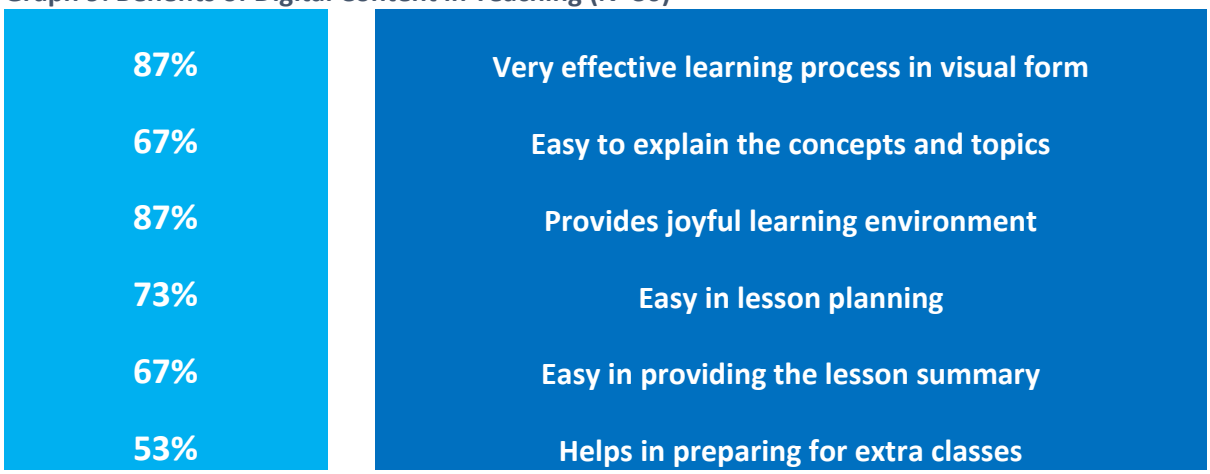


Of those who reported receipt of digital content, three out of five teachers (60%) thought they felt very comfortable in delivering topics using digital content and the remaining were also comfortable in using digital content while teaching and did not face any issue. **Their confidence is mainly due to being trained in digital teaching methods (93%), having a professional degree (B.Ed.) (13%), and years of teaching experience (47%).**

Perceived Benefits of Digital Content in Teaching

More than four-fifths of teachers (87%) shared that digital content is very effective in the learning process due to visuals and sounds. A similar proportion of teachers 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, animation and audio for the topics. The following illustration shows the benefits of digital content in teaching.

Graph 9: Benefits of Digital Content in Teaching (N=30)

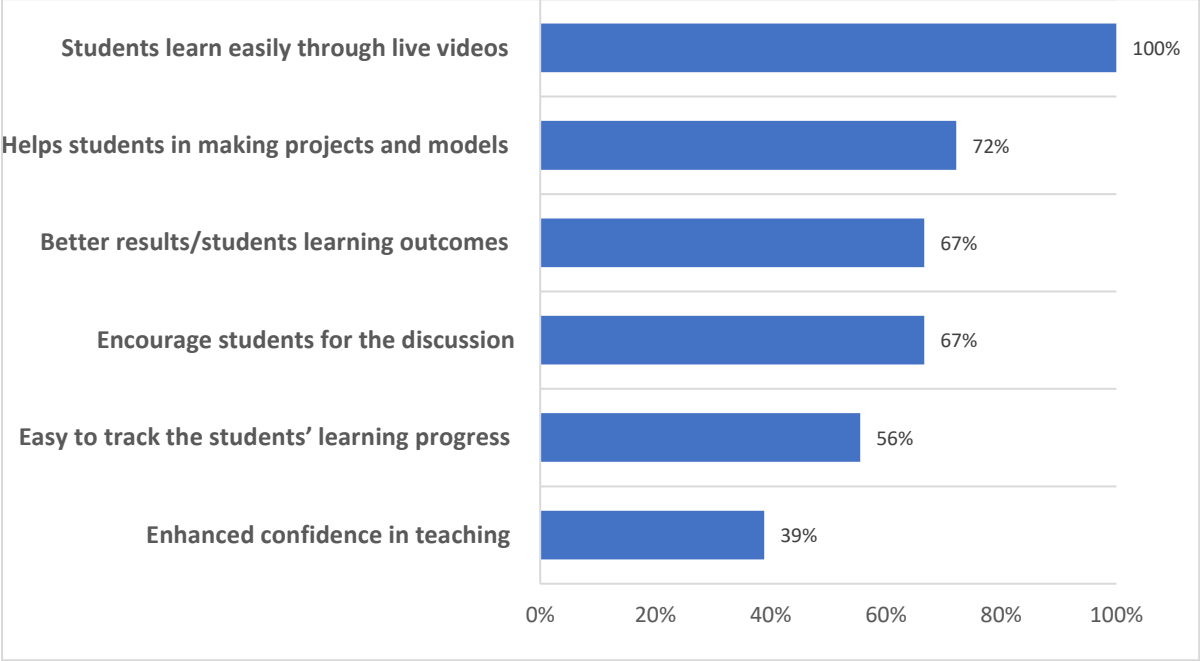


Teachers believe that digital content enhances teaching by providing multiple benefits including digital content making the concepts easier to explain (67%) and aiding them in lesson planning (73%). Interestingly, more than half also mentioned that it helps in preparing the extra classes to provide more substance to the students for their better learning.

Advantages of Using Digital Content

Teachers were also posed with a query on the key advantages of using digital content. Uniformly, all the teachers agreed that students learn concepts and principles through live videos which is one of the prime advantages. The other advantages are shown in the following graph.

Graph 10: Advantages of Using Smart Class

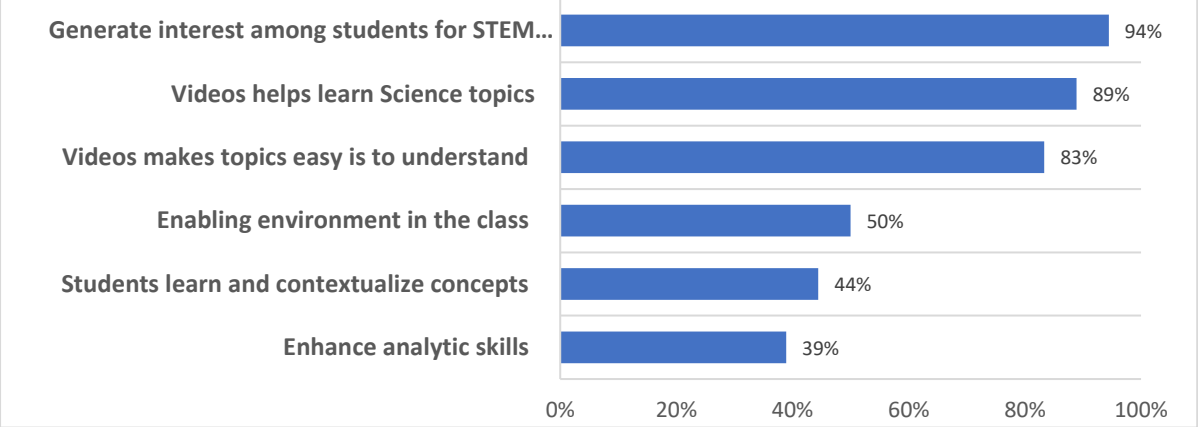


As evident from the graph, smart classes provide numerous benefits such as aiding in project work (72%) and helping in the improvement of learning outcomes (better scores/marks) (67%). The other advantages shared by teachers are that they find it easier to track progress (56%) and feel more confident in teaching (39%), fostering an environment conducive to discussion (67%). Overall, it gives the impression that teachers were happy in using the digital content for teaching as they demonstrated their understanding of the advantages for the students and themselves.

While discussing with students, almost all the students favoured smart classes for all the subjects. Many of them claimed that it is easier to learn topics and concepts through live demonstrations in the smart class. Moreover, the smart class offers you the chance to raise queries and clarify the doubts being generated in your mind. Half the students mentioned that we could prepare the projects related to the curriculum which were mainly encouraged through smart classes.

The majority of teachers (94%) believe that digital content generates interest in STEM subjects among students. Typically, students fear that they won't be able to score well in science and mathematics and find these subjects difficult. The following graph illustrates the ways in which digital content generates interest in these subjects.

Graph 11: How Digital Content Boosts Interest in Subjects (N=36)

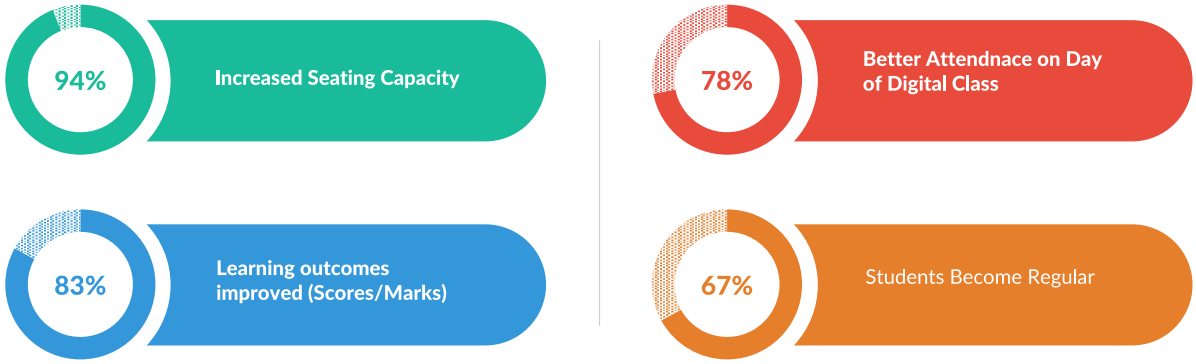


Computer and digital content-based teaching generate subject-specific interest by making topics easier to understand through videos (83%) and specifically aiding in learning Science (89%). It enhances analytic skills (39%), helps students contextualise concepts (44%), and creates an enabling classroom environment (50%).

