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Impact Assessment of a School Transformation Project

Impact Assessment Report

IMPACT
Partners in Social Development

Impact Assessment of a School Transformation Project

- Impact Assessment Report

Project ID	G0161

Study Team

Dr. Manish Subharwal
Dr. Sanjay Gupta
Dr. Ayaz Malik
Dharmendra Kumar Singh

Abbreviations

AV	Audio-Video
CSR	Corporate Social Responsibility
KABP	Knowledge, Attitude, Behaviour and Practices
MI	Monitoring and Impact
NGO	Non-Government Organization
SS	Smart Schools
TLM	Teaching Learning Materials
YUVA	Yuva Unstoppable

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Executive Summary

1. Background

HDFC Parivartan provided a grant to YUVA Unstoppable for a school transformation project between January 2023 and March 2023. The project was implemented to improve the learning environment in 373 schools across 14 states of India. Under the project, all the target schools were covered to establish smart classes with suitable technology options, along with painting work and provisioning seating arrangements in the smart classes.

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

Project/Impact Assessment Details	
Implementing NGO Partner	**YUVA Unstoppable**
Project Location and coverage	14 States
Project Duration	January 2023 – March 2023
Assessment Approach and Methodology	
Study Objectives	• To assess the extent to which the project achieved its intended results. • To ascertain the perception of stakeholders and project participants on the relevance and usefulness of the project interventions. • To identify learnings from the project that can be adapted for similar projects in future.
Research Design	Mixed methods approach (Quantitative and qualitative) Quantitative - Digital classroom checklist, Interviews with Teachers Qualitative – In-depth interviews with school principal and Focus Group Discussion with students
Sample Covered	Out of 373 schools covered in 14 states, 75 schools (20%) were covered from 6 states

2. Key Observations and Impact

2.1 Smart Classroom Intervention

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

Out of 75 schools, the advanced classrooms in 73 were completely functional and available to students and teachers. These specialized classrooms have all essential smart class amenities, enabling teachers to facilitate engaging lessons customized to the specific grade-level syllabus.

- All 75 schools have confirmed the receipt of the smart class setup. The setup includes a flat TV interactive panel (40 schools) or K-Yan projector (35 schools), a UPS as a power backup, and Android-based applications. This comprehensive support meets all the teachers' classroom teaching needs.
- More than two-thirds of teachers (69%) expressed that they strongly believe that integrating smart classes has significantly contributed to students' understanding of concepts and principles across various subjects. They highlighted that smart classes facilitate an environment where students can effectively seek clarification for their doubts and questions, leading to a deeper understanding of the academic material.
- Almost three-fourths of teachers (72%) observed a noticeable improvement in students' performance in tests and practical exercises following the implementation of smart classes. They emphasized that smart classes' interactive and engaging nature has positively impacted students' learning outcomes.
- Furthermore, 73% of teachers noticed a substantial increase in student regularity and attendance since the introduction of smart classes. They credited smart classes' dynamic and interactive nature with motivating students to attend classes regularly and participate actively in the learning process.
- The findings from focus group discussions with students indicate that most of them expressed satisfaction with the support provided by smart classes. Additionally, some students highlighted that smart classes allow them to comprehend concepts visually, allowing for the development of contextual understanding. Many students claimed that they had good learning with videos and sound. Students were satisfied with the wall painting work in the smart classes, which helped create an appropriate environment.
- The teachers across the three schools expressed satisfaction with implementing smart classes, encouraging students to actively engage in discussions and seek clarification for any uncertainties that arose from the disparity between their note-taking and visual learning experiences.
- HDFC's assistance has been widely recognized for incorporating advanced digital tools, significantly enhancing educational practices.

3. Findings on the OECD Criteria

This section provides the impact assessment findings considering the OECD research framework or criteria to oversee the overall impact of the HDFC Bank-supported school transformation project.

OECD Criteria	**Score**
Relevance	5
Coherence	5
Efficiency	4
Effectiveness	4
Impact	4
Sustainability	3
Overall Score	**4.2**

4. Key Recommendations

- The implementation partner must provide similar support to all the target schools under each grant.
- A stringent monitoring system should be established to monitor the regular usage of the supplied equipment.
- The implementation partner must submit all the relevant papers for the supplied equipment to the schools' principals so that the schools can take advantage of the warranty and other services offered by the vendors/suppliers.
- HDFC Bank must institutionalize the process of quarterly monitoring demanding reports with evidence to assess whether the provided support has been able to fulfil the beneficiaries' needs.

Introduction

1.1 Background

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

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

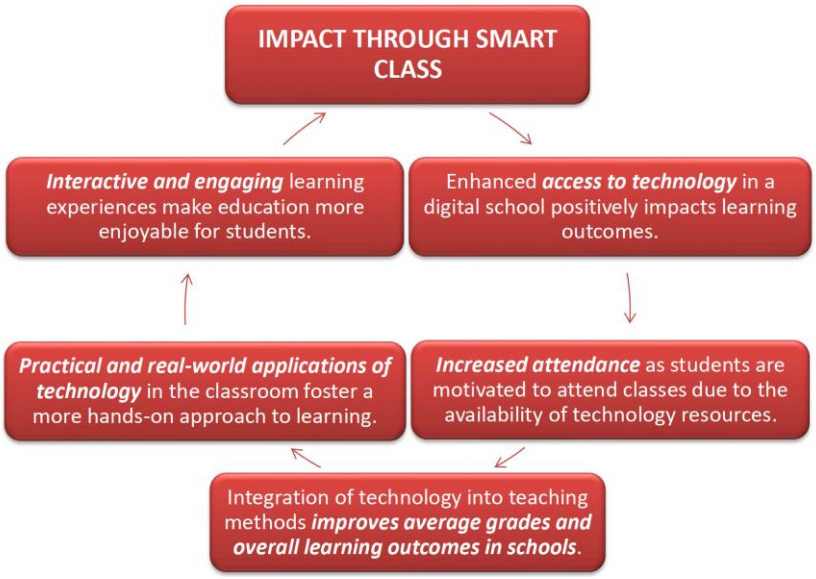
1.2 About the Project

During the financial year 2022-23, Yuva Unstoppable was supported by the HDFC Parivartan to improve the learning environment in 373 schools across 14 states of India. Activities carried out through the project over this period included providing the following infrastructure support:

- Smart Classroom
- Smart Tv
- Smart Panels
- Kyan Device and Interactive Whiteboard
- Benches
- UPS
- Classroom Colouring and Carpet

A total of 373 Schools were identified in Chhattisgarh (51), Goa (40), Gujarat (40), Rajasthan (3), Karnataka (11), Telangana (75), Andhra Pradesh (50), Uttar Pradesh (18), Kerala (3), Mizoram (6), Pondicherry (4), Maharashtra (41), Delhi (7) and Jharkhand (24).

