Improving Teacher Uptake of Effective Foundational Literacy and Numeracy (FLN) Instruction

Effect of behaviourally designed interventions on teacher adoption of effective pedagogical practices in Uttar Pradesh, India

Qualitative Evaluation Report

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List of Abbreviations

BLO	Booth Level Officer
CSBC	Centre for Social and Behaviour Change
CSF	Central Square Foundation
CWPM	Correct Words Per Minute
DBT	Direct Benefit Transfers
FLN	Foundational Literacy and Numeracy
GK	General Knowledge
GRR	Gradual Release of Responsibility
HM	Headmaster
IDIs	In-depth interviews
OLD	Oral Language Development
MDM	Mid-Day Meal
MLC	Multi-Level Classroom
MPV	Micro-practice video
PTMs	Parent-Teacher Meetings
PWD	Persons with Disabilities
RCT	Randomised Controlled Trial
SMC	School Management Committee
TG	Teacher Guide

Chapter 1: Introduction

The NIPUN Bharat Mission (2021) by the Ministry of Education, Government of India, aims to address the foundational learning crisis in India by 2026-27, with every child mastering necessary competencies in reading, writing and numeracy by the end of grade 3, and no later than grade 5. Central Square Foundation (CSF) is supporting the state of Uttar Pradesh in implementing the NIPUN Bharat Mission across over 111,000 schools, involving more than 333,000 teachers and 11.8 million students in grades 1-3. Despite the provision of materials and training, teacher adoption of the prescribed curriculum under the NIPUN program has been low, highlighting the need for behavioural interventions to overcome barriers and improve FLN outcomes. To address these challenges, the Centre for Social and Behaviour Change (CSBC) and CSF conducted a study in the Sitapur and Hardoi districts of Uttar Pradesh. The study aimed to identify, design, and evaluate scalable behaviour change interventions that could support teachers in adopting effective instructional practices. The diagnostic phase involved classroom observations, focus group discussions, and interviews with various educational stakeholders, uncovering key behavioural barriers such as cognitive overload, low sense of agency, and technological challenges. Two targeted interventions were developed - a WhatsApp chatbot to support teachers in lesson planning; and micro-practice videos to improve pedagogical practices. These interventions, designed to address specific behavioural barriers, were deployed to enhance teacher engagement and ultimately improve student learning outcomes in foundational literacy and numeracy.

To evaluate the effectiveness of the interventions, a Randomised Controlled Trial (RCT) was conducted by the Centre for Social and Behaviour Change (CSBC) in the Sitapur and Hardoi districts. The RCT involved both baseline and endline assessments, as well as classroom observations during the intervention period to monitor progress. These observations provided valuable insights into how the interventions were being implemented and their impact on classroom practices. Despite these efforts, the engagement data revealed that teacher participation in both the chatbot and micro-practice video (MPV) interventions was lower than expected, raising concerns about the overall effectiveness of these strategies in driving the desired behaviour change.

Given the low levels of engagement observed, the need for a qualitative study became evident. This follow-up study aimed to gain a deeper understanding of the field realities and to assess the on-ground impact of the interventions on teacher practices. Additionally, the study sought to determine whether the behavioural barriers and enablers identified during the diagnostic phase had shifted or remained consistent throughout the intervention period. By exploring these aspects, the qualitative study aimed to provide nuanced insights that could inform the refinement of the interventions and contribute to the broader goal of improving foundational literacy and numeracy outcomes.

Chapter 2: Methodology

The purpose of the qualitative study is to both check for and understand the reasons behind the shift in teacher behaviour with respect to adoption of the target behaviour. The study also tries to answer if external factors like school infrastructure, mentorship, and other barriers and enablers still exist; and their influence on teacher practices. The qualitative study uses a Positive Deviance Approach[1] to sample teachers across different categories based on their performance from Baseline to Endline. The study aims to collect information on validity of teacher practices, barriers, and motivation of the teachers. Using anecdotes and a thick description of classroom behaviour and practices, the study seeks to collect composite qualitative information about the teachers who are a part of the intervention.

Outputs and Outcomes

Qualitative data is collected on the 3 key measurable outcomes - Teacher Knowledge, Teacher Motivation, and Teacher Practice. Teacher Knowledge is confirmed through ethnographic in-depth interviews (IDI) and Classroom Observations, Teacher Motivation observed through School Climate Observations and IDI, and Teacher Practices checked through Classroom Observations and IDIs. The detailed table of data being collected for each outcome is given in Appendix 1.

School Climate Observation

An important part of the qualitative study is to collect School Climate information. The school climate refers to both the tangibles and intangibles of the school environment. It includes tangibles such as the condition of the school building, cleanliness in school premises and presence of artwork on walls. It also includes intangibles such as how the school assembly is conducted (who conducts it, which activities are conducted, whether there are signs of gender equality in opportunity), presence and handling of student-student and student-teacher conflicts and interactions between school staff and parents (See Appendix 2 for the detailed tool). This helps in better understanding the extent of a teacher's motivation, and display of their practices outside classrooms. This will be incorporated into the conversation at the beginning of the school day, observations during non-teaching hours, and post school-day conversations (See Table 1 for the tool schedule).

Use of Video-Cued Ethnography

An important part of the qualitative study is the use of video-cued ethnography. Inspired by the Funda Wande Teacher interview tool, it attempts to collect unbiased and non-personalised

[1] Baxter, R., & Lawton, R. (2022). *The positive deviance approach*. Cambridge Core. https://www.cambridge.org/core/elements/positive-deviance-approach/506CA2D446210E1FE76740B7F835D87C

responses to teaching practices and pedagogy. It starts with a display of a story/vignette or a video of a teaching practice (good practice and bad practice) and collects opinions, views and thoughts on the subject from the teacher. By separating the educator from the education practice we will be able to better understand a teacher's knowledge and practice level, and can dig deeper into their motivation.

Tool Design and Sampling

The Interview-Observation tool (See Appendix 2) observes and interacts with the teacher for the duration of the entire school day, and activities/questions correspond to each slot in the School Time Table.

Time	*School Activity*	*Tool Activity*
Before 8:00 A.M		1. Introduction 2. Demographic Questions
8:00-8:15 A.M	*Assembly*	1. Observation of Teacher during assembly (Motivation) 2. School Climate Observation
8:15-10:15 A.M	*Hindi Instruction*	1. Observation of Teacher during class (Knowledge, Motivation and Practise)
10:15-10:45 A.M	*Break*	1. Observation of Teacher Behavior during non teaching hours 2. Check in with Teacher- highlight-lowlight, plan for the next half
10:45-12:45 P.M	*Maths Instruction*	1. Observation of Teacher during class (Knowledge, Motivation and Practise)
12:45-1:20 P.M	*Other Subject Instruction*	1. Observation of Teacher during class (Knowledge, Motivation and Practise)
1:20-2:00 P.M	*Co-Curricular Activities*	1. Observation of Teacher during class (Knowledge, Motivation and Practise)
After 2:00 P.M		1. Check in with Teacher 2. Anecdotal Interview 3. Video/Vignette/Story Discussion

Table 1: Tool Schedule

The teachers sampled for the qualitative exercise were sampled keeping into account the positive deviance approach. Few high performing teachers were sampled, and to get a more composite understanding of the intervention, few average performing and few low performing teachers were sampled.

For the 20 teachers, 8 teachers have been sampled from Hardoi, with 4 teachers from each intervention arm. This includes 2 high-performing teachers, 3 teachers with the highest improvement (delta) from baseline to endline, and 1 teacher each who was the lowest scoring, had the lowest delta, and had an average score.

12 teachers have been sampled from Sitapur. Here, 6 teachers from each intervention arm were selected. This includes 1 high-performing teacher, 2 teachers with the highest delta from baseline to endline, and 1 teacher each who was the lowest scoring, had the lowest delta, and had an average score.

The scores were calculated on the basis of 10 questions mapped to indicators associated with Teacher Knowledge and Teacher Practice. This was to sample different cohorts of unique teachers in order to ensure that this exploratory study is able to collate as many different observations as possible. Teachers were selected in following categories:

1. The high performing teacher from both treatment arms: This group has consistently been the highest scorer in both the Baseline and Endline.
2. The lowest score teachers: These teachers moved from last quartile to the last decile. This is an interesting aspect and will provide multiple insights through an exploratory exercise.
3. The average score teachers: This group has the delta 0, and will be an addition in further understanding Teacher Motivation.
4. The highest delta teachers from both treatments: This group has moved exponentially from the lower decile to the highest decile, and including them will help validate teacher practices through observations, and help understand their motivators and barriers better.
5. The lowest delta teachers from both treatments: This group has moved from high scorers in baseline to being in the bottom quartile. Exploration for barriers and motivators among this group will help refine the qualitative exercise.

For the analysis, the teachers were split across multiple axes, allowing us to draw inferences using multiple frames of references. The teachers were stratified based on their scores, location, treatment arm and quality of school infrastructure. Table 2 outlines these splits. Please note that each school/teacher was assigned a number to maintain anonymity.