Upon asking, three out of five teachers (61%) expressed that techno-pedagogy is very effective, while the remaining (39%) considered it as effective.

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

Graph 12: Impact of Smart Class on Student's Regularity and Learning Outcomes (N=36)



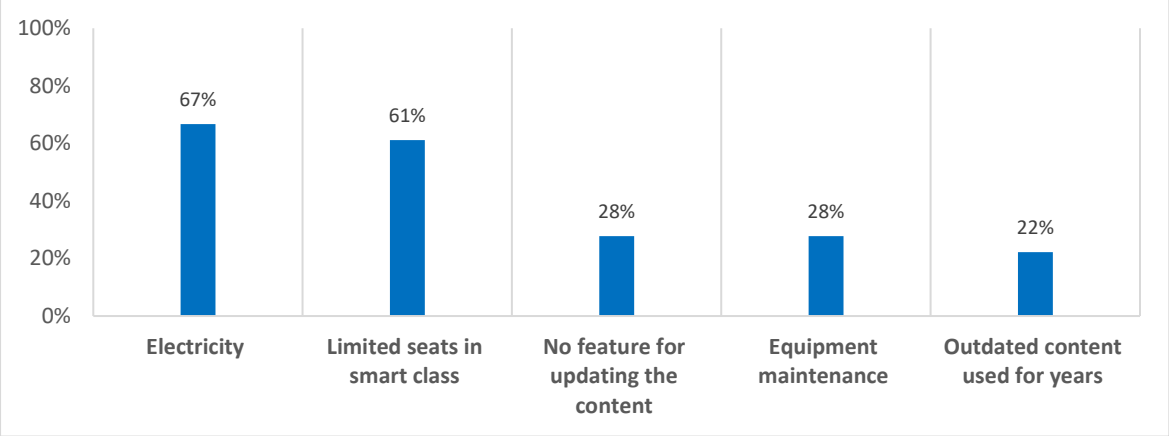
HDFC's support in setting up smart classes and promoting techno-pedagogy has had a high impact. It has increased student regularity (67%) and attendance on digital class days (72%), and 83% of teachers reported improved learning outcomes. Techno-pedagogy is seen as very effective by 61% of teachers.

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

Type of Challenges for Smart Class

An attempt was made to comprehend the type of challenges teachers face while using smart classes. The biggest challenge was found to be long power cuts indicating electricity non-availability which hampers the charging of the inverter battery, as indicated by 67% of teachers. Other challenges included the number of limited seats (61%) as shown in the following graph.

Graph 13: Challenges in Smart Classes (N=36)



The teachers also informed equipment maintenance and lack of content updates as key challenges.

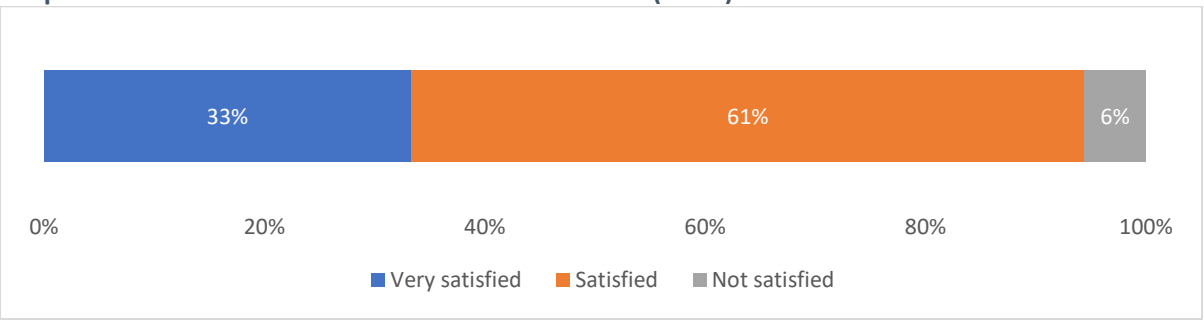
Students also demonstrated their concerns regarding the long or frequent power cuts in their schools. Due to these power cuts, students are deprived of a sufficient number of sessions, and teachers discuss it verbally. On asking about the power backup, the majority of them agreed that the battery is weak and does not get charged quickly. A few students reported that the inverter is not working due to battery issues.

Further, teachers were asked about the ways through which these challenges can be managed or resolved. Largely, the manageable ways included regular updation of digital content and timely supply to the schools, increase in the sitting arrangement in the smart class, provisions for generator sets and regular equipment maintenance.

Most teachers (94%) reported positive feedback from parents, noting that smart classes helped children achieve better marks as responded by 78%.

The majority of teachers (94%) expressed satisfaction with digital content-based education in the smart classes as depicted in the following graph.

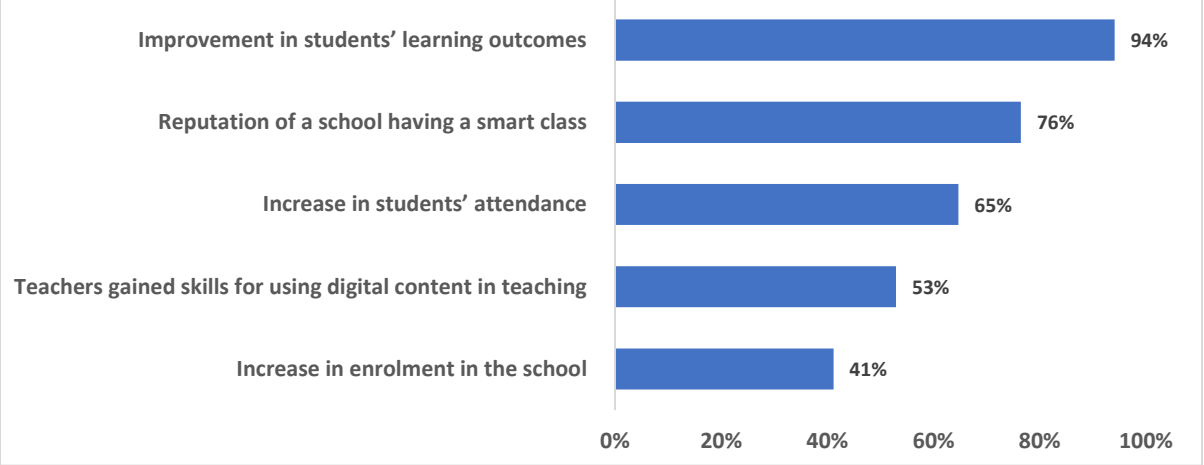
Graph 14: Teachers' Satisfaction towards Smart Class (N=36)



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.

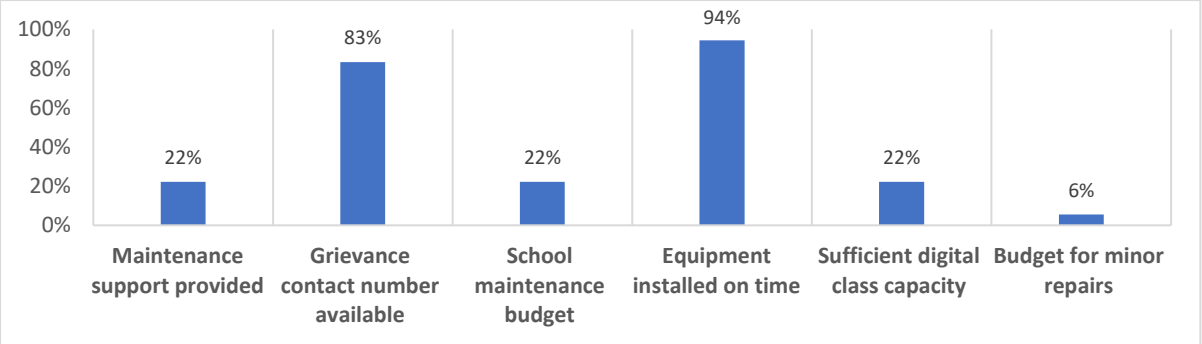
Graph 15: Advantages to Schools from HDFC Bank Support for Smart Class Set up (N=34)



The HDFC Bank support has led to several notable advantages for schools. Almost all the teachers (94%) have reported improvement in students' learning outcomes which means students secured better marks and grades. About 76% of teachers opined that the school's reputation has gained credibility. Additionally, 65% of teachers noted the increase in student attendance, and 53% observed improved teacher skills. Enrollment increased by 41%, reflecting the overall positive impact of the support on educational quality and school standing.