As identified by Yuva Unstoppable, the expected impact of the project is depicted in the following illustration:



1.3 Objective of the Impact Assessment Study

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

IMPACT PSD Private Limited, a firm specializing in impact assessments, was selected to carry out a comprehensive impact assessment of the smart school development project. The report includes detailed information on the study's methodology, which involved extensive data collection, stakeholder interviews, and rigorous analysis.

Furthermore, the report presents the findings of the assessment, including the identified impacts, both positive and negative, and recommendations for maximizing the project's benefits while minimizing any adverse effects.

The Intervention Model

The project involved setting up a smart class and wall paintings as outlined in the table provided.

Activity	Tasks achieved	Qualitative	Assessment Indicators
Smart/ Interactive learning infrastructure	373	• The activity shall enhance the teaching and learning experience of the teachers and students respectively and ensure effective learning by the students.	• 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
Painting for interior walls of classrooms and provision of furniture	373	• Enhance and provide a conducive learning environment for the students of the government schools	• Availability of supplied equipment and their functionality • Quality of products supplied • Repair and maintenance (provision, funds, warranty) • Usefulness of products • Perception of its impact on student attendance and regularity • Perception of its impact on school reputation

Study Methodology

1. Assessment Framework

To conduct impact assessment studies, we suggest utilizing the assessment framework that is considered a gold standard in evaluation, based on the standard OECD-DAC criteria 1. It is recommended that this framework be adapted whenever possible and applicable.

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

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	Indicators/Questions
Relevance	• What criteria were adopted for identifying the schools for support • How was the need assessment undertaken for the support • To what extent did the support meet the identified needs
Coherence	• What challenges were faced by schools due to non-availability of Smart class or Digital Classroom • How the type of equipment, digital content and other essentials were finalized for the Digital Classroom • How did the Digital Classroom supported the school in achieving the expected results • Options available with the school for repair and maintenance services of Digital Classroom and maintenance
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
Effectiveness	• The extent to which Digital Classroom contributed in improving the retention and regularity of students in classes

	Indicators/Questions

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 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

2.1 Research Methods

A mixed-method approach was adopted for the impact assessment study. Face-to-face interviews were conducted under the quantitative research component, and checklists were filled out 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.

2.2 Geographic Coverage

A total of 373 Schools were identified in Chhattisgarh (51), Goa (40), Gujarat (40), Rajasthan (3), Karnataka (11), Telangana (75), Andhra Pradesh (50), Uttar Pradesh (18), Kerala (3), Mizoram (6), Pondicherry (4), Maharashtra (41), Delhi (7) and Jharkhand (24).

2.3 Target Groups

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

2.4 Sample and Sampling Procedure

Of the 373 schools from 14 states included in the project, a total of 75 (20%) schools were randomly selected from 6 out of 14 states. The states were chosen depending on the number of schools in each state. The states were arranged in descending order, as per the number of schools covered in each state. Then, the top two, bottom two and middle two states were selected. The selected states were:

- Telangana
- Chhattisgarh
- Jharkhand
- Uttar Pradesh
- Rajasthan
- Kerala

A total of 10 students, two teachers and 1 principal from each school were selected for the data collection. For students, we conducted one FGD in each school, with 5 students (including both boys and girls) in each FGD.

2.5 Sample Coverage

The following sample was covered under the assessment:

Target Group	Total
Schools	**72**
Checklists	**72**
Students	**72 FGDs (360 students)**
Teachers	**144**
Principals	**72**

One school was provided with 3 smart classes and one with two smart classes. Due to this fact, the sample coverage was 72 schools instead of 75 as proposed to be covered.

2.6 Study Tools

The following tools were developed for collecting data:

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

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

2.7 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.

2.8 Survey Implementation

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

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

- Before the return, the principals and teachers were duly acknowledged for their coordination and support offered for the impact assessment study.

2.9 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.

2.10 Challenges Faced

- The schools took a huge amount of time to grant permission for the data collection.

Current Status of the Equipment and Supplies Provided through the Support

This chapter provides a detailed overview of the assessment findings resulting from the physical verification of the support provided under the smart school development initiative. The verification covered 72 schools across six states and focused on the status of smart classrooms, particularly the availability and functionality of equipment. The findings not only highlight the current state of the smart classrooms but also delve into the underlying reasons for any non-functionality observed. This comprehensive approach ensures that any issues can be accurately reported and addressed, leading to valuable insights for future improvements in the initiative.

3.1 Smart Class

Out of the total 72 schools, 43 schools (60%) are equipped with advanced teaching aids such as LED TVs, Smart TVs, or interactive smart boards, reflecting a robust integration of technology into the learning environment. Additionally, 25 schools (35%) utilize projectors or KYAN projectors to enrich the learning experience through visual aids. Furthermore, 54 schools (75%) are furnished with essential furniture including chairs, tables, and benches, thereby establishing the requisite physical infrastructure for both students and teachers.

In 46 out of 72 schools (64%), essential peripherals such as mice, keyboards, remotes, play equipment, HDMI cables, and Bluetooth devices are available to support the seamless functioning of digital classrooms. Moreover, 28 schools (39%) have enhanced their smart rooms with visually engaging elements like charts, posters, and wall paintings, creating a more immersive learning environment. Additionally, 16 schools (22%) have opted for comfortable mats or carpets on the floors, further enhancing the usability and cosiness of the smart rooms. Notably, only 5 schools (7%) were equipped with functioning UPS systems or batteries, highlighting an area for potential improvement to ensure uninterrupted power supply.

In spite of the encouraging results, five schools are encountering challenges with malfunctioning equipment. Specifically, in Chandauli and Chhattisgarh, there have been reports of non-functional equipment, with issues persisting for as long as four months. In certain instances, the connection was never established, and complaints have yet to be resolved.

The recent physical verification has revealed positive outcomes from the implementation of the smart class initiative. The assessment indicates that 60% of the schools have fully functional smart LED TVs or KYAN projectors, enabling interactive and engaging learning experiences for the students. Additionally, 75% of the schools are equipped with adequate furniture, ensuring a comfortable and conducive environment for learning. Furthermore, peripheral devices such as computers, tablets, and educational gadgets were found in 64% of the schools, contributing to a comprehensive digital learning infrastructure. Moreover, 39% of the schools were observed to have classroom enrichment materials, including educational posters, models, and educational games, further enhancing the digital learning environment and providing diverse learning opportunities for the students.