Teacher Performance

High Delta	106	107	112	113	123	124							
High Score	105	111	121										
Low Delta	109	115											
Low Score	108	114	118										
Average Score	104	110	116	120									
Intervention Arms													
Chatbot	105	106	107	108	109	110	118	120	124				
MPV	104	111	112	113	114	115	116	121	123				
Location													
Sitapur	104	105	106	107	108	109	110	111	112	113	114	115	116
Hardoi	118	120	121	123	124								
School Infrastructure Quality													
Poor School Infrastructure	108	110	112	113	120								
Avg. School Infrastructure	106	107	111	114	118	123							
Good School Infrastructure	104	105	109	115	116	121	124						

Table 2: Teachers across stratification axes

After collating the transcripts, an open round of coding was conducted, where the data was systematically reviewed to identify initial codes without predefined categories. Subsequently, the coded information was organised and assimilated to develop broader themes, ensuring that each theme represented significant patterns within the data. A detailed thematic analysis was then performed to refine these themes and explore their deeper meanings and implications. The comprehensive details of the identified themes are provided in Appendix 3.

Limitations

The delta used in the sampling process does not provide an accurate reflection of the teachers' performance within the RCT. Additionally, no adjustments have been made to account for

demographic variables, which could potentially influence the outcomes. While the qualitative study does not directly contribute to attributing results to the RCT, it serves as an exploratory effort that enriches the RCT by introducing fresh and thought-provoking insights for future considerations.

Chapter 3: Analysis

Sample Description

The qualitative study initially aimed to include 20 teachers: 12 from Sitapur and 8 from Hardoi. However, the phased General Elections for the Lok Sabha in Uttar Pradesh coincided with the planned data collection period, particularly affecting the team's ability to gather data in Hardoi. As a result, additional teachers from Sitapur were observed in place of those from Hardoi.

Ultimately, the study observed and interviewed 18 teachers—13 from Sitapur and 5 from Hardoi. In Sitapur, teachers were selected from 11 out of 19 blocks, while those in Hardoi were from 4 out of 19 blocks.

The average age of the participating teachers was 39 years, with ages ranging from 29 to 55 years. In Sitapur, the age range was 29 to 55 years, with an average age of 37 years. In Hardoi, the teachers were between 29 and 47 years old, with an average age of 41 years.

The sample included 10 male and 8 female teachers. Gender representation was more balanced in Sitapur, where 38% (5 out of 13) of the teachers were female, compared to Hardoi, where 60% (3 out of 5) were female.

Regarding educational qualifications, 11 teachers held undergraduate degrees, and 6 teachers (all from Sitapur) possessed a master's degree. Additionally, 10 teachers had teaching-specific qualifications such as a B.Ed or BTC—7 from Sitapur and 3 from Hardoi.

Of the 15 teachers from the intervention group (including all 5 from Hardoi), all continued to teach Grade 3 in the new academic year. However, in Sitapur, 3 teachers were reassigned to other grades, with one now teaching Grade 1 and two others teaching Grades 4 and above.

The average attendance observed across all schools was 46%. Specifically, Sitapur schools had an average attendance rate of 48%, while Hardoi schools had a lower average attendance of 36%.

Teacher Category- High Delta

Teacher pedagogy

Bad Teacher Practices

In School 106, during observations, the teacher was frequently distracted by phone use and interactions with other teachers, leading to a lack of supervision while students were copying from the board or engaged in writing tasks. This absence of monitoring resulted in minimal individual attention for students, with particular neglect observed towards new students and a few others who were not actively participating or completing their work.

The teacher's engagement with the class was inconsistent, with only a small fraction of the students receiving actionable feedback or opportunities to participate. While some students were engaged and received individualised attention, others, including new and less regular students, were left unnoticed. The lack of comprehensive monitoring meant that not all students had their writing or reading practices checked, and only about 50% of the class was actively involved in the lesson.

In School 112, a recurring issue identified was the unclear instructions provided by the teacher on using Teaching Learning Materials (TLM) for counting coins. In School 113, teachers find that a 2-3 minute review of the lesson plan is sufficient for their needs. They do not adhere strictly to the Teacher's Guide (TG). In School 123, observations highlight several issues related to teaching practices. There was no use of Teacher Guides (TG) or Teaching Learning Materials (TLM) during the class, and multiple topics were covered within a single session. Furthermore, there was no feedback provided to students, and particular attention was not given to backbenchers, some of whom did not have notebooks to work on.

At School 124, several issues with teaching practices were observed. The teacher did not use the Teaching Guide (TG), which led to a lack of structured lesson planning. Decoding activities, such as segmenting and blending, were not implemented; instead, students merely copied from the blackboard. Additionally, Oral Language Development (OLD) was not conducted

Good Teacher Practices

In School 106, despite some negative teaching practices several effective strategies to enhance student learning could be seen. Visual cues and diagrams were utilised to support lessons, helping students grasp concepts more concretely. Audio cues and storytelling from the textbook were also integrated into the instruction, making the learning experience more engaging. The teacher actively encourages participation by asking students to let everyone have a chance to answer, promoting a collaborative classroom environment.

Additionally, homework related to decoding is assigned to reinforce learning, and students who struggle with reading receive additional support through segmenting and matra pronunciation. Verbal encouragement is used to praise students who excel in reading, and peer recognition is encouraged to foster a supportive learning atmosphere.

The teacher at School 107 employs a thoughtful approach to ensure a supportive learning environment. To maintain consistency and reduce difficulty for students, the teacher moves between grades as their students progress, allowing them to remain familiar with their teacher. This continuity helps ease transitions and supports students' comfort and learning.

In the classroom, every child is given the opportunity to draw their favourite object, and all students are encouraged to participate in answering questions. The teacher pays close attention to each student, ensuring that everyone has a chance to engage and contribute. Teaching is conducted with enthusiasm, and the teacher maintains a consistent and fair demeanour with all students.

The teacher uses a diary to assist with lesson planning and classroom management, keeping it open on the table for reference. The diary is well-prepared up to May 9, demonstrating organised and forward-thinking planning.

In School 112, the teacher provided individual guidance to students, which allowed the teacher to address specific needs and challenges faced by each student, ensuring a more personalised learning experience. This individual attention is particularly valuable in helping students who might struggle with certain concepts or require additional support.Furthermore, the teacher moved around the classroom, actively engaging with students and providing additional work to those who were not regular attendees. This practice ensured that all students, regardless of their attendance patterns, received the necessary attention and opportunities to participate in the learning process.Additionally, the teacher made efforts to relate the lessons to the students' context and community, which helps in making the learning content more relevant and meaningful.

In School 113, teachers emphasise the importance of preparing for class in advance, as they believe it leads to better teaching outcomes. They adopt a flexible and adaptable approach, tailoring their preparation based on the varying levels of their students. Teachers give clear instructions on using varna matras and maintain a diary to track students' progress.

In School 123, the teacher used a story poster as a visual aid to teach the story, which helped in engaging the students. The teacher provided support to struggling students and made special efforts to assist specially-abled children, demonstrating a commitment to inclusive teaching. Random calling was used to ask students questions, ensuring that participation was varied and not limited to a specific group of students. The teacher actively corrected students who were unable to answer correctly, providing immediate feedback to help them improve. For students who continued to face difficulties in reading, the teacher assigned different tasks tailored to their needs, showing a differentiated approach to instruction. Additionally, the teacher maintained the teacher diary, indicating adherence to planning and reflection on teaching practices.

At School 124, the teacher demonstrated positive practices by providing guidance and special attention to struggling students.

Decoding and Literacy Practices

In School 106, the teacher uses an electronic copy of the TG and writes the lesson name, week, and day number on the board. The teacher's diary is filled, and activities are conducted as per the diary. Lessons start with close-ended questions and include teaching segmenting. Both collective and individual responses are taken. Students read out loud to the class individually, and the teacher uses segmenting and matra pronunciation to teach reading. After the reading lesson, students are called randomly to read words from the board.

The teacher checks student work after writing.OLD work involves discussing picture composition for 10 minutes, followed by writing difficult words. There is a lack of attention to students not practising reading, and not all students' reading practice is checked.

In school 107, the teacher engaged students in various interactive activities to enhance their learning experience. The teacher began by writing alphabets on the board and asking students to identify them, as well as determining what words could be formed from pairs of alphabets. This approach encouraged active participation, with all students providing answers.

The teacher also conducted exercises where students were asked to name Hindi alphabets and objects starting with those alphabets. This was followed by asking students to name five fruits, vegetables, animals, and birds, collecting both collective and individual responses. Additionally, students were asked to share their favourite food and name animals that could fly, with the teacher gathering responses from all students in the class.

Individual engagement was further encouraged when the teacher called students one by one to draw their favourite objects. The teacher provided time for students to think and respond individually, while also taking collective answers.

To teach decoding, the teacher wrote segmented and blended forms of words on the board, guiding students through the process of decoding words. Students were given time to practise activities independently while receiving feedback from the teacher.

The teacher's approach included dividing students into groups based on their levels rather than their classes. This method aimed to cater to students' individual learning needs, although it was noted that good students at higher levels might miss out if taught in lower-level groups.

In School 112, various literary practices were implemented to engage students in learning and improve their literacy skills. A prominent approach was the use of both chorus and individual responses, where students collectively and individually answered questions posed by the teacher. This method allowed all students to participate actively, enhancing their engagement and reinforcing their learning through repetition. The use of *varn* cards was also noted, which helped students with *varn* identification, particularly in decoding exercises. This approach enabled students to connect phonetic elements to their reading, aiding in their literacy development.

The teacher made concerted efforts to ensure that all students had the opportunity to answer questions, providing appreciation for correct responses and encouraging students to think

critically when their responses were incorrect. This practice of pushing students to think further on incorrect answers promoted deeper understanding and active problem-solving.