Discussion was also undertaken on other aspects related to smart class such as the availability of maintenance mechanisms, grievance redressals, budget for repairs, etc. The following graph illustrates the status of the aspects crucial for the smooth functioning of smart classes.

Graph 16: Needs for Smooth Functioning of Smart Class (N=36)



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 (78%) did not receive maintenance support for smart classroom equipment. Among those who received the support (22%), half of the schools (50%) received it from the implementation partner, and 25% each from the education department or the company that supplied the equipment.
- ***Contact for Grievance Redressal:*** Four out of 5 schools (83%) claimed to have a contact number for grievance redressal for the functioning of the smart class.
- ***Maintenance Budget:*** More than three-fourths of schools (78%) did not have any provisions for the maintenance budget.
- ***Installation Timeliness:*** Almost all schools (94%) reported that smart class equipment setup was undertaken within the committed timeline as informed by the implementation partner.

- **Equipment Quality:** Two out of three schools (67%) rated the quality of equipment supplied for the smart class as **Satisfactory**, while 28% rated it as **Excellent** and the remaining 5% did not find it good.
- **Seating Capacity Sufficiency:** Three out of four schools (78%) perceived that the seating capacity in the smart class is insufficient as compared to the students' strength.
- ***Budget for Minor Repairs:*** Only 6% of schools reported that they have a budget for regular minor repairs of the equipment, but the amount is much less.

While installation and initial quality are generally satisfactory, ongoing support and maintenance remain significant challenges. Many schools lack the necessary resources and budget for effective upkeep, which impacts the sustained effectiveness of digital classrooms.

4.2.2 STEM or MINI-SCIENCE LAB

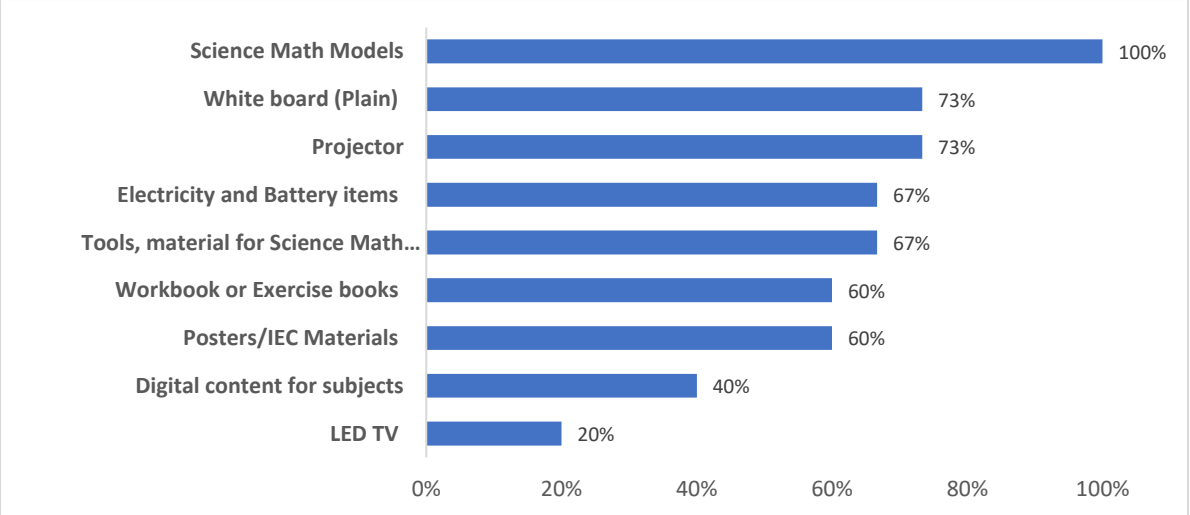
The government schools in Uttar Pradesh have science teachers who often face challenges in explaining the science experiments or concepts and principles using functional models, charts or other structures, etc. to teach students. It is a proven fact that students take more interest in the class if they see things working or moving or live experiments using instruments and models and association or application of learning on models/charts/instruments/TLMS. HDFC Bank recognised the necessity of establishing a Science or STEM lab as part of the schools' development project.

Out of 18 schools included in the assessment study, 15 schools had received HDFC Bank support for STEM or Science Lab setup. Among the 15 schools, a quarter of the STEM teachers (27%) were males and 73% were females.

Before receiving HDFC support, 40% of schools had no STEM lab, 13% had labs that were not in use, and 47% had STEM labs that were being used.

All the 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 17: Type of Support Received for STEM Lab (N=30)



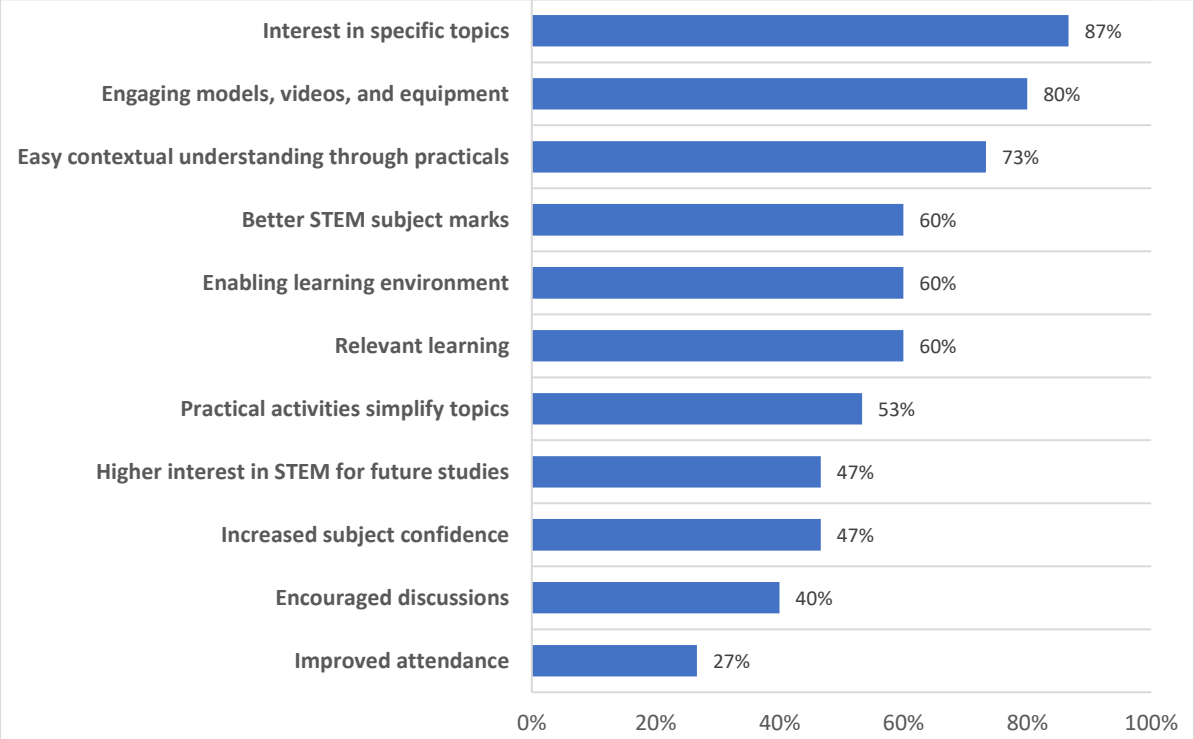
The support included various items such as science math models (93%), projectors (73%), and whiteboards (73%). Additionally, schools received tools and materials for science projects (67%), electricity and battery items (67%), and various educational materials.

This comprehensive support likely improved the quality and effectiveness of STEM education in these schools to be verified in coming sections. Four out of five schools (86%) reported that installation was managed by the supplier company, with assistance from the implementation partner, which is a desirable practice.

On enquiry, four out of five schools (87%) confirmed that the materials supplied for the STEM or science lab are used by the students of Grades 7 to 8 and two out of five schools (40%) also claimed that science materials are also used by the students of Grade 6 or below.

During the discussion, all teachers reported improvements due to the use of the STEM lab engagement. The perceived key benefits observed by the teachers included increased interest among the students in specific topics related to Science (87%), enhanced engagement through practical demonstrations assisted by teachers (80%), and better understanding of subjects (73%). However, only 27% of teachers mentioned the improvement in attendance, while 60% saw better marks in STEM subjects.