Study Findings

This chapter delves into the comprehensive findings derived from in-depth discussions with principals, teachers, and students from a diverse range of project schools. The results offer valuable insights into the impact of HDFC Bank's support of the Smart Class intervention in 72 schools across 6 states. By meticulously analyzing the gathered data, this chapter meticulously showcases the primary benefits, challenges, and key areas for improvement as reported by the respondents.

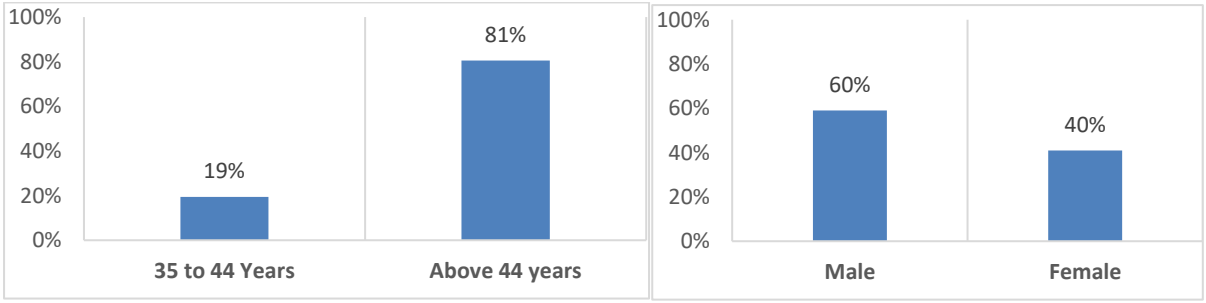
Coverage	Chhattisgarh	Jharkhand	Rajasthan	Telangana	Uttar Pradesh	Kerala	Total
No. of principals	19	10	3	29	10	1	**72**
No. of teachers	19	10	3	29	10	1	**72**

The sample included 72 principals and teachers responsible for smart class operations (N=72) across these six states.

3.2 Profile of the Principals

A total of 72 principals were contacted, and information was collected about the infrastructure support received for the schools. The following graphs show the age distribution and gender of the principals.

Graph 1: Distribution of Principals by Age and Gender (N=72)



The STEM Lab Project in government schools of six participating states interviewed 72 teachers.

Among the 72 respondents, 81% were over 44 years old, with all teachers in Chhattisgarh, Rajasthan, and Kerala in this age group. Jharkhand stands out as the youngest group, as 60% were aged 35 to 44. No respondents were found under 35 years of age.

The gender distribution among teachers in India shows that 60% were male and 40% were female. Notably, all teachers surveyed in Rajasthan were male, while all teachers surveyed in Kerala were female. In Telangana and Uttar Pradesh, there was a nearly equal division between male and female teachers among the respondents.

More than two-fifths (44%) of respondents had 21 to 30 years of experience, with Telangana leading in this range (72%). About a quarter (24%) had over 30 years of experience, primarily in Chhattisgarh (79%) and Kerala (100%). Jharkhand had the highest proportion of principals with up to 10 years of experience (60%).

More than half of principals (54%) have been at their current school for up to 5 years, with Telangana having the most (83%). 24% have been in the same school for 6 to 10 years, while 22% have been there for over 10 years, most notably in Kerala (100%) and Chhattisgarh (47%).

3.3 Information on Infrastructure Support

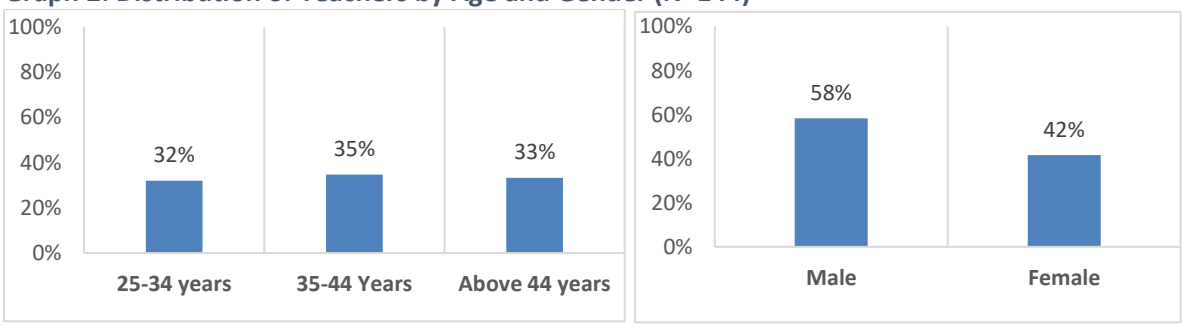
Under the project, smart class infrastructure support was provided to the targeted 72 schools, incorporating the needful components. All schools in the six states received SMART Class facilities. While SMART

The support provided by HDFC Bank has been instrumental in ensuring that all (100%) schools have been equipped with smart classrooms and essential infrastructure. This initiative has significantly improved the learning environment for students, allowing them to access modern educational facilities and ensuring their regular attendance in schools. This support has not only enhanced the quality of education but also contributed to creating a more conducive and interactive learning environment for students across all schools.

3.4 Profile of the Teachers

A total of 144 teachers 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 2: Distribution of Teachers by Age and Gender (N=144)



Among the 72 teachers surveyed, 32% were aged 25 to 34 years. The state of Jharkhand had the highest proportion, at 70%, in this age group. In the 35 to 44 age group, 35% of the teachers fell into this category, with Rajasthan showing a strong representation at 67%. Additionally, 33% of the teachers were above 44 years old, predominantly in Telangana, where 55% of the teachers were in this age group.

Overall, 58% of respondents were male, with Rajasthan having a 100% male representation. Jharkhand had an equal gender distribution at 50% for both males and females. Notably, Kerala had the highest percentage of female teachers (100%), while Telangana had a balanced distribution with 52% female and 48% male teachers.

More than two-fifths of teachers (47%) had up to 10 years of experience, with Jharkhand showing a high percentage at 80%. Those with 11 to 20 years of experience make up 32%, particularly prominent in Telangana (38%). Only 3% had over 30 years of experience, with this mainly found in Kerala (100%).

More than half of teachers (53%) had worked in their current school for up to 5 years, with Telangana having the highest proportion at 72%. 33% had 6 to 10 years of experience, notably in Uttar Pradesh (60%). Only 14% of teachers had been in the same school for over 10 years, with a significant presence in Chhattisgarh (37%).