In terms of written work, students were engaged in reading words on the board and on the NIPUN app, followed by writing in their notebooks. The teacher was diligent in correcting all notebooks and workbooks; however, the feedback was limited to signing the copies without providing detailed comments or suggestions for improvement.

Literary practices also included activities such as sitting in a circle and discussing posters, where students were encouraged to name objects they recognized, connecting learning to their immediate environment and community.

In School 113, literacy practices show a mix of collective and individual approaches. The teacher often takes collective responses from students, particularly when they are grouped according to their learning levels, which helps in managing responses effectively. However, individual questioning is emphasised as more effective in enhancing attention and engagement.

During literacy sessions, the teacher dedicates significant time to decoding, checking notebooks, and discussing difficult word meanings. Approximately 50% of the class time is spent on these activities, with a focus on practising and teaching challenging words. Independent reading exercises are also a core part of the routine, with students spending about 80% of their time on this activity.

Students are grouped based on their learning levels, with specific tasks assigned accordingly. For instance, groups are formed to read different topics such as science or moral education stories. The teacher also incorporates reading outside the classroom and has students practise reading difficult words as a group. Individual students are asked to note down words in their notebooks and provided with practice exercises.

In School 123, the teacher implemented various literary practices to engage students in reading and comprehension activities. The lesson began with Oral Language Development (OLD) through open-ended questions, encouraging collective responses from the class. Visual activities were incorporated, utilising TLMs (Teaching and Learning Materials) to support student engagement.

Individual students were called upon to read aloud in front of the class, and specific focus was placed on having them read difficult words, which helps to build their confidence and fluency. The teacher facilitated decoding activities, specifically practising blending, followed by related classwork that reinforced the skills taught.

Difficult words were written on the board for emphasis, and this was followed by further classwork to consolidate the learning. However, only half of the students (6 out of 12) had their notebooks checked, where corrections were marked clearly to address errors. Although open-ended questioning was a strong feature of the class, only four students consistently answered.

Teacher opinions unverified in teaching practice.

In School 106, the teacher believes that practice work in mathematics is crucial and aligns this practice with the "You do" phase of lessons. They view looking at the Teacher's Guide (TG) for 2-3 minutes as efficient for lesson preparation. They advocate for building a rapport between students and teachers,also emphasising that "You do" is vital for student learning. The teacher suggests that one hour of literacy class is insufficient and recommends dividing the class into separate days for different activities like Old, Decoding, and Reading to mitigate learning loss. They also propose that online classes could be an alternative if students cannot come on time and believe that starting with reading is incorrect. The teacher highlights the importance of modifying activities to fit large class sizes.

The teacher in school 107 believes that the TG model is deemed ready for teaching, and it does not require any changes; however, modifications can be made for other states to fit their specific environments. The new TG has content that is more broken down compared to the old TG, which was less detailed and did not adequately support student progress.

The teacher believes that improvements could have been observed with the use of the chatbot at their previous school. Prior to teaching any lesson, the teacher stresses the need for a 10-15 minute discussion with students, connecting the discussion to their environment and the lesson topic. It is also crucial to involve students in open-ended discussions and avoid one-sided teaching where the teacher merely reads from the book.

Teaching should be interactive, allowing students to express their thoughts and participate actively. The teacher adjusts the prescribed methods to suit the class, ensuring that instruction is in the students' native language to avoid making them feel like outsiders. Strong decoding skills are seen as essential for facilitating reading, and if maths is taught using the TG, the Gradual Release of Responsibility (GRR) model is followed. The teacher combines personal experiences with the syllabus and finds the 'We Do' component of GRR particularly effective.

Independent practice is crucial, and the teacher believes that students should be given time to practise independently while the teacher circulates and provides support. Evaluating students' work is necessary to complete their knowledge, and independent practice helps in assessing whether remedial teaching is needed. If independent practice time is sometimes limited due to administrative work, it is noted that the workbook serves as a resource for practice. Small, everyday assessments are recommended for early grades.

The teacher also highlighted the benefits of knowledge sharing for professional development and observed improvements with effective chatbot use. If the class teacher is unavailable, a substitute teacher can utilise the chatbot to maintain continuity in teaching.

In School 112, the teacher's opinion on various educational practices and strategies highlighted a strong commitment to improving the learning experience for students. The teacher values honesty and dedication in their work ethic, recognizing that thorough preparation before class is crucial for smooth execution of lessons.

A step-by-step guidance approach, including providing extra support to weaker students, was highlighted as an effective model. The teacher successfully executed the Gradual Release of

Responsibility (GRR) model and utilised chorus responses as a time-saving strategy to assess overall understanding.

The teacher recommended organising student competitions to motivate learners and adjusting teaching patterns according to student needs. They also advocated for the use of individual feedback to support students who may not respond publicly, believing that every teacher should offer personalised feedback. This includes being accessible for queries and dealing with students politely, which the teacher does effectively by resolving queries over the phone and providing extra time to make students comfortable.

Additionally, the teacher pointed out that while the video activities shown were beneficial, preparing in advance is more effective than improvising. They emphasised the need for planning using TG and Teaching Learning Materials (TLM) and suggested that activities could be improved by incorporating more numbers or bundles. The overall feedback underscores the teacher's dedication to refining their practices and ensuring that each student receives the support they need to succeed.

In School 113, the teacher emphasises the importance of writing as a critical tool for reinforcing learning. They integrate Teacher Guides (TG) into their preparation, adjusting their teaching methods based on the students' learning levels. For quick learners, the teacher utilises library books to provide additional reading practice.

The teacher values independent practice but also believes that teacher demonstrations are crucial for improving comprehension. They prefer an interactive approach to teaching and are comfortable using their preferred methods, which align with their teaching style and enhance their effectiveness in the classroom.

Teacher Suggestions

In School 123, teachers provided several suggestions aimed at enhancing the learning environment and improving student outcomes. One suggestion was to create groups where stronger students could assist their weaker peers, which could help boost the NIPUN percentage. The teacher also recommended consulting students about their preferred study topics or informing them of the topics in advance, while incorporating engaging activities into the lessons to better align with students' interests and improve engagement.

Regarding the Teacher Guide (TG), the teacher noted that it currently feels rigid and not adaptable to individual teaching styles or the specific school environment. The suggestion was made to include shorter poems and stories in the TG, making the content more accessible and engaging. Furthermore, the teacher proposed that instead of prescribing a rigid structure, the TG should provide broader goals, allowing teachers the flexibility to tailor their teaching methods to best suit their unique classroom dynamics and instructional approaches.

Validation and contradictions in teaching practices

In School 106, the teacher follows a structured teaching plan that aligns with the teaching guide.

The teacher follows a specific sequence in language instruction: developing oral language first, then decoding, and finally reading practice. They utilise audio-visual aids and practical examples to enhance learning, such as using the Read Along app and connecting numbers to real-life objects. The teacher is observed to use both collective and individual responses to assess student understanding and address mistakes.

Despite these practices, there are areas where the teacher's approach does not fully align with the teacher's stated practices in IDI. For instance, the use of mathematics kits and other teaching resources is noted but is contradicted by the lack of practice time observed. Additionally, the teacher does not always follow a levelled teaching approach, which would involve dividing students into groups based on their performance and tailoring instruction accordingly.

In School 107, the teacher's practices align closely with the school's readiness program and related guidelines. The teacher consistently focused on activities related to the school readiness curriculum, particularly emphasising oral language development (OLD) and decoding, which was evident as reading lessons were not conducted. This approach validates the school's emphasis on readiness over formal reading in early grades, as observed in the Grade 1 class. The teacher meticulously followed the plans outlined in their teacher diary, which were also centred around school readiness activities, reinforcing the integration of prescribed curriculum elements into daily teaching practices.

Additionally, the teacher created an engaging and supportive classroom environment, ensuring that students were attached to the learning process. This was demonstrated through interactive activities such as outdoor exercises where students mimicked animals, which not only connected the lesson to their surroundings but also actively involved the students in learning through play. The teacher frequently facilitated open discussions, asked open-ended questions, and encouraged individual and choral responses, validating the approach of fostering an exchange of thoughts and ensuring that even hesitant students had opportunities to speak. Overall the teacher could be seen following all the practices that were mentioned by them.

In School 112, there were several instances where the teacher's claimed practices were validated through observation. The teacher indicated that starting literacy lessons with a general discussion is beneficial, which was confirmed when they began the lesson by discussing the theme of a "Mela." The teacher also claimed to collect both individual and choral responses to assess understanding, and this was observed during the session as the teacher randomly asked students individual questions while also gathering chorus responses as a time-saving strategy.

However, there were notable contradictions between the teacher's claims and their observed practices. Despite stating the importance of individual responses and feedback, the teacher did not consistently provide individual guidance or personal feedback to students during the lesson. The teacher also mentioned the practice of reviewing and connecting the current lesson to previous learning through questions, but this was not observed, as there was no engagement with past content. Additionally, the teacher claimed to offer individual feedback while checking notebooks, but in practice, they merely corrected and signed without providing specific feedback.

In School 113, the teacher's claimed practices largely align with observed behaviours, though some discrepancies were noted. The teacher's emphasis on using a mix of instructional approaches, such as "I Do," "We Do," and "You Do," was validated as students actively participated in the "You Do" stage. The use of Teaching Learning Materials (TLMs) was consistent with the teacher's claim that number cards help students identify number symbols and that activities enhance comprehension.The practice of grouping students by levels and using collective responses for those on the same level was also validated, demonstrating the teacher's adherence to differentiated teaching strategies.