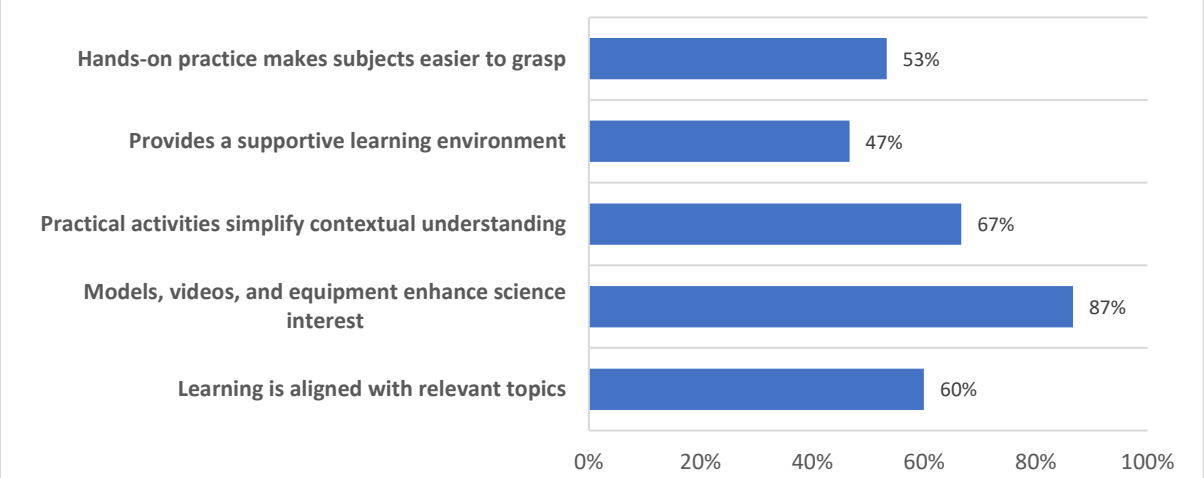
Graph 18: Improvements Observed Among Students Due to STEM Lab Usage (N=30)



This indicates that the STEM lab has effectively sparked interest and enhanced comprehension, despite impacting attendance, but overall confidence remains moderate.

Information on how STEM labs generate interest in specific topics, 87% of teachers from STEM labs confirmed that students get more interested in Science subjects after they are engaged in using models and equipment, 67% cited that practicals simplify the contextual understanding of the topics that help in relating the concepts and principles with the practicals.

Graph 19: Ways in which STEM Labs Generate Interest in Specific Topics (N=30)

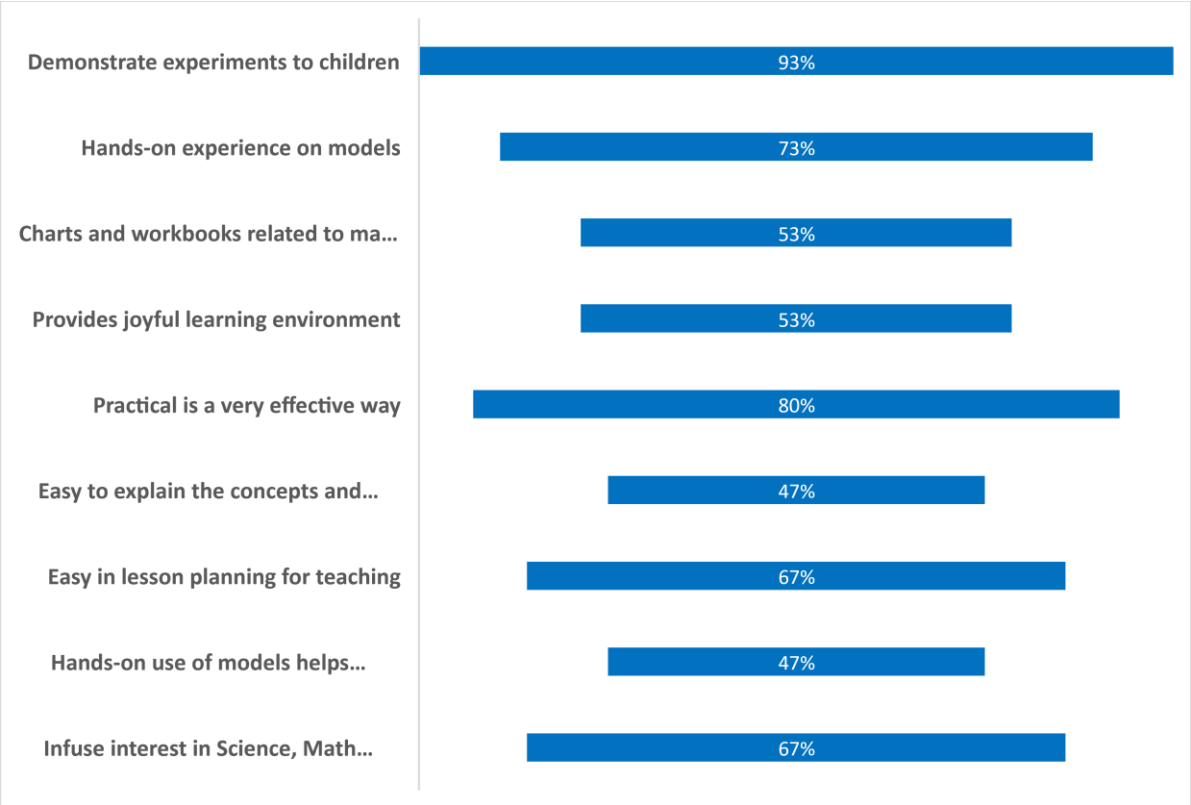


Teachers highlighted that STEM Labs effectively spark student interest in specific topics. Additionally, 53% of teachers opined that hands-on activities make learning easier for students.

Interaction with students showed that they enjoyed the STEM Lab models and charts and gained knowledge in science subjects. The majority agreed that science models help in practical learning through activities.

Further, all the teachers using the STEM lab for teaching were asked how the STEM lab support is helpful for them in teaching subjects. More than 90% of teachers reported STEM labs helpful in the demonstration of experiments so that students learn the concepts and principles behind the activities. Other ways in which STEM labs are helpful are depicted in the following graph.

Graph 20: STEM Lab Helpful in Teaching (N=30)



Four out of five teachers (80%) agreed that practical work is a very effective way to describe the context and undertake practicals. More than two-thirds (73%) of teachers emphasized that hands-on experience with models is very helpful in generating interest in Science and Math. Additionally, 67% reported that it simplifies lesson planning for the teachers, and 47% found that it is easier to explain concepts and summarize the lessons.

On asking about the comfort levels in using STEM labs for teaching and demonstrations, more than a quarter (27%) of teachers expressed that they are very comfortable using the STEM lab for teaching, 67% were found comfortable, and only 7% were found not at all comfortable.

Functionality of the STEM Lab

- ***STEM Lab Status:*** 100% of schools had a functional STEM Lab.
- ***Installation Timeliness:*** 93% of schools received the setup on time.
- ***Material Quality:*** 40% of schools rated STEM labs materials as excellent, and 60% as satisfactory.
- ***Sufficiency for Students:*** 47% believed the STEM lab materials are inadequate in comparison to the students' strengths.

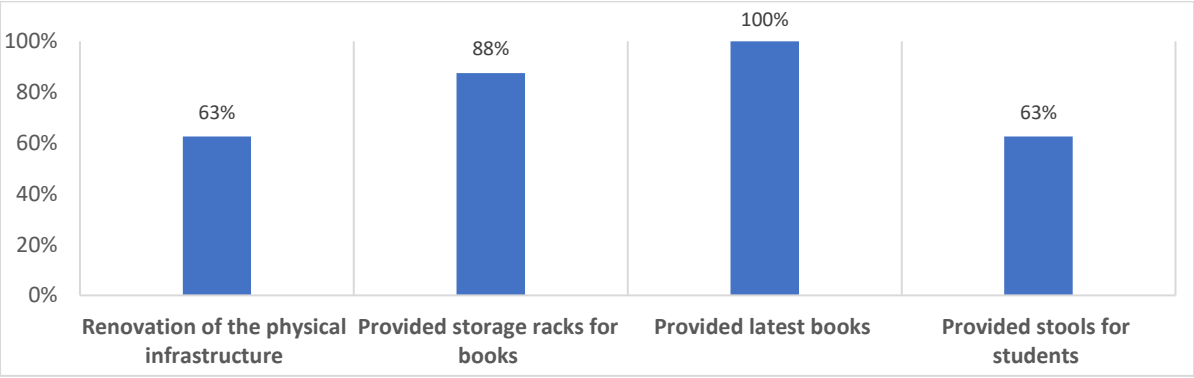
The STEM Labs are functional and were mostly installed on time. However, while materials are deemed satisfactory, nearly half of the schools feel the lab isn't adequate for their student numbers.

4.2.3 LIBRARY SUPPORT

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

Out of 18 schools, 17 reported receiving library support for the schools. Before receipt of support, two out of five schools (41%) had a good library with books and furniture for the students. A similar proportion of schools (41%) had a dedicated room for the library but did not have enough books and story books and 53% of schools had books available but no library. The following graph depicts the type of library support received by the schools.