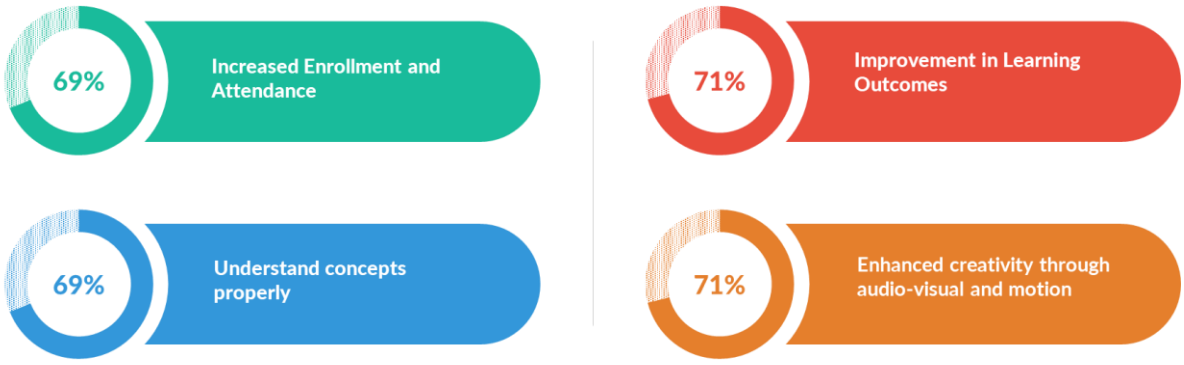
3.5 Information on Infrastructure Support

Under the project, different types of smart class support incorporating the necessary components were provided to the targeted 72 schools. The following graph portrays the type of infrastructure support offered to schools.

The schools were largely provided with LED Screens, interactive Boards, or KYAN Projectors. Posters, IEC Materials, and Wall Writing were present in 100% of the cases.

The majority of schools (98%) received smart class support between 2022 and 2023, with significant developments occurring in 2023. The majority of installations (83%) were carried out by the company or vendor who supplied the equipment as perceived by the teachers.

Graph 3: Improvements Observed Since Initiation of SMART Class (N=144)



Since the initiation of SMART Class, several improvements have been observed among students. Attendance has increased by 69% as students show more interest in their classes. Learning outcomes and enrollment have improved by 71%, positively impacting educational engagement. Additionally, 69% of students now understand concepts better and are more likely to ask questions. The use of visuals, sound, and motion has generated creativity and enhanced learning methods and subjects for 71% of the students. These improvements highlight the effectiveness of SMART Class in fostering a more engaging and effective learning environment.

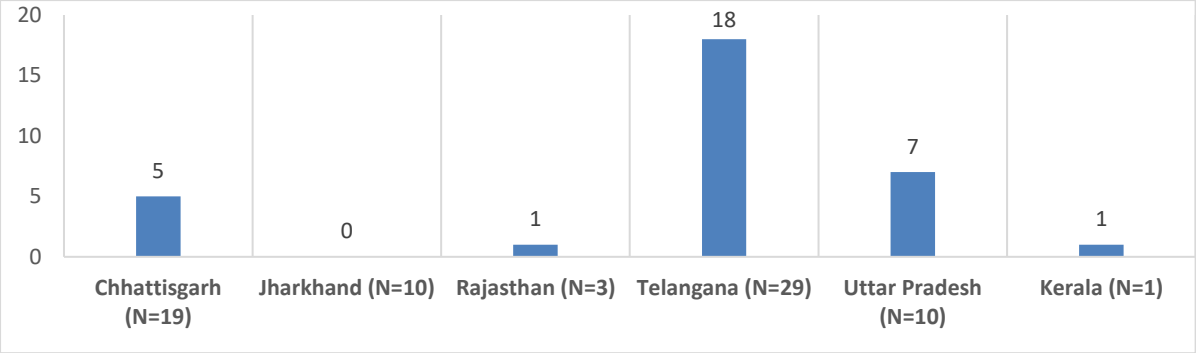
Training Receipt for Operation of Equipment

The data also revealed that a significant majority, 76%, of the total teacher respondents received training for operating the smart class or digital classroom setup. The widespread training across states indicates a strong emphasis on equipping teachers with the necessary skills to use digital classroom technologies effectively.

Teachers informed that NGO staff or officials provided the majority of training for the operations of the smart class or digital classroom setup, accounting for 78% of the total training across all states. This data highlights the significant role of NGO 'YUVA' in training teachers for digital classroom setups.

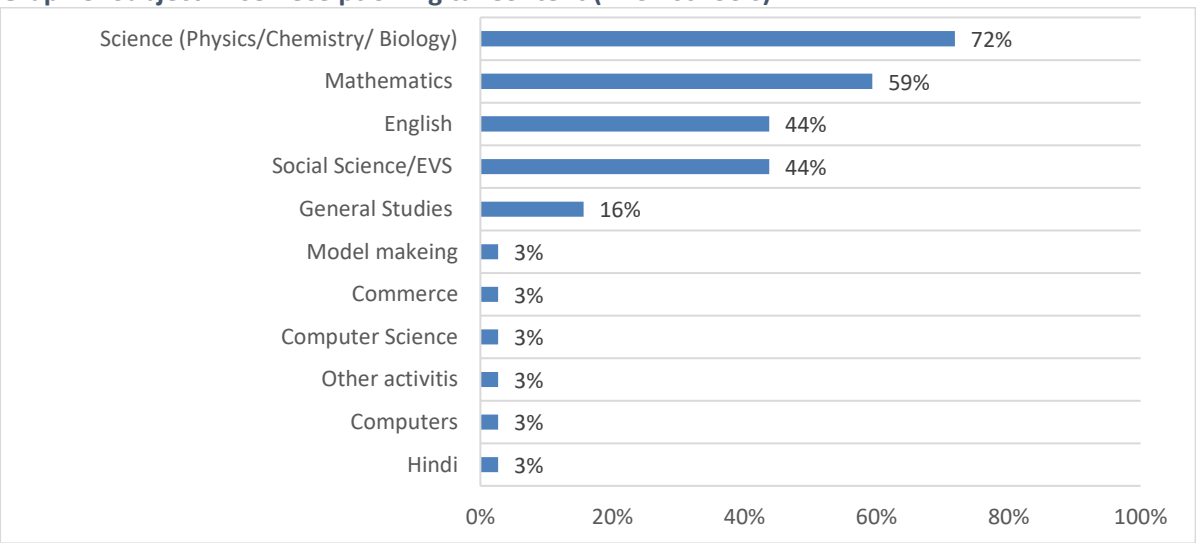
The training received by teachers for digital content-based education was deemed highly beneficial. Among respondents, 65% found the training "very useful", with notable enthusiasm in Chhattisgarh (86%) and Telangana (85%). In contrast, 33% considered it "useful". Only 2% of the respondents felt it was "not at all useful", indicating a generally positive perception of the training's impact on their readiness for digital education.