However, there were some contradictions between the teacher's stated practices and their implementation. The teacher claimed to use wooden sticks for instruction, but this was not observed. Additionally, while the teacher suggested beginning lessons with a discussion, this was not evident during the observed session. Despite stating that they prepare lessons in advance, observations indicated that the teacher often prepared at the last minute, including a brief review just 2-3 minutes before class due to time constraints. These inconsistencies suggest areas where the teacher's instructional practices could be further refined to better align with their stated educational philosophy and strategies

The teacher from School 123 uses the Teacher Guide (TG) to plan lessons and aligns their teaching with students' levels. They allocate 5-6 days for each topic, with additional time for revision and supporting weaker students. The teacher utilises Teaching Learning Materials (TLMs) effectively for both literacy and maths instruction. They follow a progressive approach, starting with simpler topics and advancing to more complex ones. The teacher takes individual responses to gauge student understanding and employs positive reinforcement and independent practice to enhance student motivation and confidence.

However, there are contradictions with some of the teacher's statements. The teacher mentioned engaging with students before class, but this was not observed. The specific sequence of "I Do, We Do, You Do" described by the teacher was not followed in practice. While the teacher suggested using familiar objects for teaching counting, this method was not implemented. Additionally, although the teacher said they move around the classroom to guide students, this was not observed.

In School 124, several key practices were observed. The teacher effectively adapted to the absence of grade 3 students by deviating from the regular plan and utilised multi-grade teaching strategies, which aligns with the observed need for flexibility. Individual support was provided to struggling students, and ample time was allocated for individual reading, which supported student engagement and practice. However, there were several contradictions. The teacher did not revise previous day's concepts or implement levelled teaching, which affected continuity and differentiation in instruction. The class duration was shorter than planned, and the teacher did not use the Teaching Guide (TG) or Teaching Learning Materials (TLMs) as recommended, which limited the effectiveness of the lessons. Additionally, the teacher did not incorporate activity-based learning, pictorial representations, or the "You Do," "We Do," "I Do" approach, missing out on strategies that enhance understanding and engagement. Individual responses were not collected, and the teacher did not circulate around the class to monitor student progress.

School Climate - Physical Infrastructure

At School 106, the physical infrastructure presents several challenges. The primary section, including grades 1-2 and 4-5, is seated on mats in the verandah due to space constraints, and the fan in the verandah is not working, which is especially problematic during the summer months. The verandah, where Grade 3 students also sit, is dusty and not conducive to learning, particularly during the summer winds. Additionally, ongoing painting work further disrupts the classroom environment, making it unsuitable for effective teaching.

At School 107, the infrastructure also poses significant issues. The washrooms, located outside the main building, appeared unused and unclean, with the gates locked, and there are no washrooms designed for Persons with Disabilities (PWD) within the school premises. A hand pump provides drinking water, but it is not potable due to its salty taste, leading students to sometimes fetch drinking water from nearby houses. Although the school has solar panels that power a fan, there was no electricity during the visit, and no electric bulbs were found in the classrooms.The school courtyard has two water tanks with taps, offering an alternative to the hand pump.

At School 112, the classrooms are equipped with amenities like fans and windows for ventilation, and the walls are decorated with portraits of prominent leaders such as Mahatma Gandhi and the Prime Minister of India. There is a reading corner with posters and books stored in an almirah, and a dustbin is provided to promote cleanliness. However, there are significant issues, including a lack of desks, which forces students to sit on mats on dirty floors. The space constraints lead to multigrade classrooms where students from grades 3, 4, and 5 sit together, complicating classroom management.

In School 113 classrooms are well-lit and ventilated, and feature educational charts, poems, and maps on the walls; there are no benches, leading to a multigrade class setup that poses additional challenges. Separate washrooms for boys and girls are available, and the building is well-maintained.

School 123 struggles with inadequate facilities, such as a lack of electricity and refrigeration, which impacts daily operations like food storage. The school has a kitchen, a functional hand pump, and newly renovated washrooms, though the latter are already showing faults. Despite having a ramp for disabled students, cleanliness and maintenance remain problematic, exacerbated by recent renovations that disrupted the environment. The infrastructure includes a newly built rectangular campus with an open space in front, a pond behind, and four rooms including two classrooms, an office, and a kitchen. However, there are issues like a crumbling boundary wall that allows village animals to enter and damage the campus, and insufficient classrooms for all grades, leading to multigrade setups.

School 124 presents a mixed picture in terms of physical infrastructure. The school is generally well-maintained, with boundaries, a green courtyard adorned with trees and plants, and a secure main gate. It includes five rooms, with one newly built room co-located with an Anganwadi and another room dedicated to grade 3 students. The infrastructure supports student needs with functional washrooms, including separate facilities for girls, boys, and PWD

students, and a well-maintained ramp for accessibility. However, one of the classrooms is in poor condition, with unclean walls and inadequate furniture, forcing students to sit on mats on the floor. The school operates a multigrade system, combining students from grades 4 and 5 in a single classroom.

School Climate - Learning infrastructure

At School 106, despite the challenges in physical infrastructure, some learning materials are available. Students receive new textbooks at the start of the academic year from the teacher or the Headmaster's room, depending on whether they are first-time students or not. Grades 1-2 have access to teaching-learning materials (TLM) and charts, while Grade 3 lacks these resources, impacting the learning environment.

In School 107, the classroom environment supports learning through the display of various educational materials on the walls, including national symbols, transportation posters, and quotes about girl child education and women empowerment. The classroom also features a green board, charts with numbers, Hindi and English alphabets, and story illustrations, contributing to a visually stimulating learning environment. However, the lack of electricity and inconsistent use of solar power limits the utility of these resources.

At School 112, the presence of a reading corner with books and posters enhances the learning infrastructure. Important educational information, such as NIPUN targets and details of local education authorities, is displayed on the walls, supporting both educational and administrative awareness. However, the lack of desks and multigrade setup due to space constraints significantly impacts the effectiveness of the learning environment.

School 113 has classrooms that are well-lit and ventilated, featuring educational charts, poems, and maps on the walls, which create a conducive learning environment. However, the absence of new textbooks and workbooks hampers the use of updated Teacher Guides, forcing reliance on outdated materials.

School 123 has significant gaps in learning infrastructure, with no workbooks available and issues with construction that disrupt normal classroom activities. Some classrooms are used for storing furniture or are affected by ongoing construction work, limiting their availability for teaching. The teacher has highlighted the need for improvements in both infrastructure and human resources to better support the school's learning requirements.

At School 124, the learning environment benefits from a generally well-maintained physical setting, including functional washrooms and a ramp for accessibility, which support a conducive learning atmosphere. However, the lack of workbooks and issues with disorganised scheduling and extended lunch breaks detract from the overall effectiveness of the learning infrastructure. Additionally, the multigrade system in place, where students from grades 4 and 5 are combined, poses challenges for effective teaching and learning.

HM related themes

HM's Beliefs and Opinions

For school 106 The Headmaster (HM) expressed positive feedback regarding the Teaching Guide (TG) and workbooks, noting that these materials are well designed. The HM believes that if students attend regularly, the effectiveness of teaching will improve with the provided resources. The TG includes new activities that not only benefit students but also encourage teachers, fostering a more engaging learning environment. Additionally, the HM finds the Sandarshika resources to be advantageous.

Regarding the NIPUN initiative, the HM observed that there is no substantial difference between NIPUN and the existing syllabus. According to the HM, if students achieve NIPUN levels, the syllabus will be automatically covered. The HM considers the NIPUN levels appropriate but emphasises the importance of guardian support in achieving these targets. Consistent student attendance is highlighted as essential for reaching NIPUN goals, as regular presence is viewed as a key factor in educational success.

The HM also emphasised the connection between the school and the community, suggesting that stronger community participation could lead to improved student attendance and enrollment. While community involvement is currently acceptable, the HM sees room for enhancing this partnership to further benefit the school's objectives. Overall, the feedback underscores the importance of attendance, effective use of educational materials, and community support in achieving educational goals.

At School 107 the HM observed that those who are eager to study often aspire to migrate out of the village, while those who are less inclined to pursue education tend to remain. The environment in the village is seen as having a detrimental effect on the youth and younger generation. Despite these challenges, the HM believes the school staff are doing their best under the circumstances.

Regarding roles, the HM noted that the in-charge role is not significantly different from that of a regular teacher, emphasising the shared responsibilities within the school. On the topic of NIPUN targets, the HM acknowledged that while the mathematics targets are set appropriately, the Correct Words Per Minute (CWPM) target rate should be reduced. The HM also pointed out that students in rural areas often have weaker decoding skills compared to their urban counterparts, impacting their ability to reach CWPM goals.

The HM emphasised the value of workbooks in developing students' independent study habits and allowing them to make and detect their own mistakes. The TG is seen as a tool designed to reduce teacher workload and standardise teaching, ensuring that teachers adhere to a structured curriculum rather than teaching according to personal preferences. The work plan of NIPUN Bharat was praised, although the HM believes that Class 1 should not be merged with Balvatika, as it might cause unnecessary pressure on students.

For the school readiness program, the HM suggested that there should be no reading activities, particularly for Class 1 students. Instead, students should be engaged through Teaching

Learning Materials (TLM) to create a visual learning environment, making the transition into formal schooling less intimidating. The goal is to foster a welcoming and stress-free atmosphere, as early pressure could cause students to disengage or avoid school altogether.

The HM highlighted the need for continual updates and improvements to the workbooks, especially for students in rural areas. The current Class 2 workbook could be made simpler, and some content appears to be overly challenging or borrowed from higher grades, which should be avoided.