Graph 21: Type of Library Support Received (N=17)

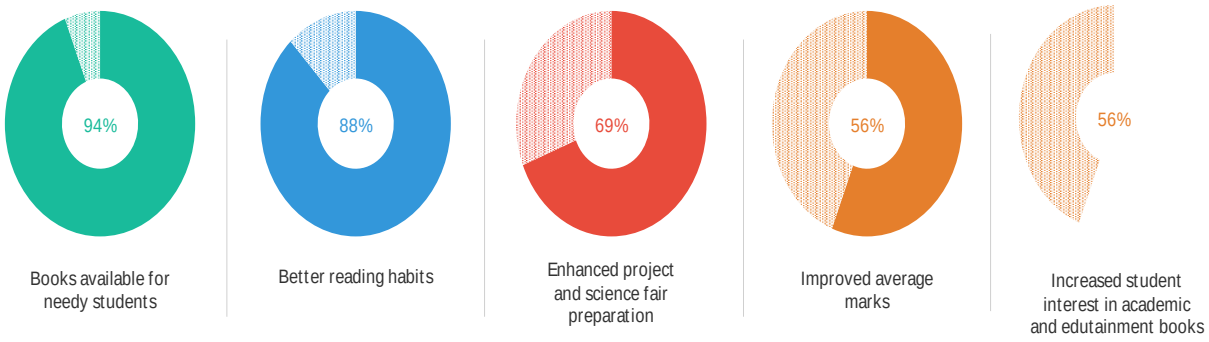


Out of 17 schools, 94% (N=16) received library support from the HDFC Grant. This included the provision of latest books (100%), storage racks (88%), and renovation of infrastructure (63%). For

sitting arrangements for students, stools were also provided in 63% of the schools. The library support enriches educational content and enhances students' access to a diverse range of learning materials. Under the grant, plastic covers with pockets were provided that can be placed on the walls for displaying books. Many schools also had a good seating arrangement along with almirahs and reading corners.

While 81% of schools (N=16) have a library period, it is predominantly scheduled for middle school classes (grades 6-8).

Graph 22: Ways Students Benefitted from Library Support (N=16)



Library support has significantly benefited students according to 94% of teachers who noted improved access for needy students. Reading habits have improved among the students as shared by 88% of teachers, followed by 69% of teachers opined that students participated more in projects and science fairs. More than half (56%) of teachers felt that increment in average marks. Additionally, 56% of teachers reported an improvement in students' average marks, highlighting the positive impact.

During discussions, most students expressed that they enjoy their library periods and like to read books and stories. A few students mentioned that they consider books to be true friends and enjoy doing storytelling with their families. Additionally, many students shared that they take books from the library to read at home. Some students expressed concerns about the small size of the room where the school library books are kept. They mentioned that although stools are provided for sitting, there are not enough for everyone.

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

- ***Functional Status:*** In 16 schools, libraries are currently functional as mentioned by the teachers.
- ***Timeliness of Provision:*** Under the project, all schools received books and materials within the committed time provided by the implementation partner.
- ***Quality of Materials:*** About 44% of teachers rated the quality of books and materials as excellent, while 56% of teachers found these materials 'satisfactory'.
- ***Sufficiency for Student Strength:*** About 63% of schools feel the library resources are insufficient for the student population, while 37% consider them adequate.

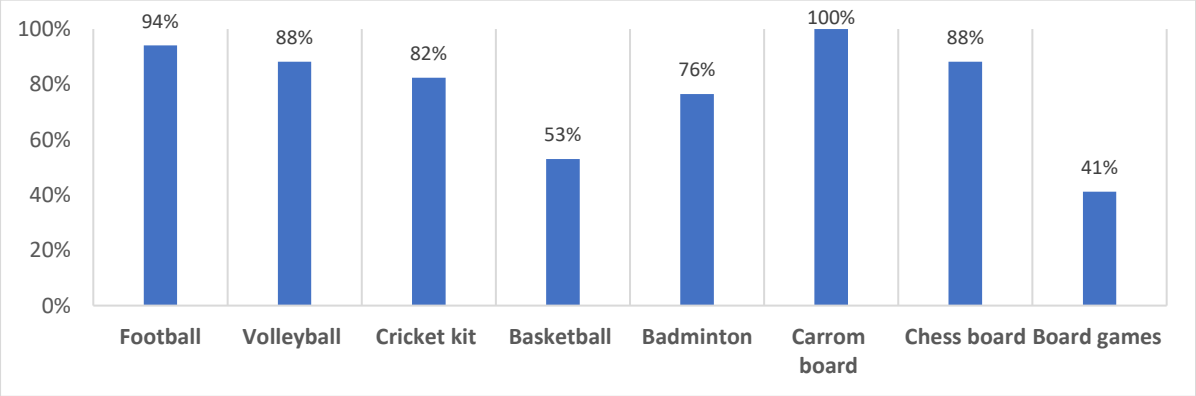
While the library refurbishment and materials have been timely and generally well-received with high satisfaction levels, most schools feel that the resources are not adequate for the current students. Additionally, the limited seating and space can impact the long-term sustainability and usability of library resources.

4.2.4 SPORTS SUPPORT

Out of 18 schools surveyed, 17 received sports equipment from HDFC support. Before receiving the HDFC Grant, all 17 schools (100%) had some sports equipment. 88% of these materials were in good condition and were actively used by students, while 6% were in usable condition but not used, and another 6% were in good condition but not used by students.

All 17 schools received various sports materials, including footballs, volleyballs, cricket kits, and more as seen in the following graph, enhancing their sports resources.

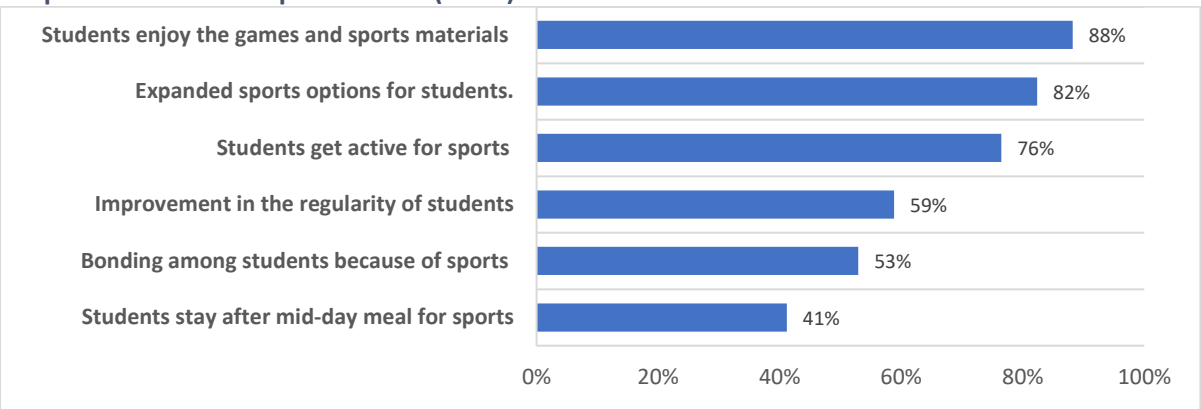
Graph 23: Sports Goods Received from HDFC Bank Support (N=17)



Despite existing sports equipment, HDFC's support provided a significant quantity of new sports goods. This has probably improved the quality and variety of available sports activities, fostering greater student engagement and participation in physical education.

All 17 schools (100%) agreed that the timetable has a sports period for students. Of these, 94% of schools claimed that they organize annual sports events. Out of 17 schools, 94% (N=16) organized a Khel Mela or annual sports event during the last year. On further exploration of the benefits of sports support, teachers highlighted significant benefits from enhanced sports opportunities, as shown in the following graph.

Graph 24: Benefits of Sports Goods (N=17)



A wide variety of benefits were shared by teachers which mainly included – students enjoying the games and materials (88%), 76% cited that students became more active, and 59% felt that students

are regular now which indicates improved regularity. Additionally, 82% of teachers mentioned that now they have expanded sports options and 53% experienced better bonding.

All the schools agreed that the sports goods and materials were timely provided to the schools. However, 41% of schools felt that sports materials provided were sufficient but 59% thought that sports materials were still inadequate and insufficient considering the strength of students in the school. About 41% of schools rated the quality of sports goods as excellent, 47% as satisfactory, and 12% as not good.

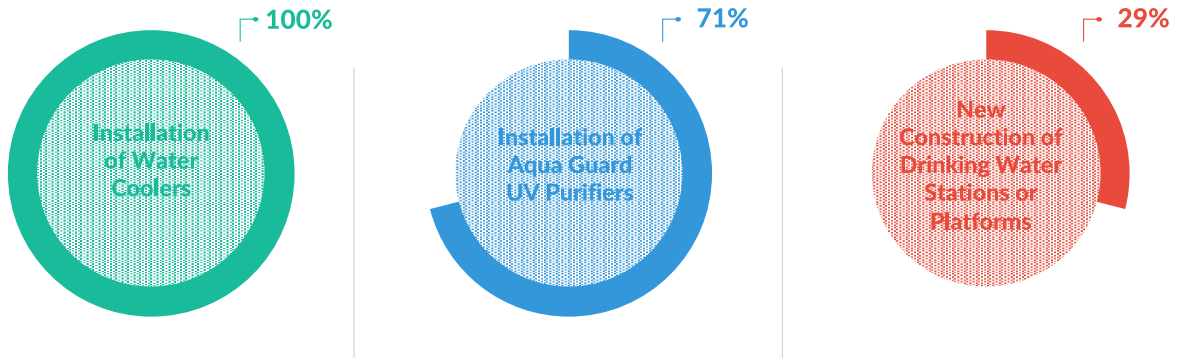
Discussions with students revealed that they were fascinated with sports goods, particularly volleyball and football. Many students enjoyed playing carrom board and other board games. However, some students mentioned that they wanted to play more during school time and wouldn't mind skipping their mid-day meal. Boys were more interested in cricket, while girls preferred badminton and board games. All the students expressed their gratitude to HDFC Bank for their valuable support.