Graph 4: Receipt of Digital content (N=72 schools)



Teachers' access to digital educational materials showed significant regional discrepancies. Out of 72 schools, only 32 reported receiving digital content. The distribution was notably higher in Telangana, where 18 schools had access, and in Uttar Pradesh, where 7 schools benefited from digital resources. This disparity underscores the unequal allocation of resources within the program, emphasizing the necessity for enhanced digital material accessibility in all regions.

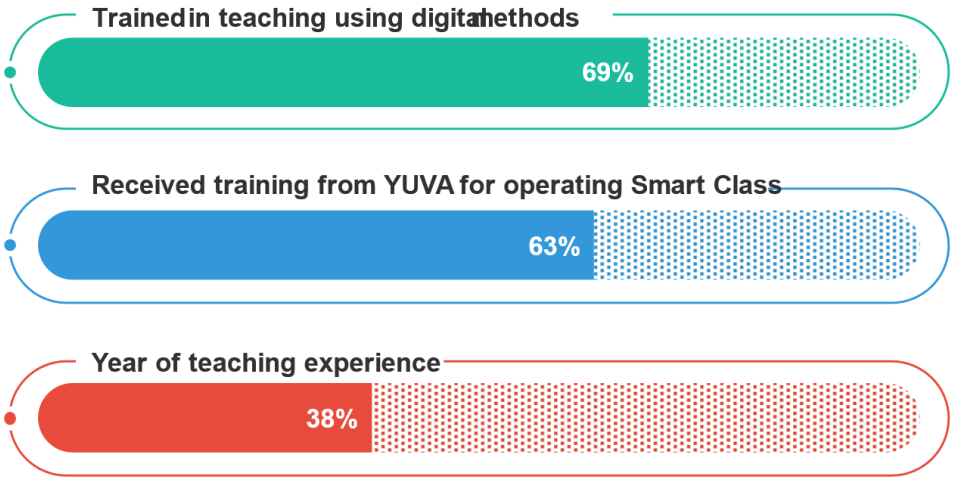
Graph 5: Subject-wise Receipt of Digital Content (N=32 schools)



The digital content received under the HDFC Bank project covered a variety of subjects. The most included subjects were Science (Physics/Chemistry/Biology) at 72% and Mathematics at 59%. Social Science/EVS and English were both included at 44%. General Studies is covered at 16%. Other subjects like Hindi, Computers, Other activities, Computer Science, Commerce, and Model making each had a 3% inclusion rate**. This distribution indicates a strong emphasis on STEM subjects in the digital content provided,** fostering critical thinking and problem-solving skills.

Teachers reported varying levels of comfort in delivering topics using the provided digital content. More than half of respondents (53%) felt very comfortable, while 47% indicated they were comfortable. Notably, all teachers from Rajasthan and Kerala expressed confidence, whereas the comfort levels in Jharkhand were not represented, highlighting differing experiences across regions.

Teachers' confidence in using digital content stems from 69% being trained in digital methods, 63% receiving training from YUVA for smart class operations, and 38% relying on their teaching experience, highlighting the importance of both formal training and practical experience.



Perceived Benefits of Digital Content in Teaching

Among the 32 teachers who received digital content, all found it helpful in explaining concepts and topics effectively. Two teachers reported that the digital content facilitated a very effective learning process through visual forms, eased lesson planning, and simplified providing lesson summaries.

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

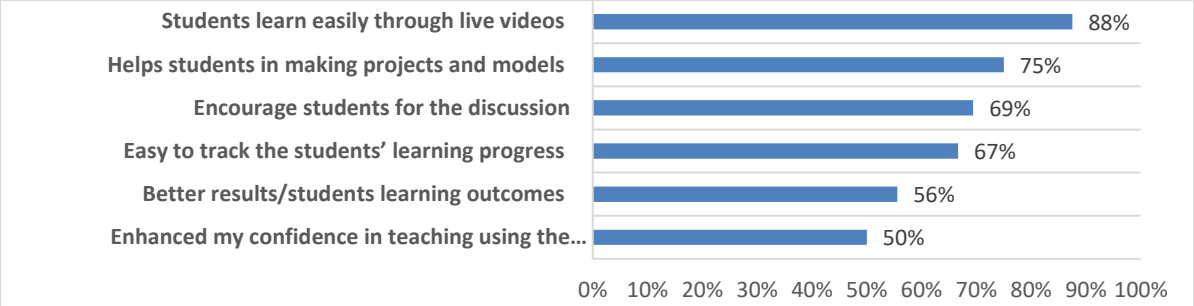
66% (N=21)	Very effective learning process in visual form
75% (N=24)	Easy to explain the concepts and topics
72% (N=23)	Provides joyful learning environment
50% (N=26)	Easy in lesson planning
38% (N=12)	Easy in providing the lesson summary
34% (N=11)	Helps in preparing for extra classes

These above-stated benefits highlight the versatility and effectiveness of digital content in enhancing various aspects of teaching

Advantages of Using Digital Content

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

Graph 7: Advantages of Using Smart Class (N=144)



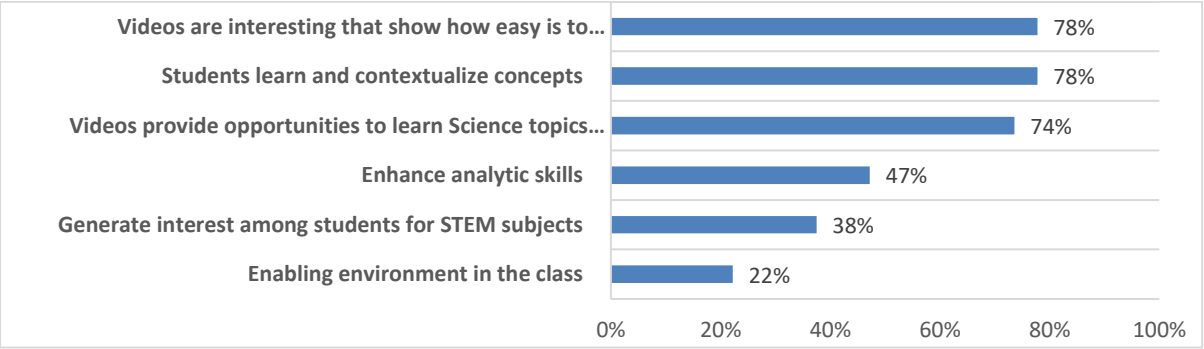
When asked about the advantages of using Smart or Digital Classes, a significant 88% of respondents noted that students learn more easily through live videos, which enhances their understanding and retention of information. Additionally, 75% of respondents found that digital classes help students in making projects and models, fostering hands-on learning and creativity. Encouraging student discussions is another key benefit, with 69% of respondents highlighting this aspect. Tracking students' learning progress is made easier with digital tools, as indicated by 67% of respondents. Furthermore, 56% observed better student learning outcomes, and 50% reported an increase in their own confidence in teaching using smart or digital classes. These advantages collectively underscore the effectiveness of digital classrooms in improving both teaching and learning experiences.