At school 112 Headmaster expressed a positive outlook regarding the school's progress with the NIPUN program. Although the NIPUN thresholds were increased from 75% to 80%, the school had already achieved a 78% rate. The HM is confident that the school will meet the revised goals by November.

The Headmaster of school 123 expressed concerns regarding the NIPUN Lakshyas, noting that the goals set are often higher than the students' current levels, leading to unrealistic expectations. The HM emphasised the need for more autonomy for teachers, arguing that it is unreasonable to expect every teacher to use a uniform approach for all students. There is a call for categorization and customization in teaching, tailored to students' learning levels, to address these disparities. Additionally, the HM highlighted that the implementation of the Teacher's Guide (TG) faces varying difficulties across schools due to contextual factors, suggesting that a more adaptable approach might be necessary.

The Headmaster (HM) at School 124 emphasises several key aspects of their approach to teaching and student engagement. They have implemented a system where they swap out demotivated teachers and appoint others to explain certain concepts, aiming to improve the quality of instruction.They find that student activities are particularly beneficial, as they not only make students happy and engaged but also help them invest more in their academic pursuits. According to the HM, these activities contribute positively to the overall educational environment and motivate students to perform better.

HM-Teacher Relationship

In School 124, the Headmaster (HM) maintains a cordial relationship with teachers, fostering a positive atmosphere within the school. At School 123, the HM promotes equality and camaraderie among staff, seeing himself as part of the same fraternity as the teachers. He treats all staff as equals, avoiding any hierarchical attitudes, which is appreciated by the teachers. Regular feedback sessions with teachers after school hours contribute to strong bonds and a collaborative environment. The HM also values open conversations with teachers, including during midday meals, to further strengthen relationships and enhance school dynamics.

In School 107, the HM maintains friendly relations with teachers, dedicating 10-15 minutes daily to conversations with them collectively, ensuring a consistent and approachable presence. In School 106, the HM notes good coordination between teachers, describing them as supportive and compliant with his instructions, engaging in discussions with teachers as needed. Overall,

these schools exhibit HMs who actively engage with their teachers, promoting supportive and egalitarian relationships that contribute to a positive school environment.

HM Responsibility

The Headmaster of school 106 (HM) highlighted that their responsibilities extend beyond those of a regular teacher, encompassing a broader scope that includes overseeing teacher and student punctuality, and managing overall school operations. In addition to administrative duties, the HM also teaches upper primary classes, balancing teaching responsibilities with community engagement and the broader goal of school development. This dual role requires the HM to navigate multiple tasks simultaneously, ensuring both educational and administrative aspects of the school function smoothly.

The HM expressed satisfaction with the teachers' performance, noting that they are adhering well to their duties and are supportive of the HM's leadership. The coordination among teachers is strong, with good collaboration and adherence to the HM's instructions, fostering a positive working environment. The HM particularly encourages teaching through activity-based methods, as this approach is observed to enhance student understanding. Communication between the HM and teachers occurs as needed, which helps in addressing immediate concerns and maintaining effective school management.

In School 107, the Headmaster elaborated on the multifaceted role that he plays in school, highlighting the balance between administrative duties and teaching responsibilities. The HM described that when dealing with administrative tasks, addressing village situations, or managing other external matters, the in-charge assumes the role of an administrator. The primary responsibility in this capacity is to maintain an environment conducive to education and positivity within the school premises. This includes ensuring that external influences do not interfere or create disruptions that could hinder the school's functioning.

Additionally, the HM emphasised that the role of the in-charge extends to supporting teachers in maximising their performance. This involves creating a supportive atmosphere where teachers can fully engage in their teaching roles. A key part of this is maintaining regular communication, with the HM dedicating 10-15 minutes daily to converse with each teacher, ensuring that they feel heard and supported.

In school 112,The Headmaster (HM) demonstrated a clear sense of responsibility in supporting both teachers and students. Teachers were reported to be performing well, and the HM emphasised the importance of tracking student progress through registers, ensuring that students' achievements and areas for improvement are documented systematically.

In addition to monitoring academic progress, the HM plays a crucial role in motivating teachers, fostering a positive work environment. This involves filtering out negative comments from both villagers and teachers, which helps maintain a constructive atmosphere within the school.

The Headmaster at School 123 views certain responsibilities as additional burdens, noting that fulfilling these duties often requires extra time. He emphasises the importance of treating all staff members as equals and ensuring that no one feels superior. The HM also values feedback from

teachers after school hours, seeing it as an opportunity to strengthen relationships and improve overall bonding among the staff.

The Headmaster (HM) of School 123 is actively involved in various aspects of school management and student welfare. They teach the 5th standard and are responsible for conducting Parent-Teacher Meetings (PTMs), which reflects their commitment to involving parents in the educational process. The HM takes a primary role in ensuring that the school operates smoothly, overseeing operations, and creating a conducive environment for students to learn.

The HM organises School Management Committee (SMC) meetings, which are well-attended by committee members and the chairman, ensuring effective governance and collaboration. They also meet with mid-day meal cooks to address and resolve issues within the Mid-Day Meal (MDM) program, ensuring that the food service meets the required standards.

Teachers at the school use the NIPUN app alongside their own assessment methods, with the HM acknowledging the diverse strengths and weaknesses of different teachers. The HM supports a personalised approach to assessment and benchmarks, allowing for flexibility and adaptability in meeting students' learning needs.

Classroom climate

Student Interest in Content and student-Teacher Interaction

In School 106, there are observations indicating a lack of consistent individual attention to all students. For instance, children who did not write down their homework went unnoticed, which highlights gaps in monitoring individual student responsibilities. Additionally, during classroom interactions, only about 50% of the students were given the opportunity to answer, resulting in not all students being involved or engaged in the lessons.

However, the teacher does make efforts to maintain student focus during the lesson. When students become distracted during the Oral Language Development (OLD) phase, the teacher takes steps to redirect their attention back to the lesson. This indicates an awareness and responsiveness to immediate classroom engagement, though it underscores the need for more consistent and equitable attention across all students to enhance overall participation and learning outcomes.

In School 107, the teaching environment was notably interactive and engaging. The teacher effectively involved students in games and activities, which helped maintain their attention and participation. During lessons, students actively engaged with each other and the teacher, drawing fruits on the board and counting them successfully. The use of games, stories, and poems facilitated understanding and created a positive atmosphere in the classroom.

In School 112, the classroom dynamics revealed both positive and challenging aspects of teaching and student engagement. Peers in the classroom were noted to be friendly and supportive, helping each other, which contributed to a collaborative learning environment. However, there were issues with student engagement and teaching practices. During matra

practice, which involved using books and cards, the teacher's low voice led to distractions among students, affecting their focus. This was compounded by poor internet connectivity, which forced the teacher to read a poem herself rather than using digital resources.

Students displayed varying levels of interest and responsiveness. Some students remained distracted and unresponsive, while a few engaged when prompted. The teacher's use of the local dialect, while aimed at making the content more relatable, did not fully address the lack of interactivity and student disinterest.

In the classroom of school 113, the teacher actively engages with students by moving around and checking their notebooks. This approach allows the teacher to provide constructive feedback and ensure that students are attentive. At one point, 11 students were involved in solving problems.

At School 123, regular students answered the questions posed by the teacher. There were instances when students were talking among themselves while the teacher was not paying attention. Despite this, the teacher provided support to struggling students and offered appreciation to those who performed well.

In School 124, during the observation of teacher-student interactions, it was noted that students were frequently chatting and laughing among themselves when the teacher was occupied with other tasks. These conversations were unrelated to their studies, indicating a lapse in classroom management and engagement.

Student-Teacher Guidance

The teacher at School 106 employs various strategies to support and encourage student learning. Verbal encouragement and praise are frequently used, particularly for students who read well, fostering a positive learning environment. During lessons, the teacher makes efforts to engage students who may be distracted by redirecting their attention back to the task at hand. However, it has been observed that special attention is often given to certain students in numeracy, leaving some students without sufficient individual attention. Despite this, the teacher provides detailed, actionable feedback when correcting student notebooks, ensuring that students understand their mistakes and how to improve.

The teacher uses individualised support techniques, such as helping students with segmenting and matra pronunciation when they struggle with reading. Concepts are re-explained when students provide incorrect answers, followed by opportunities for the students to attempt the task again. This iterative approach aims to build understanding and reinforce learning. The teacher also actively participates in the "we do" phase of lessons, guiding students and clarifying concepts as needed. During group activities, the teacher encourages all students to have a chance to respond, aiming to ensure inclusivity and balanced participation in the learning process.

In School 112, teacher guidance exhibited both strengths and areas needing improvement. The head teacher took an active role in assigning work, particularly focusing on Grade 4-5 students, which helped in organising classroom tasks. For instructional activities, such as blending 'aa' ki matra, the teacher demonstrated the process effectively. In another instance, the teacher used a

circle seating arrangement and a poster to engage students in identifying and naming objects, fostering a more interactive learning environment.

However, there were challenges observed in managing classroom dynamics. The teacher focused primarily on Grade 3 students, leaving other grades idle and not engaged.Feedback on

In school 113, The teacher actively moves around the classroom, staying engaged with students and maintaining an awareness of their learning levels. Tasks are assigned, and the teacher circulates, offering assistance to struggling students. Notebooks are checked regularly, and feedback is provided to help guide student progress. During activities, the teacher remains involved, paying close attention to those who may need additional support.student work was another area of concern. Notebooks and workbooks were filled and corrected, but no feedback was provided.