4.2.5 INFRASTRUCTURE SUPPORT – DRINKING WATER

Under the HDFC Bank support, schools were asked to specify the source of drinking water and other drinking water-related facilities available in the schools. Upon receiving the information, a physical verification was undertaken and provided with different support for the students. Out of 18 schools covered under the study, 14 schools (78%) reported receiving support related to drinking water whereas the implementation partner claimed that they furnished their support to all targeted schools under the project.

Of all 14 schools that accepted that they received the support, all 14 had received the water coolers at their premises. More than two-thirds of schools (71%) received Aqua Guard UV filters. The following illustration depicts the type of support received by the schools.

Graph 25: Type of Support Received – Drinking Water (N=14)

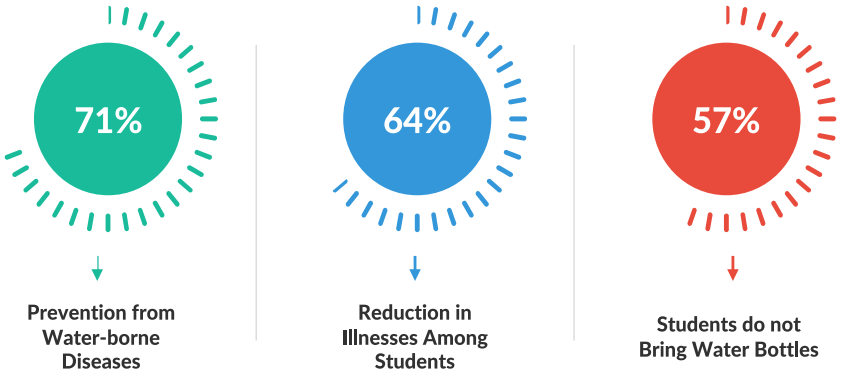


Additionally, 29% of schools had new drinking water stations constructed, and 7% had existing stations repaired.

Benefits from HDFC Bank Support

The principals reported significant benefits to students by ensuring access to drinking water through HDFC Bank support, which included a reduction in illnesses (64%) and helped in the prevention of waterborne diseases (71%).

Graph 26: Drinking Water Support Helps Students (N=14)

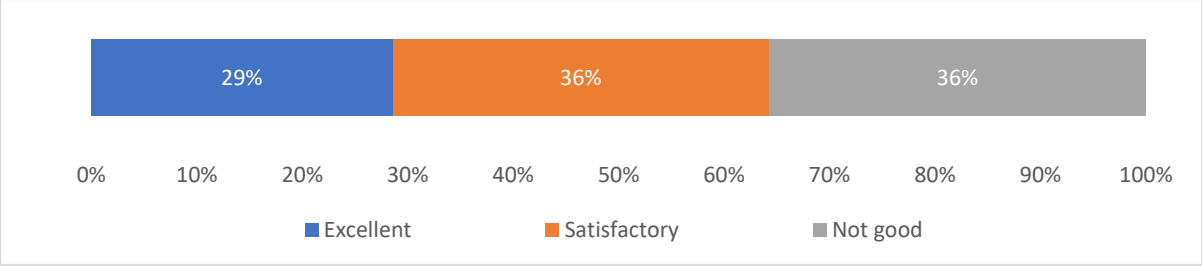


Additionally, an average of 57% of students no longer need to bring water bottles from home, reflecting improved convenience.

The principals reported significant benefits to students by ensuring access to drinking water, which reduced illnesses (64%) and helped prevent waterborne diseases (71%). Additionally, 57% of students no longer need to bring water bottles from home, reflecting improved convenience.

About 93% of schools (14 out of 18 schools) confirmed that the drinking water facilities were provided and installed as well as improvement works were completed on time. About a quarter (29%) reported that the drinking water facilities are sufficient for current student needs. A similar proportion of schools (29%) had a budget for minor repairs related to drinking water facilities.

Graph 27: Perception of Quality of Drinking Water support (N=14)



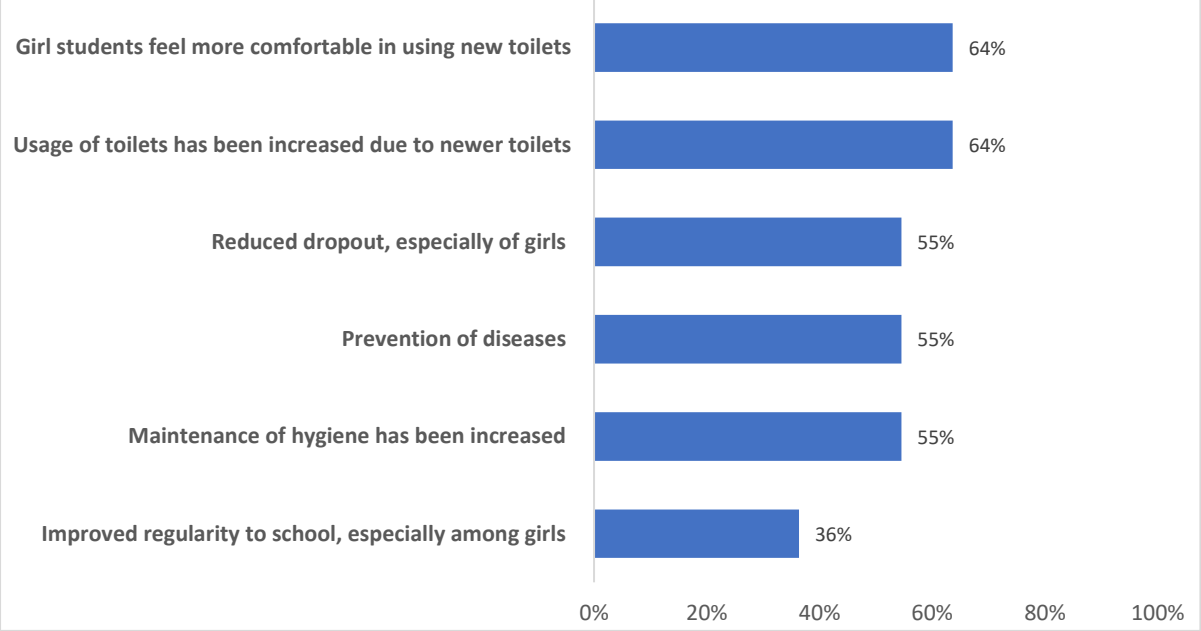
The quality of the products or materials provided received mixed feedback, about a quarter of schools (28%) rated it as excellent, 36% found it as satisfactory, and another 36% considered the quality as 'not good'. This indicates a range of opinions on the quality of the support provided and the expectations of the school officials were not fulfilled.

4.2.6 SUPPORT FOR REPAIRS & RENOVATION OF TOILETS

HDFC Bank provided support for repairing and renovating school toilets and associated facilities to ensure students can utilize them. Out of 18 schools, 11 confirmed that toilet-related support was provided. Only 1 school reported new toilet construction, while the remaining 10 had repairs. Among the 11 supported schools, 9 schools (82%) already had usable toilets and 2 schools (18%) had broken doors. Minor repairs, such as plastering the floor or painting walls, were provided under HDFC Bank support.

Information on how the HDFC Bank's support for toilets helped the students revealed that the usage of toilets increased among the students, and girls feel comfortable using toilets. About 64% of schools confirmed this fact. How students benefited from the support is shown in the following graph.

Graph 28: Type of Benefits from the Toilet Support (N=11)



The support had a significant positive impact on students by improving hygiene (55%), preventing diseases (55%), and increasing toilet usage (64%). It also improved school attendance, particularly among girls (36%), which led to a decrease in dropout rates (55%). The new toilets also made female students feel more comfortable (64%).

The evaluation of the toilet support revealed that 82% of the schools reported that toilets were built within the committed timeline. However, **only 9% of the schools felt that toilets were sufficient for the current student strength in the schools.**

Only 36% 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 some 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. Three out of five schools (64%) expressed that the quality is satisfactory. However, 18% of schools considered the quality as excellent, while another 18% found it to be 'not good' and considered it 'bad'.

Out of 18 schools, only 11 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, principals feel that the toilets are inadequate for the current number of students, and the limited school funds for maintenance could result in becoming unusable over time. This issue needs to be addressed at the school level.