Students have expressed that the integration of digital classes has significantly improved their learning experience by making lessons more engaging and helping to clarify complex concepts. They have observed that digital learning is utilized across a wide range of subjects such as Hindi, English, Math, Science, and Social Science. This integration has led to an overall improvement in their understanding of the subjects and has increased their participation in class activities.

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

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

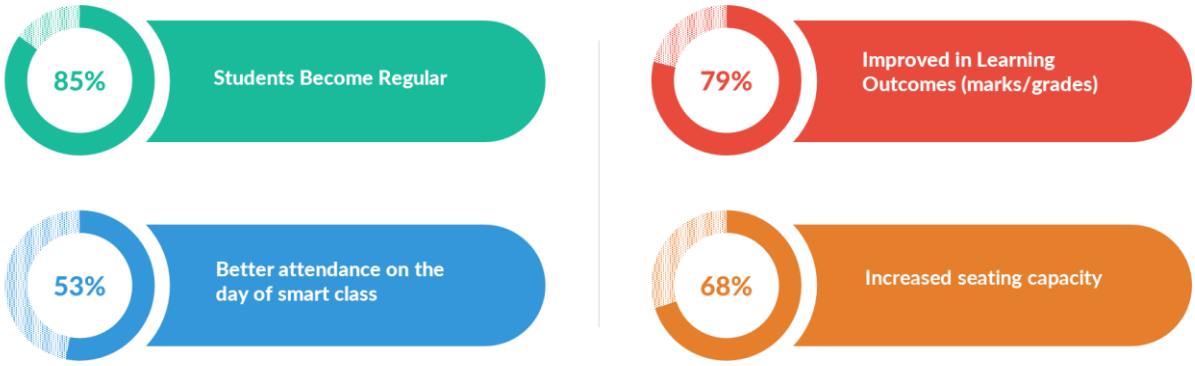
Graph 8: How Digital Content Boosts Interest in Subjects (N=144)



Upon asking, teachers 58% of teachers expressed that techno-pedagogy is 'very effective', while 39% consider it 'effective'.

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

Graph 9: Impact of Smart Class on Student's Regularity and Learning Outcomes (N=144)



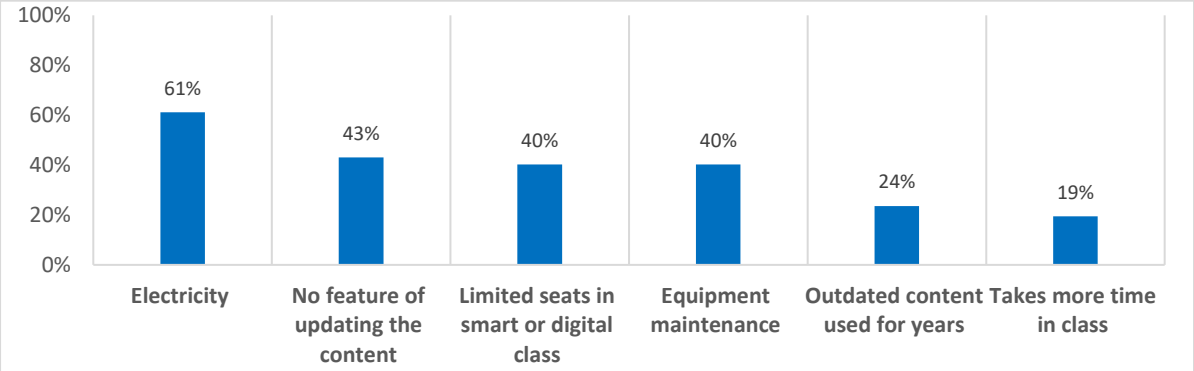
The introduction of smart or digital classes has positively impacted school attendance, with 85% of respondents noting that students have become more regular and 53% observing better attendance on digital class days. Furthermore, 79% report improved learning outcomes among students, indicating enhanced academic performance. Additionally, 68% believe that the seating capacity in smart or digital classes has increased, contributing to a more effective learning environment.

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

Type of Challenges for Smart Class

The most significant issues reported by the majority of teachers were frequent and prolonged electricity cuts, inability to update the digital content, equipment maintenance and limited seating capacity, which made the digital classes time-consuming. Other challenges are shown in the following graph.

Graph 10: Challenges in Smart Classes (N=72 schools)



These challenges can lead to interruptions in teaching due to power outages, reduced teaching efficiency as more time is spent on setup, and limited student participation because of seating

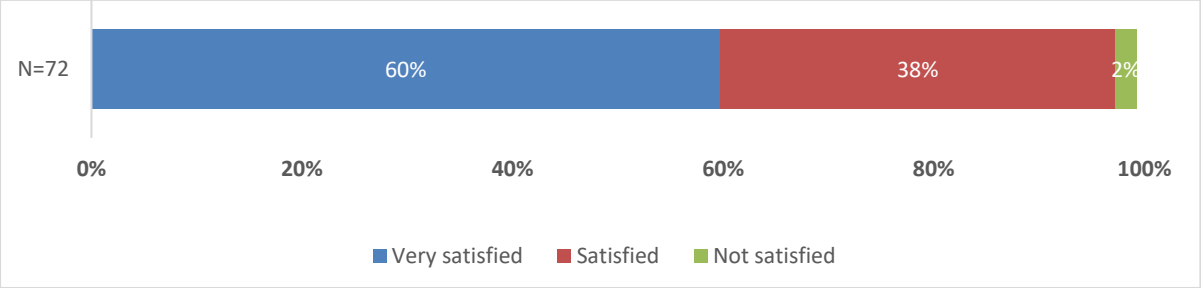
constraints. The lack of features for updating content can also diminish student engagement and learning outcomes. Furthermore, technical difficulties from equipment maintenance issues can further impede the learning process.

During the discussion, students shared their positive experiences with smart or digital classes. However, they also highlighted some persistent challenges, including internet connectivity issues, power outages, and a shortage of digital materials. Several students expressed concerns about the impact of these challenges on their learning experience. Nevertheless, many students emphasized the crucial role of skilled teachers in effectively guiding them through the digital learning process, underscoring the importance of mentorship and support in overcoming these obstacles.