At School 123, the teacher motivated students who performed well through appreciation and clapping. However, the teacher did not provide feedback to students or give attention to those who were not paying attention, particularly the backbenchers who lacked notebooks. While the teacher did support struggling students and assigned different tasks to those who still needed help, there was a lack of review and feedback overall.

In School 124, the teacher provided instruction to the class without offering individual attention to students. The focus was primarily on the class as a whole, which may have resulted in some students not receiving the personalised support they needed.

Student-student interaction

In the observed schools, student-student interactions varied significantly, ranging from harmonious engagement to instances requiring more structured intervention. At School 106, students interacted freely with each other, and no conflicts were observed between students or with teachers. The teacher's active monitoring and support helped create a conducive environment for positive peer interactions. In School 107, students began talking among themselves when the teacher stepped out of the classroom, and were seen playing with each other but also paying attention during lessons. The teacher kept students engaged through games and activities, fostering positive interactions among them. At School 112, students were initially hesitant to engage, but their communication improved through classroom discussions

In School 113, the environment was notably inclusive, with no observed discrimination based on gender or social hierarchy. Students were friendly, comfortable, and actively engaged with one another, sharing resources and showing strong peer connections. The motivation levels of both teachers and students contributed to a positive and inclusive classroom atmosphere. However, at School 123, some challenges were noted as students occasionally fought among themselves without any intervention from the teacher. When the teacher left the classroom, students played amongst themselves

References to Intervention

In School 106, the use of a chatbot has been found to simplify the consumption of the Teaching Guide (TG), as it provides an easier alternative compared to viewing the TG in its digital format, which can be time-consuming. However, a significant challenge identified is the limited access to the chatbot due to network connectivity issues.

In School 112, the use of MPV (Multimedia for Pedagogical Videos) resources was prominent in classroom activities. The teacher applied MPV videos for both literacy, using cards, and numeracy, with a fish activity. These videos were effectively integrated into the lessons, with the teacher using student name slips to facilitate responses, which helped in personalising and engaging the class.

The teacher reported positive feedback on the MPV videos, stating that they liked all the videos and found them beneficial. They noted that the videos were sufficient as educational resources and believed they had made a significant difference in the classroom. However, the teacher had difficulty recalling specific videos used for student practice and suggested that future videos should include outdoor activities and games to further enhance engagement and learning.

At School 123, the teacher was able to view a video on "student feedback/response" but did not watch the video on Shikshak Sathi and could not recall its content. The teacher was able to explain the video that was shown and remembered parts of "You Do, We Do, and I Do," but was unable to identify the specific part of the "GRR" framework. The teacher did not watch any maths videos on Shikshak Sathi

Midday Meal (MDM) Administration and Challenges

At School 123, challenges with the Mid-Day Meal (MDM) program include dissatisfaction with the responsibility being given to an NGO. The availability and freshness of food are impacted by weather conditions, particularly in summer when food spoils quickly. Weekly markets, which are held only on specific days, further limit food procurement, exacerbating these issues. In rural areas, the MDM program faces additional hurdles such as a stagnant government menu, unreliable weather conditions affecting food procurement, and unchanged costs. Obtaining pure milk is problematic due to concerns about adulteration. The school faces criticism and feels helpless when students fall ill due to issues with the MDM program, as the responsibility for these problems often falls on the school. Teachers also face criticism for managing procurement tasks during school hours despite the constraints and responsibilities involved, compounded by inadequate infrastructure like a lack of electricity and refrigeration, which requires daily purchases of vegetables to keep them fresh.

In School 124, the Pradhan manages the logistics for the Mid-Day Meal (MDM) program, including arranging and overseeing the distribution of food. The school is responsible for the actual cooking and providing of the meals. However, due to time constraints, the Headmaster (HM) does not handle the arrangements for midday lunch, which sometimes leads to food preparation being delayed by 10-15 minutes.

Barriers to education and instruction

School and Parental Challenges

In School 106, there are ongoing issues with vandalism occurring after school hours. The Headmaster reported that the school premises are sometimes damaged, including incidents where hand wash facilities have been broken and dirt or waste has been spread around the school.

Regarding classroom arrangements, the school operates a Multi-Level Classroom (MLC) setup for the primary section. Grades 1-2 and 4-5 are accommodated in two shared rooms, while Grade 3 students are taught in the verandah due to space constraints.

At School 107, several issues affect the teaching and learning environment. The school faces significant resource challenges, including the non-receipt of student workbooks and a lack of cooperation between the Balvatika and Grade 1 departments due to their separation. Teachers are using outdated materials and have received updates via WhatsApp, while the Teacher's Guide (TG) is currently unavailable. Even if available, it would not be utilised because of the ongoing school readiness program. Additionally, the merging of Class 1 with Balvatika under NIPUN Bharat is problematic.

The village environment poses further challenges. It is described as violent and sensitive, with a history of factionalism and violence, including the murder of the village Pradhan. Social issues such as illiteracy, alcoholism, and gambling are prevalent, impacting community support for the school.

Cleanliness and infrastructure issues are also significant. Washrooms and the school gate are unclean, and the water is undrinkable and salty. Students have used makeshift brooms for cleaning, and garbage is scattered around the school with no noticeable dustbins. Female students were observed sweeping the classroom area late into the evening.

In School 112, several significant challenges affect the functioning and effectiveness of the school. One major issue is the absence of a Shiksha Mitra, which increases the workload of the Headmaster (HM), who is already burdened with non-teaching responsibilities such as preparing documents, attending, and conducting meetings. This extensive administrative load detracts from their ability to manage the school effectively and devote sufficient time to teaching. Additionally, the school faces a shortage of staff, which limits the time available for teaching and contributes to the unavailability of workbooks, further complicating instructional efforts.

Community and parental engagement present further obstacles. The School encounters difficulties with unsupportive community members and uncooperative parents, who often visit the school primarily for Direct Benefit Transfer (DBT) benefits rather than for educational purposes. Infrastructure challenges also impede the school's operation. Despite improvements funded by composite grants and personal contributions, the school remains constrained by a lack of space. Multigrade classrooms have become necessary, with Grades 3-5 being taught together in the limited available space, which includes only three rooms: two for classrooms and one for the HM.

At School 123, challenges related to the Mid-Day Meal (MDM) program and broader school management include the logistical difficulties faced by schools situated far from main roads, which complicate transportation and access to resources. Teachers express dissatisfaction with regular inspections by officials, feeling demotivated when officials criticise their teaching practices without listening to their concerns. This criticism adversely affects teachers' motivation and daily teaching environment. Additionally, the school faces issues such as the unavailability of workbooks and a shortage of human resources needed to manage additional tasks. The infrastructure includes a multi-grade classroom setup, with one classroom used for all grades and maintenance issues leading to one classroom being used for grades 4 and 5 on the given day.

Student Absenteeism and Teacher Challenges

Student absenteeism is identified as a major challenge for the NIPUN initiative at School 106. Common reasons for absenteeism include children visiting maternal grandparents and travelling for family events such as marriages. As a result, absentee students often fall behind in their studies. There are specific issues with some students who are frequently absent; for instance, a teacher has reported difficulty in engaging three students who are new and irregular in their attendance. The teacher has noted that these students are not receiving sufficient attention, which contributes to their lack of progress. To combat absenteeism, teachers are actively meeting with and motivating parents to ensure that their children attend school regularly.

At School 107, teachers are facing multiple challenges that impact their ability to deliver effective instruction. One key issue is the reliance on the school readiness chart rather than using the recommended teaching guide, which affects the structured implementation of literacy lessons, as the reading period was not conducted during literacy teaching. The teacher currently handles classes 4 and 5, having managed classes 3 and 4 in the previous year, indicating a lack of continuity in grade-specific teaching which may complicate instructional planning.

The teacher's daily commute is also a significant challenge, requiring a 1.5-hour journey both ways, or approximately 80 minutes round trip. This extended travel time likely contributes to fatigue and reduces the teacher's available time for lesson preparation and independent student practice. Additionally, the classroom includes 5 students from grade 1, adding complexity to the task of meeting diverse educational needs within a multi-grade setting.

Administrative and departmental responsibilities further encroach on teaching time, limiting opportunities for providing independent practice to students. There is also concern that without adjustments to the current educational goals, teachers may be unfairly held accountable if students do not achieve the NIPUN targets.

Teachers at School 112 face several notable challenges that impact their effectiveness in the classroom. One primary issue is the need to complete online work at home due to poor internet connectivity at the school, which adds to their workload and complicates their ability to focus on struggling students. Additionally, the Teacher's Guide (TG) presents its own set of difficulties. Teachers find that TG imposes restrictions on their ability to conduct their own activities and lesson plans, limiting their freedom to teach according to their preferences and adapt to the specific needs of their students.

In school 113,the teacher faced several challenges, including the impact of the enumerator's presence and student absences, which affected the lesson. Commuting takes two hours daily, and the absence of the head teacher added to the difficulties. Initially, the teacher felt uncomfortable and found over-preparation problematic for students' understanding. Navigating the Teaching Guide (TG) for daily references was challenging, and the teacher expressed concerns about the visit and observation plan, feeling pressured by the presence in the classroom.

At School 123, teacher issues include a lack of planning for the day due to poor health, affecting the teacher's ability to effectively prepare and execute lessons. Additionally, teachers face criticism for managing procurement tasks during school hours, which adds to their responsibilities and requires additional time to fulfil their duties.