Health and Hygiene Sessions

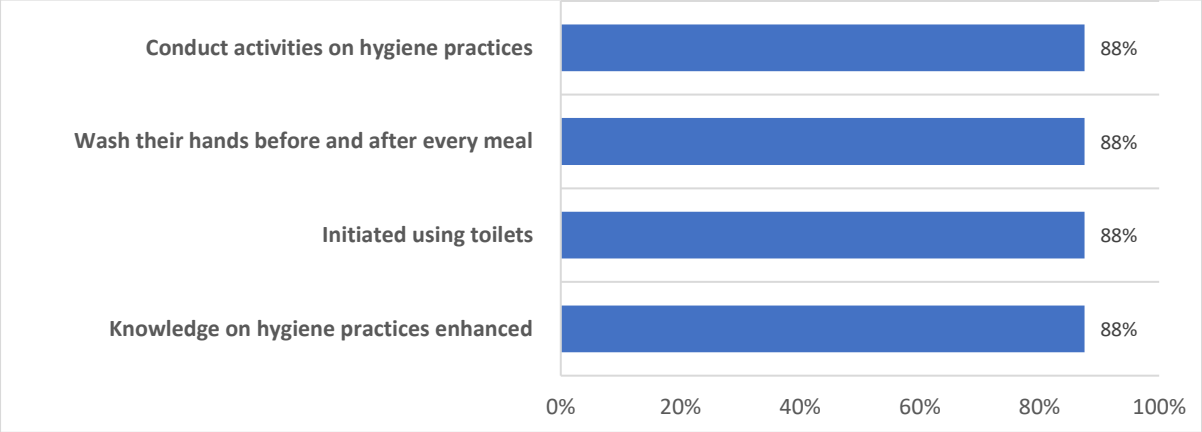
Students must receive health and hygiene sessions to learn skills that will benefit them throughout their lives. Before receiving the HDFC Grant, 16 out of 18 schools (89%) were conducting health and hygiene sessions for students regularly, as reported by the principals. With the support of HDFC, health

and hygiene sessions were held every week, according to more than half of the principals (56%). About a quarter (25%) mentioned that there was no set schedule for the sessions, and 18% reported that the sessions were conducted either fortnightly or monthly. This indicates that the schools are consistently providing health and hygiene sessions to the students.

Key Benefits of the Health and Hygiene Sessions

On asking about the key benefits of these sessions, almost all the schools stated similar types of benefits as shown in the following graph.

Graph 29: Benefits of Health & Hygiene Sessions for Students (N=16)



These sessions significantly benefited students, with 88% enhancing hygiene knowledge, initiating toilet use, washing hands before and after meals, and participating in hygiene activities.

The findings from discussions with students suggest that not only did students actively participate in health and hygiene sessions, but also principals and teachers regularly conducted such sessions. With support from HDFC Bank, students have put more focus on maintaining hygiene. Some students mentioned that they have incorporated good practices they learned into their daily lives and have also shared these learnings with their families, which is encouraging. It was noted that girls demonstrated more diligence in maintaining hygienic behaviors.

Furthermore, female students received specific training on menstrual hygiene management (MHM) practices at the selected schools. All schools verified the completion of training sessions on MHM and the presence of sanitary pad vending machines. Conversations about MHM practices with teachers revealed changes among the girls, with most opting for hygienic sanitary pads. They also mentioned that the government supplies sanitary pads, typically stored with female teachers or female principals.

All 18 schools confirmed receiving sanitary pads vending machines and incinerators for disposal. The use of sanitary napkins helps girls in their studies by increasing school attendance (72%), boosting confidence (89%), improving class attention (83%), and enhancing classroom interaction (72%). The majority of schools, **94% (17 out of 18), have incinerators available in the school**, ensuring proper disposal of sanitary products.

All the principals reported that incinerators were installed within the timeline. Only 71% of respondents claimed that girls use the incinerators installed in the school toilet. Only 47% of respondents felt that one incinerator was sufficient for the available girls.

Information on the quality of dispensers and incinerators draws mixed reactions from principals and teachers. Only a quarter of teachers (29%) rated the quality as excellent, 41% reported it as

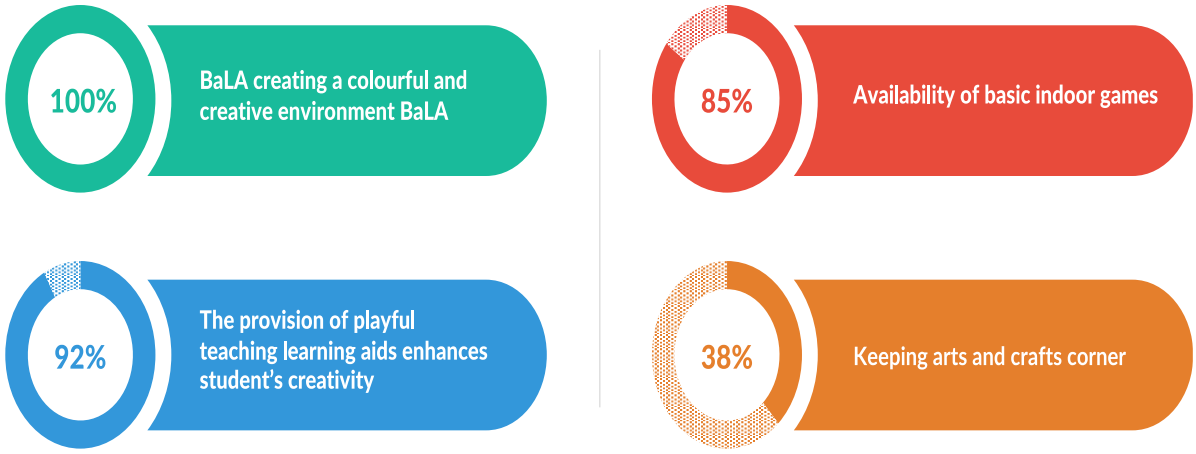
satisfactory, and more than a quarter (29%) found the quality as 'not good'. This finding suggests that there is room for improvement in these facilities.

Adolescent girls often encounter difficulties during their menstrual periods at school because they have limited access to pads, face disposal issues, and also deal with psychological and behavioural concerns. The support provided has helped to address these challenges by improving pad accessibility and management, which has had a positive impact on their attendance and retention. However, there is a risk that the pad vending machine and incinerators may not be adequately maintained or remain functional for effective use.

4.2.7 INFRASTRUCTURE SUPPORT – BaLA (Building as Learning Aid)

To make the school environment joyful and learning-friendly, HDFC Bank incorporated the BaLA component in the support. Findings revealed that only 13 schools (72%) claimed to receive support for BaLA where school walls were painted in colourful artwork.

Graph 30: Type of BaLA Support Received by Schools (N=13)



All those schools that received a variety of BaLA (Building as Learning Aid) support included basic indoor games (85%) and arts and crafts corners (38%). Notably, 92% of schools benefited from playful teaching learning aids, and 100% experienced a more colourful and creative environment.

The principals shared that the BaLA support led to significant improvements, with 100% of schools reporting enhanced availability of sports kits for both indoor and outdoor games. Additionally, 92% observed a more colourful and creative environment, and 62% saw benefits from playful teaching-learning aids.

BaLA support has provided a learning environment for students who visualise all the artwork and pictures communicating messages.

The BaLA support has substantially enriched the learning environment by enhancing creativity and playfulness, significantly improving student engagement through colourful, creative spaces and well-equipped sports facilities.

Conclusion and Recommendation

After reviewing the study findings, we have concluded the support provided to the schools and developed a set of recommendations. The following discussion presents the conclusions from the discussions with the principals, teachers, and students, as well as the recommendations for the upcoming projects.

4.1 CONCLUSION

A total of 18 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 majority of the principals are seasoned professionals. Their extensive experience and long tenure (89% having been at their current school for 11 to 20 years) provide them with a deep understanding of their schools' needs and challenges, fostering consistent leadership.

The principals have acknowledged that the HDFC Grant has played a crucial role in improving school facilities and building capacity. All schools received support for SMART classes. Additionally, 94% of schools received library support and sports equipment, while 83% gained STEM labs. Furthermore, 78% of schools got drinking water facilities improved, 72% benefited from Building as Learning Aid (BaLA) initiatives, and 61% underwent toilet construction/repairs or renovation. Moreover, all schools received teacher training for SMART classes, libraries, and STEM labs.

Smart Classes

HDFC's support for Smart Classes has significantly enhanced teaching and learning, with increased student attendance (94%), improved understanding of concepts (83%), and higher enrollment and outcomes (78%). Teachers find digital content-based education effective, with 61% rating it as very effective. Digital tools have boosted interest in STEM subjects (94%) and improved analytical skills (39%).

Key resources provided include KYAN projectors (94%), processing units (83%), inverters (72%), and digital content for various subjects. Installation was efficiently handled by suppliers/vendors (89%). Challenges remain in electricity issues (67%), limited seating (61%), outdated content (22%), and equipment maintenance (28%). While most teachers (94%) are satisfied with digital education, 78% of schools lack maintenance support, and only 6% have a budget for minor repairs, potentially affecting the long-term sustainability of Smart Classes.

Overall, HDFC's initiative has positively impacted student engagement and learning outcomes, but ongoing maintenance and resource constraints need attention to ensure lasting success.

STEM Lab

Out of 18 schools, 15 received support from HDFC for setting up STEM labs. Before this, 40% of the schools had no STEM lab, 13% had an unusable lab, and 47% had a usable lab. The support included various equipment and materials such as science and math models (93%), projectors (73%), whiteboards (73%), and tools for science projects (67%). While 87% of students in Grades 7-8 used the lab, access for senior secondary students (Grades 9 and above) was limited.

Teachers reported significant improvements due to the STEM labs, including increased student interest (87%), enhanced engagement through practical demonstrations (80%), and better subject understanding (73%). However, only 27% noticed improved attendance, and 60% saw better marks in STEM subjects, suggesting a moderate overall impact.