Teachers were asked how these challenges could be addressed. To address the challenges faced in implementing smart or digital classes, several solutions have been identified by the respondents. The most critical solution is ensuring power backup, such as generators or inverters, which 67% of respondents highlighted as essential. Regular maintenance of equipment is also crucial, with 51% of respondents emphasizing its importance. Increasing the number of seats in smart classes (49%) and ensuring a timely and regular supply of digital content (42%) are also significant measures. Additionally, 42% of respondents believe that having more smart classes would help. Addressing internet problems, although noted by only 4% of respondents, is still a necessary consideration. These solutions collectively aim to enhance the effectiveness and sustainability of digital education.

Data depicts a positive perception of digital classes among parents. A significant proportion of teachers (88%) claimed that parents like digital classes and feel happy about them. Additionally, 51% of teachers mentioned that parents gratefully acknowledged that digital classes support their children in securing good marks. However, 8% of respondent teachers had not interacted with parents to learn their perception of the use of digital classes. This feedback highlights parents' general approval and perceived benefits of digital education.

Graph 11: Teachers' Satisfaction towards Smart Class (N=144)

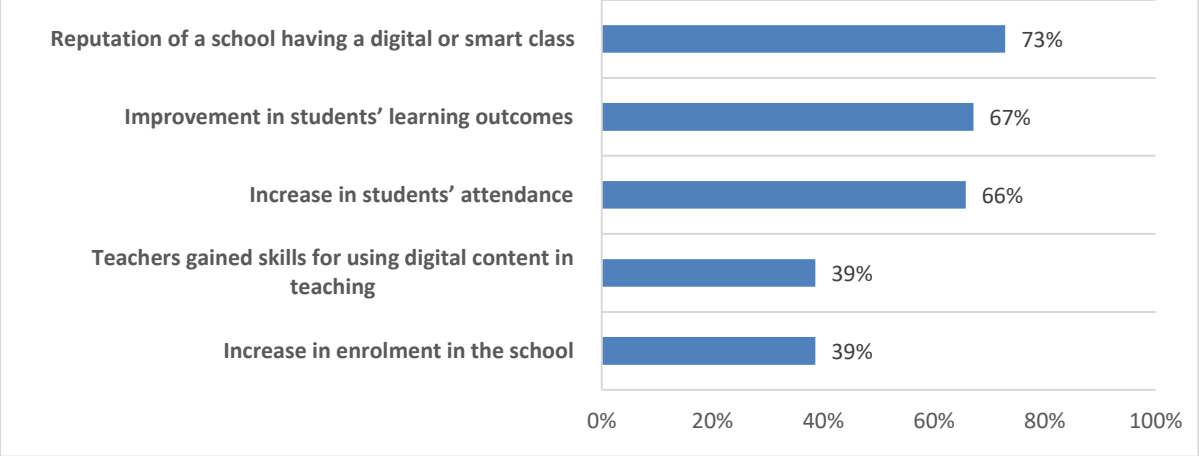


The graph shows a generally positive reception of digital education with stagewise variation. 60% of respondents were very satisfied, with the highest satisfaction in Chhattisgarh (74%) and Telangana (69%). This data indicates a generally positive reception of digital education, with most teachers finding it beneficial.

Teachers highlighted several reasons for their satisfaction with digital content-based education. Most notably, 86% found it easy and helpful for teaching, and 71% observed that students enjoy digital content. Additionally, 61% found it easier to plan lessons, and 59% reported improved student learning outcomes and enhanced digital teaching skills.

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

Graph 12: Advantages to Schools from HDFC Bank Support for Smart Class Set up (N=140)

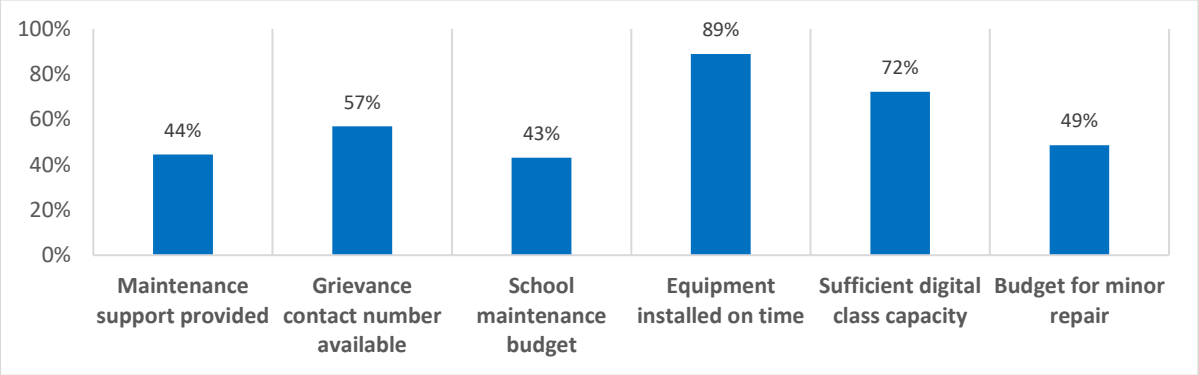


These teachers (N=140) also observed several advantages due to HDFC Bank's support. A significant 73% mentioned an improved reputation due to having digital or smart classes. Additionally, 67% reported improvements in students' learning outcomes, 66% saw an increase in attendance, and 39% noted both an increase in enrolment and teachers gaining digital teaching skills.

Students unanimously expressed satisfaction with the use of smart or digital classes and digital content-based teaching in the smart class at their school. This consistent feedback reflects a positive reception of the digital learning environment, indicating that students find value in the innovative teaching methods employed

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

Graph 13: Needs for Smooth Functioning of Smart Class (N=72 schools)



A concise summary, based on the responses of the smart class teachers as depicted in the graph, is presented below:

- ***Maintenance Support:*** 44% of schools received maintenance support for their digital classroom equipment, while 56% did not. NGOs mostly provided support (78%), followed by the education department (19%). Notably, Jharkhand and Kerala had 100% of schools without maintenance support.

- ***Contact for Grievance Redressal:*** 57% of schools had a contact number for grievance redressal, leaving 43% without access to such support. Chhattisgarh had a higher percentage (53%) of schools without grievance redressal contacts.

- ***Maintenance Budget:*** Only 43% of schools had a budget for maintenance, leaving 57% without provisions for upkeep. Jharkhand and Kerala again stood out with 100% of schools lacking a maintenance budget.

- ***Installation Timeliness:*** 89% of schools reported that the equipment was installed on time, while 11% experienced delays. Most states reported timely installations, with minor delays noted in some regions.

- ***Equipment Quality:*** 51% of schools rated the equipment as excellent, while 49% found it satisfactory. There were no reports of poor-quality equipment.