In School 124, student absenteeism is a recurring issue, particularly during the month of March due to various factors such as fieldwork and attending family events like marriages. Despite this, the average attendance remains relatively stable, with 4-6 students present on average. The Mid-Day Meal (MDM) program benefits those who do attend.

However, irregular attendance significantly impacts the achievement of NIPUN targets. Absenteeism is exacerbated by family visits, farm work disruptions, and a lack of parental effort to ensure regular school attendance. Additionally, specific events such as elections also contribute to increased student absences

In School 124, the irregular attendance of parents at Parent-Teacher Meetings (PTMs) is a challenge. Attendance is often dependent on parents' availability, with many unable to attend due to work commitments. In particular, men in the family, who work as day labourers, often leave for Lucknow and return late, making it difficult for them to participate. Consequently, PTMs are frequently attended only by women, and despite the lack of physical presence, messages are received.

Additionally, there is a noticeable lack of attention to students from some parents, with 10-15 students having parents who do not pay adequate attention to their educational needs. However, many parents are supportive and actively involved in their children's education at home, checking notebooks and ensuring that work is completed.

TLM and TG - Glows and grows

At School 106, the Teaching Guide (TG) is provided only in electronic form for this academic year, with no physical copies available. Despite this limitation, the TG has been deemed a valuable resource, as it provides detailed lesson plans that facilitate effective teaching. The audio component of the chatbot is particularly appreciated for its helpfulness in supporting teaching activities.

Teachers at the school make extensive use of audio-visual aids to enhance their lessons. For instance, the teacher employs audio-visual aids to teach decoding, guiding students to combine segmented letters to read words.

At School 107, teachers are encountering difficulties with the latest version of the Teaching Guide (TG) introduced during the pandemic, as students struggle to meet the prescribed goals. Despite this, the TG model is considered comprehensive, providing a ready-made structure for teaching that reduces the need for teachers to create their own materials. Teachers appreciate the flexibility within the TG, allowing them to broaden the scope of lessons based on their capabilities.

In the classroom, the teacher actively engages students through a variety of methods, such as using the Read Along app for reading instruction and showing story videos on his phone. Practical activities, including building objects with plastic blocks, identifying shapes, and outdoor exercises, are regularly incorporated to enhance learning. Counting is taught through interactive means, like reciting rhymes, and students are encouraged to participate in games, stories, and poems, making the lessons more relatable and engaging.

However, there are concerns regarding the suitability of the class 2 workbooks for rural students. The content is seen as overly complex, with some elements appearing forced or unnecessarily challenging. Additionally, certain questions seem to be drawn from higher grades, which complicates the learning process for younger students.

In School 112, the challenges related to the Teacher's Guide (TG) and its impact on teaching practices are evident. Teachers report that the TG restricts their ability to conduct their own activities and lesson plans, and they feel that it limits their flexibility to adapt to the specific needs of their students. The highly directive nature of the TG often results in brief coverage of all parts, which can lack depth and fail to address individual learning needs effectively. On the positive side,TG has made planning easier and helps teachers feel more prepared and relaxed, the restriction it imposes on teachers' autonomy remains a significant concern. The use of TG, workbooks (WB), and various teaching-learning materials (TLMs) has been helpful in enhancing engagement and supporting effective planning. Teachers appreciate the resources provided, such as the maths kit, sahaj booklets, big books, and chitrakahani posters, which aid in teaching numeracy and engaging students in activities.

In School 113,The Teaching Guide (TG) is recognized as useful for planning, but its effectiveness is seen as limited. Teachers find that TG should be tailored to meet the needs of students more precisely, using it only when necessary, as it is not always aligned with students' levels. There is a preference for older teaching methods, and it's noted that it is not feasible to cover everything in a single day.

The "We Do" approach is beneficial, and the TG provides monthly schedules and topics which help in maintaining a continuous teaching approach. This method supports students in recalling and connecting previous lessons. TG also includes useful tools like number cards for identifying numerical symbols, and activities that assist in comprehension. However, while TLMs (Teaching Learning Materials) and activity-based learning are employed, students struggle to retain concepts long-term.

At School 123, the Teaching Guide (TG) is viewed as rigid, with suggestions for adapting it to better align with individual teaching styles and the specific needs of the school environment. There is a recommendation to provide teachers with goals rather than a strict structure. The teacher believes that each topic requires 5-6 days to cover, along with additional time for

revision and special attention to weaker students. Despite this, the current approach to using the TG is effective, as the teacher follows its outline and maintains detailed notes in the diary. The TG and its methods are considered useful for teaching, allowing for the breakdown of concepts into smaller steps and incorporating activities. Teaching Learning Materials (TLMs) are also appreciated for their effectiveness in both maths and literacy instruction.

In School 124, several issues and supports related to teaching practices were observed. Students struggled with conceptual understanding due to misalignment between the day's work and previous tasks. Despite these challenges, certain supports were in place. Books and Teaching Learning Materials (TLMs) were recognized as valuable resources that aid in class preparation and contribute to improved learning outcomes. Educational videos were also noted for enhancing student comprehension and engagement. The Theory of Grammar (TG) and the Gradual Release of Responsibility (GRR) model were used effectively, supporting language instruction and aligning with students' needs. Additionally, activity-based learning was highlighted for its role in making students happy and motivated, leading to better academic engagement and outcomes.

Discussion

External factors

Several schools face significant infrastructural and logistical issues affecting the learning environment. At School 106, students are seated on mats in the verandah due to space constraints, with no working fans and a dusty setting. Similarly, School 113 has only two rooms, requiring classes to be held in verandahs. School 123 struggles with inadequate facilities, such as lack of electricity, refrigeration, and proper classroom space, while ongoing construction disrupts activities. In School 124, despite generally good infrastructure, some classrooms are in poor condition, with students sitting on mats.

Multiple schools report a shortage of essential learning materials. School 106 lacks a proper blackboard and has limited teaching materials for Grade 3. In School 113, there are no new textbooks, workbooks, or updated Teacher Guides, impacting teaching quality. Schools 123 and 124 also face a shortage of workbooks, with School 123 highlighting the need for more adaptable resources for rural contexts.

Space constraints lead to multigrade classrooms in several schools, such as Schools 112 and 123, where students from different grades are combined. This arrangement poses challenges in managing classroom space and effectively catering to varied learning needs. The Headmasters (HMs) at Schools 106 and 107 emphasise the importance of community involvement in improving student attendance and engagement. There is a call for stronger school-community connections to enhance the overall educational environment.

HMs have mixed feedback on the NIPUN initiative and Teaching Guides (TG). At School 106, the HM finds TGs and Sandarshika resources beneficial but emphasises the need for regular student attendance to meet NIPUN levels. School 107's HM suggests adjustments to CWPM targets, given weaker decoding skills among rural students. The HM at School 123 calls for more teacher autonomy and adaptable teaching approaches to meet diverse student needs.

Schools face various challenges related to the MDM program. School 123's HM reports issues with food quality and procurement, particularly during summer, and criticises the NGO's role in MDM delivery. School 124 relies on the Pradhan for logistical support but faces delays in meal preparation.

HMs across schools describe their roles as extending beyond teaching to include significant administrative duties. In Schools 106 and 107, HMs balance teaching with overseeing school operations, managing teacher performance, and engaging with the community. At School 123, the HM takes an active role in PTMs, SMC meetings, and addressing MDM issues, while also emphasising the need for equality and collaboration among staff.

Teacher practice inferences

In Schools 106, 112, and 124, teachers often failed to provide individual attention, leading to some students, especially those who are new, less regular, or backbenchers, being overlooked. This lack of monitoring resulted in minimal feedback and inconsistent engagement, affecting overall student participation and progress. Teachers in Schools 106, 112, 123, and 124 faced challenges in maintaining classroom discipline and engagement. Instances of students chatting or being distracted while the teacher was otherwise engaged were noted. In some cases, such as School 112, low teacher voice and poor internet connectivity contributed to these challenges.

Observations in Schools 106, 123, and 124 highlighted a lack of adherence to Teacher Guides and Teaching Learning Materials. Teachers often improvised or did not use structured resources, which impacted lesson planning and the implementation of effective teaching strategies.

Positive engagement strategies were noted in Schools 106, 107, and 112, where teachers used visual and audio aids, storytelling, games, and interactive questioning to promote student participation. Teachers encouraged collaborative environments and employed peer recognition, verbal praise, and personalised support, particularly in literacy practices.

Across Schools 106, 113, and 123, the provision of feedback was inconsistent. While some teachers actively corrected and guided students, feedback often lacked depth or was not provided at all. Checking of student work was uneven, and in some cases, such as Schools 106 and 123, only a fraction of students' work was reviewed.

Some positive practices in Schools 107 and 123 included the use of differentiated instruction and inclusive strategies to cater to diverse learning needs, including special efforts for specially-abled students and struggling learners. However, there was still a noticeable gap in ensuring all students were consistently engaged and supported, as seen in Schools 106 and 124.

Teacher inference

Schools face infrastructural issues, including space constraints (Schools 106, 112, 123), unclean facilities (Schools 107, 123), and damage or vandalism (School 106). Lack of proper

learning environments, like Multi-Level Classrooms due to space shortages, complicates effective teaching.

Many schools struggle with a shortage of essential resources, such as workbooks, teaching guides, and educational materials (Schools 106, 107, 112). Outdated resources and lack of updated materials via official channels affect teaching quality, as noted in School 107.