Two-thirds of teachers received training, mainly from the equipment suppliers, and found it useful. However, 93% of schools lack a budget for regular maintenance, and 47% of the schools feel the lab is inadequate for their student numbers. While the STEM labs are functional and mostly installed on time, the lack of maintenance funds and limited access for senior students remain concerns.

Library

HDFC's support for libraries has positively impacted 17 out of 18 schools, with 94% of them receiving new books, 88% receiving storage racks, and 63% benefiting from infrastructure renovation. This assistance has enriched educational content, improved reading habits for 88% of students, enhanced project research for 69%, and boosted academic interest for 56%. Furthermore, 56% of teachers reported improved student marks.

All schools received the books and materials within the committed timeframe, with 44% rating them as excellent, and the supported libraries are now fully functional. However, 63% of schools find the library resources insufficient for their student population, and library periods are mostly limited to middle school classes, with few schools including senior or secondary students. Only 19% of schools have a budget for minor repairs, which may affect the long-term sustainability of library resources.

Despite the success, these challenges suggest that more resources and a broader reach could further enhance the benefits of library support.

Sports

HDFC's support for sports has positively impacted 17 out of 18 schools surveyed, providing new sports equipment such as footballs, volleyballs, and cricket kits, enhancing the quality and variety of sports activities. Before receiving the grant, all 17 schools already had some sports equipment, with 88% in good condition and actively used by students. The new equipment likely increased student engagement and participation in physical activities. Almost all schools (94%) organized a Khel Mela or annual sports event in the past year, and every school included sports periods in their timetables.

The support led to significant benefits: 88% of students enjoyed the games, 76% became more active, and 59% showed improved regularity. Additionally, 82% of teachers noted expanded sports options, and 53% observed better bonding among students. However, only 35% of sports teachers received training, and among them, most found it beneficial for conducting sports activities. All schools received equipment on time, with 41% rating it as excellent and 47% as satisfactory, but 12% found it inadequate. While 41% of teachers felt the equipment met student needs, 59% did not, and 82% of schools lacked a budget for minor repairs.

Although the new equipment has improved sports opportunities, concerns about its sufficiency and the absence of a repair budget could impact its long-term use.

Toilet Facilities

Principals reported significant improvements in toilet sanitation, with 100% of schools receiving support for toilet construction or refurbishment. While 64% of principals are generally satisfied with the quality. However, only 9% of the toilets are deemed sufficient for the student population, and just 36% of schools have a budget for maintenance. This could lead to potential usability issues over time.

Drinking Water Facilities

Improvements in drinking water facilities included new water coolers for all schools, Aqua Guard UV purifiers at 71%, and new or repaired water stations at 36%. Despite timely completion (93%), only 29% of facilities are sufficient for current needs. Principals reported mixed feedback on quality: 29% rated it excellent, 36% satisfactory, and 36% not good.

Menstrual Hygiene Management (MHM)

Comprehensive support in MHM led to 100% of schools receiving training and sanitary pad vending machines, significantly benefiting female students. However, the vending machines and incinerators are not being used as expected. The prime reason for the no use of sanitary pads vending machines was the cost of the pad for getting the pad, which is Rs. 5 per pad. Moreover, the Government also provides sanitary pads to the government schools for girls to promote MHM. Incinerators are run on electricity which consumes power as well and principals don't see the utility of using electric-run incinerators as it involves a risk of shock or any fatal situation. The majority of schools have a physical structure (run on fire) being used as an incinerator for the disposal of pads. This support was not found useful for the schools.

BaLA Initiatives

BaLA supports improved learning environments in 13 of 18 schools, with 100% reporting a more colourful and creative space and better sports facilities. This has significantly enhanced student engagement, demonstrating the effectiveness of such initiatives.

Overall, while the HDFC Grant has made substantial contributions, areas such as facility sufficiency and maintenance funding require attention to ensure sustained impact.

4.2 RECOMMENDATIONS

Here is one critical recommendation for each thematic area:

- ***Toilet:*** Establish a regular cleaning and maintenance schedule for toilets to ensure they remain functional and sanitary. Many schools report insufficient budgets for upkeep.
- ***Drinking Water:*** Invest in improving and maintaining water filtration and distribution systems to provide a reliable and safe drinking water supply for all students, as current facilities are insufficient for the number of students.
- ***MHM (Menstrual Hygiene Management):*** Develop and implement a comprehensive menstrual hygiene management education program that includes training for students and staff, along with ensuring the availability of sanitary products and machines in schools.
- ***BaLA:*** Ensure that educational displays are age-appropriate, engaging, and well-maintained to effectively support interactive learning and enhance student engagement.

- ***Smart Class:*** Enhance Technical Support and Training: Strengthen technical support and provide ongoing training for teachers to ensure effective use and maintenance of smart class equipment, addressing challenges related to equipment functionality and content updates.
- ***Library:*** Increase Library hours and accessibility for all students, including those in senior grades.
- ***STEM Lab:*** Broaden STEM Lab Access and Training: Extend the availability of STEM labs to senior students and provide regular, comprehensive training for teachers on utilizing STEM lab resources effectively to maximize educational benefits.

Findings on the OECD Criteria

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

Relevance

The project was found relevant for the government schools covered in UP covering 2 districts. In order to strengthen the digital learning in the government schools based in the rural and peri-urban areas, the project has the potential to provide adequate infrastructure in smart classes with advanced features. The schools were appropriately selected in discussion with the government department and after conducting the needs assessment rapidly. The type of support provided to the schools for infrastructure development was extremely relevant. **Under this component, HDFC Bank support has been found profoundly RELEVANT. This informs that the needs were identified, and schools were selected based on the information received from the needs assessment.**	5

Coherence

Under the project, the students were given sufficient and adequate access to the smart class for all the subjects where teachers felt the need for the interactive sessions on the topics. The students were also provided with the general knowledge and current affairs related information. Additionally, students were provided with opportunities such as library facilities, sports items to play, WASH facilties and improved appearance in the schools through BaLA paintings to create an enabling environment. Students were exposed to STEM Labs so that they can do practicals and understand the concepts and principles. All the principals, teachers and SMC members were found in sync with the usefulness of the HDFC Parivartan support which is very effective and efficient. The project not only provided the smart class and STEM Labs but also provided the access to sports and library facilities that enhances the development of reading skills and overall personality. **The HDFC Bank's support has been labelled as COHERENT. The support provided equal opportunity for the students as well as teachers in accessing the support for strengthening the digital class and digital content based learning through e-content and K-Yan projectors.**	5

Efficiency

HDFC Bank project support to the government schools in UP was efficient in terms of reach of the intervention. All the schools covered under the intervention provided access to all the students of Grades 6 to 8 to the smart classes and STEM Labs. Almost 2 teachers in each school got trained for using the smart class and its operations. Principals and SMC members endorsed the usefulness of the interventions for both smart class and STEM Labs as they could see the benefits among the students in terms of better grades and marks as well as practical exercises that provided the easy understanding of the topics. Over the time, K-Yan projectors got redundant and last year, government schools are provided with LED Smart TVs so that students can participate in e-learning portal 'Vidyashakti'. Thus K-Yan projectors were used for a limited period and teacherts used it for a limited period. Now the K-Yan support is only for a limited use. One additional NGO has also provided a part time teacher for taking smart class on select subjects. STEM Lab and library components are functional and teachers provide opportunities to take benefits from both. Students also expressed the satisfaction from these two interventions. MHM component has been found failed as none of the schools has the vending machines and incinerators non-functional as girls don't want to spend money for buying sanitary pads on subsidized cost. These girls usually get the pads supplied from the government or Anganwadi centres under adolescents' health program. **The intervention was identified as moderately efficient for the students as well as teachers.**	3

Effectiveness

The smart class support using K-Yan projector helped all the students of Grades 6 to 10 for a limited time and then Smart TVs were given to the schools. After that K-Yan support became redundant and nowhere in use. Teachers also were not satisfied with the K-Yan projector in comparison to Smart TVs. Many schools have non-functional K-Yan projectors and some have packed in a storage. STEM Labs and Libraries have been found helpful for the students that generated sound knowledge on science subjects. Reading habits have been improved. Teachers were found satisfied with STEM labs and library suppot. Other support for toilets and MHM and drinking water facilties was also not in use as expected. This shows that the funds spent on the support were not effectively utilized. **HDFC Bank support has been found less effective where a few interventions were benefical and some have not been able to leave their marks.**	2.5

Impact

After one year of support, the students are not receiving smart class using K-Yan projectors whereas other support have generated impact. Though K-Yan was used in the smart class but had a limited impact on students. Students rather get smart classes on LED smart TVs received from the Government. The HDFC Bank support for the smart classes was over-shadowed by the Government initiative just within a year. Though teachers perceived that students got benefitted from the K-Yan but assessment team observed that they were not comfortable in using K-Yan in comparison to LED smaty TV which is user-friendly. Students and teachers are satisfied with the STEM lab, Library and sports related support. These supports have impacted on the regularity of students and improvements in marks and scores are seen. Teachers endorsed the impact of digital classes on students. Schools have gained the repute and popularity because of modern resources received from HDFC Bank. **The HDFC Bank support has demonstrated the lesser IMPACT on the students and teachers and principals endorsed the improvements in students learning outcomes.**	2.5

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 – 3.3 out of 5

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