- ***Seating Capacity:*** 72% of schools feel that the SMART/Digital Class capacity is sufficient for their current student strength, but 28% believe it needs improvement. Uttar Pradesh had a higher percentage (60%) of schools feeling the capacity was insufficient.

- ***Repair Budget:*** 49% of schools have a budget for minor repairs, while 51% do not have provisions for regular equipment upkeep. Jharkhand and Kerala had 100% of schools without a repair budget.

While the initial installation of digital classrooms is generally satisfactory, ongoing support and maintenance present significant challenges. Many schools struggle with the lack of resources and budget allocated for effective upkeep, which ultimately impacts the sustained effectiveness of these digital learning environments. This often leads to issues such as outdated software, insufficient technical support, and limited access to necessary upgrades, hindering the full potential of digital classrooms in providing quality education.

Conclusion and Recommendation

After carefully analyzing the findings of the study, we have concluded that the support provided to the schools has had a positive impact on student performance. Our discussions with the principals, teachers, and students revealed that the additional resources and support services have contributed to an improved learning environment. As a result of our analysis, we have developed a set of recommendations aimed at further enhancing the educational experience for both students and teachers. These recommendations include initiatives to expand access to educational technology, provide professional development opportunities for teachers, and implement targeted support programs for students with specific needs. We believe that these recommendations will help to build on the progress that has already been made and contribute to the continued success of the school community.

4.1 CONCLUSION

Principals

The analysis of the principals across six states reveals a seasoned and diverse group of leaders overseeing the implementation of smart class operations. With 81% of principals over the age of 44 and a significant portion possessing 21 to 30 years of experience, these educators bring a wealth of knowledge and stability to their roles. Importantly, all 72 schools have received SMART Class facilities, showcasing the effective support provided by HDFC Bank to enhance educational infrastructure. This comprehensive initiative aims to create conducive learning environments, ensuring that students have the necessary resources to thrive academically and remain engaged in their education.

Teachers

The teacher profile across the six states reveals a diverse and committed group of 72 educators, with 32% aged 25 to 34 years and 58% male representation. Most teachers (47%) have up to 10 years of experience, and 53% have been in their current school for five years or less. The majority of the teachers expressed that the support from HDFC Bank in providing SMART Class facilities enhances their ability to create an effective learning environment for students.

Smart Class

The project successfully implemented SMART Class facilities in 72 government schools across six states, significantly enhancing the educational experience for both students and teachers. The comprehensive support provided included the installation of essential digital infrastructure, such as LED Screens or KYAN Projectors, with notable coverage in all participating schools. Training initiatives for teachers were robust, with 76% receiving essential training in operating digital classrooms, primarily from the NGO YUVA.

The positive impacts of these initiatives are evident: attendance increased by 69%, and 79% of teachers reported improved learning outcomes among students. Digital content has proven beneficial in making lessons more engaging and clarifying complex topics, as highlighted by 88% of teachers who noted its effectiveness through live videos. Despite challenges such as electricity outages and maintenance issues, the overall reception of digital education is positive, with 88% of parents expressing satisfaction with the use of digital classes.

In conclusion, while the introduction of SMART Classes has significantly improved educational quality and engagement, addressing ongoing maintenance and support challenges is crucial for sustaining these benefits. This project highlights the effectiveness of digital education in fostering a more interactive and enriching learning environment, but continued efforts are needed to ensure the long-term viability and success of digital classrooms.

4.2 RECOMMENDATIONS

- The implementation partner must provide similar support to all the target schools under each grant.
- A stringent monitoring system should be established to monitor the regular usage of the supplied equipment.
- The implementation partner must submit all the relevant papers for the supplied equipment to the schools' principals so that the schools can take advantage of the warranty and other services offered by the vendors/suppliers.

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 class development.

Relevance

The SMART Class project is highly relevant to the educational needs of the targeted schools across six states, addressing gaps in digital infrastructure and technology-based teaching. The project aligns with national education goals to enhance digital literacy and improve learning outcomes through the integration of ICT in classrooms. By focusing on STEM subjects, it directly supports curriculum objectives while equipping schools with essential technology tools. **Under this component, despite some gaps, HDFC Bank support is profoundly RELEVANT.**	5

Coherence

The project demonstrates coherence with existing government initiatives promoting digital education, such as Digital India and National Education Policy (NEP) 2020. The project exhibits coherence in its strategic approach by integrating multiple components to establish a comprehensive educational framework. All key stakeholders—principals, teachers, and parents recognized the value of HDFC Parivartan's comprehensive support and its alignment with the educational goals of beneficiaries and stakeholders. However, gaps in digital content and teacher training led to misalignment in daily activities, hindering the project's ability to achieve full coherence despite strong material development. **The HDFC Bank's support has been labelled as COHERENT.**	5

Effectiveness

The project effectively improved learning environment of the intervening schools by equipping these schools with required tech and digital equipment across the 72 targeted schools. SMART Class technology has enhanced the quality of teaching, with 71% of teachers reporting better student comprehension of complex topics. The training provided to teachers has equipped them with the skills to use digital tools effectively. However, the lack of digital content and infrastructure disparities across states highlights the need for further improvements in uniformity of resources. While the project demonstrated significant **EFFECTIVENESS.**	4

Efficiency

The project has been efficiently implemented, with 83% of equipment installed on time and schools receiving the necessary infrastructure support. The allocation of resources like SMART Class facilities, interactive boards, and digital content demonstrates judicious use of funds. However, the lack of maintenance budgets and uneven distribution of digital content indicates areas for better resource management, particularly in sustaining infrastructure. **The intervention was identified as moderately efficient for the students as well as teachers.**	4

Impact

The SMART Class project has had a significant positive impact on student learning outcomes and teacher pedagogy. Attendance has increased in 69% of schools, and teachers have noted improved creativity, understanding, and student participation in lessons. The introduction of digital content in STEM subjects has fostered greater engagement with science and mathematics. Additionally, the reputation of schools has improved due to the introduction of digital classrooms. **The HDFC Bank support has demonstrated the decent IMPACT on the students and teachers and principals partially endorsed the improvements in students learning outcomes.**	4

Sustainability

While the SMART Class project has initiated positive changes, its sustainability depends on several factors. Continued maintenance and upkeep of infrastructure are crucial, as many schools lack a budget for repairs and updates. Regular teacher training and consistent digital content updates will be needed to ensure long-term success. The integration of community support and collaboration with government agencies will be critical in maintaining the benefits of the project over time.	3

Overall Average Score – 4.2 out of 5

IMPACT PSD Private Limited
Urbtech Trade Centre | INS-430 – Tower B-35,
Sector 132, Expressway Noida-201 304 (UP)
www.impactpsd.org | helpdesk@impactpsd.org
Call: 0120 - 6025 025