Limited or problematic engagement from community members and parents impacts schools negatively. For instance, community violence and social issues affect support for School 107, while Schools 112 and 124 struggle with inconsistent parental involvement in PTMs. Absenteeism is a common challenge across several schools (Schools 106, 124), often due to family events, travel, and lack of parental motivation. This significantly impacts meeting educational targets, including NIPUN goals.
Teachers face heavy workloads, including administrative tasks, commuting burdens (Schools 107, 113), and managing multigrade classes (Schools 106, 112). Additional roles, such as fulfilling non-teaching responsibilities and navigating TG restrictions, further strain teachers' capacity.

Issues with the MDM program, including poor food quality and logistical challenges, are highlighted in Schools 123 and 124. The reliance on external parties for meal provision often results in delays and dissatisfaction.

Teachers in Schools 113 and 123 report feeling pressured and demotivated due to frequent inspections and criticisms, which negatively affect their morale and teaching effectiveness.

Teacher Category- High Scorers

Among the three teachers sampled under the high scorer category—105, 111, and 121—Teacher 105 received the chatbot intervention, while Teachers 111 and 121 were part of the MPV intervention arm. Both Teachers 105 and 111 are from Sitapur, whereas Teacher 121 is from Hardoi.

Teacher Pedagogy

Bad Teacher Practices

The classroom environment of teacher 105 exhibited several concerning practices. The boys and girls were seated separately, with the girls seated at the front and the boys at the back, which could affect classroom dynamics and participation. The teacher was observed being inattentive to classroom noise and disruptions, allowing a lack of focus and order to persist among the students.The teacher frequently left and re-entered the classroom, which exacerbated student distractions and hindered their ability to concentrate on the lesson. Additionally, not all students' notebooks were corrected, which limited the feedback necessary for their learning progress. The teacher used a mobile phone to show educational content to students but then left the class, leaving them unsupervised. The teacher did not utilise a teacher diary, indicating a lack of planning. More importantly it was observed with concern that the teacher hit a student, which is an unacceptable practice and detrimental to a positive learning environment.

The only bad practice observed in the classroom of teacher 111 was the teacher using a stick to intimidate and control students. This approach to discipline is highly concerning and is considered an inappropriate and harmful practice.

Teacher 121 exhibited a tendency to focus primarily on selected students, which led to disengaged students being overlooked. This selective attention resulted in disengaged students not staying engaged and participating in the lesson. Additionally, there was no mention of the week or date on the blackboard, which is detrimental in establishing a routine with primary grade students.

Good Teacher Practices

Teacher 105 was observed starting lessons in an engaging manner. The teacher utilised a poster to illustrate a story during literacy class, enhancing the visual and contextual understanding of the material. At the beginning of the EVS class, the teacher engaged students with a question-and-answer session based on the previous lesson. During the class, the teacher took individual responses from students and gave writing work relevant to the topic being taught. The teacher circled the classroom, checking students' notebooks and providing special attention to those struggling with the classwork.The teacher effectively probed students both collectively and individually to elicit responses, with all students replying in Hindi. Collective responses were taken at the beginning of the class, followed by individual answers to deepen understanding. The teacher also probed students when they encountered difficulties, and responses were gathered from multiple students to gauge overall comprehension.

Teacher 111 demonstrated a commendable focus on student learning by paying special attention to weaker students. Throughout the lesson, the teacher actively moved around the classroom, providing guidance on writing and closely observing students

The teacher 121 was observed providing adequate time for students to think and formulate their responses, allowing them to engage more deeply with the material. Additionally, the teacher involved students in preparing Teaching Learning Materials (TLMs), which encouraged active participation and hands-on learning.

Teacher Opinions

The In- Depth Interviews with teachers involved an ethnographic approach. Teachers were read out vignettes or shown videos of other teachers' practices and were asked to give their thoughts and opinions. These were then verified with classroom observations to find validations of teacher's knowledge in practice. During this exercise we also observed dissonance between teacher's knowledge and practice as well.

Opinions unverified in teaching practices

During the interview, teacher 105 shared that Sameer should have given students the opportunity to read the lesson themselves, emphasising the importance of involving students in lesson reading to make teaching more effective. The teacher noted that teaching is less impactful if only the teacher reads the material. They mentioned that including activities, using the three parts of Balanced Literacy, and incorporating live demonstrations and animated videos could greatly enhance the teaching process. The use of flashcards and visual tools, particularly after the "You Do" phase, would help students understand concepts like numbers better. They also pointed out that explaining foundational concepts such as "0" before "10" is crucial. Additionally, the teacher highlighted the need for providing individual feedback, monitoring students during practice, and using appropriate Teaching Learning Materials (TLMs). She expressed a preference for text messages over audio notes for communication and observed that while some teachers are performing well, there is concern about others who seem less engaged and supportive.

During the interview, teacher 111 discussed their approach to instruction, and highlighted that ARP monthly supervision visits provide guidance to them. They noted positive outcomes of their classroom such as good student responses and attendance but mentioned that writing work could improve. They use visual aids and explain topics to the whole class. The teacher handles student queries over calls, leading to better understanding. They believe that videos and group teaching are beneficial and emphasise the importance of daily teaching, extra time for students, and motivating students with positive remarks. Challenges according to the teacher include student disinterest, long school hours, and the need for improved attendance. The teacher believes others should use educational materials effectively, focus on peer learning, and tailor instruction based on individual student needs. They also stressed the importance of timely availability of books and resources and adjusting teaching methods according to student learning speeds.

Teacher 121 emphasised the importance of maintaining a teacher diary and using the teaching guide (TG) effectively, suggesting it should be reviewed for at least 5 minutes, during morning assembly, and daily commute. They find it challenging to grasp TG content in just 2-3 minutes and spend 15 minutes on diary maintenance after school. They reported no challenges with TG and adapted their teaching based on students' needs, allowing peer storytelling and incorporating activity-based teaching. The teacher focuses on attendance and proper seating arrangements for effective activities. They use their understanding of students' levels and GRR (Gradual Release of Responsibility) methods. They advocate for government consideration of teachers' suggestions and emphasise the need to motivate students with rewards like stationary.The teacher believes that to ensure punctuality, school should begin at 9 am.

Validation and contradiction in teaching practices

Teacher 105 believes in collecting both choral and individual responses. The teacher is of the opinion that you can assess overall student understanding by collecting choral responses first and then take individual responses to accurately gauge student's levels. Both of these practices were observed on the day of the observation. The teacher also believes in following balanced literacy practices and stated that all 3 parts of Balanced Literacy are beneficial, and all 3 parts were observed in the classroom.

Teacher 105 in the IDIs praised TG usage and mentioned that teaching is easier and TG saves time, but the teacher was not observed using or following the TG the entire day of the observation. The teacher was also contradictory in mentioning that they value a gradual teaching pace but also mentions that TG is too slow. The teacher recognises the importance of preparing in advance but doesn't do it themself. The teacher also recognises the importance of student participation but is frequently in and out of class and increases student distractions themself. The teacher mentioned that the TG can be used customised to a teacher's requirement, but no such practise was observed on the day of the observation.

Teacher 111 in the IDI mentioned how they believe that every teacher should provide individual feedback to their students, and the same was observed during both literacy and numeracy classes. The teacher asked students to come one after another to the board to answer questions and write on the board. The teacher helped students when they got the answer wrong and provided feedback to them. The teacher emphasised the usage of TLM in teaching to connect the topics with students and the same was observed in the teacher's numeracy class where they used matchsticks from the Math Kit to explain subtraction. The teacher was observed using the TG plan for teaching both numeracy and literacy classes, and in the interview the teacher mentioned the importance of planning the day as per the TG. The teacher in 3 separate instances mentioned the importance of levelled teaching and grouping students according to levels and providing activities as per the child's level. The teacher in their numeracy class was observed following this where they gave different subtraction problems and gave one group of students matchsticks to solve the problems with, this ensured everyone was able to solve with different levels of help by the teacher. The teacher also believes that teachers should walk around the class to ensure students don't get distracted and the teacher can provide individual feedback to struggling students. The teacher was observed practising this

belief in both numeracy and literacy class, where they would give questions for students to solve and move around the class and provide feedback to students on their answers.

The only contradiction observed in Teacher 111 interview was- the teacher IDI mentioned that students need to be dealt with politely, but they were observed threatening students with a stick if they made any noise.

Teacher 121 in the IDIs mentions TG components such as using a story from a poster for OLD, incorporating activity based teaching, and GRR to be useful in teaching. The teacher on the day of the observation started OLD with a story from a poster, followed GRR in their numeracy lesson and incorporated activities in their teaching. The teacher believes in collecting individual responses and inspecting work of students, and the same was observed in the teacher's class where they asked students to answer individually and they checked every students' book. The teacher also emphasised the importance of teaching students using everyday items, their natural surroundings, and even incorporating the local dialect to make literacy easier. All of these practices were observed during observation, the teacher started lessons by trying to connect it to their surroundings and every day items, and in literacy class during OLD the teacher encouraged the students to use local dialect words in case they couldn't remember a few textbook words.

While teacher 121 recognises that students need attention as per learning levels, the teacher only focused on students who actively participate. The teacher went on to elaborate that special attention needs to be provided to weak students during remedial classes and there must be remedial classes everywhere. The teacher also mentions that additional methods of teaching need to be incorporated while teaching weaker students and more time should be accorded. While the teacher understands the benefits of a levelled teaching practice, the opposite of it was observed in the classroom. The teacher taught only to a few students who were active and responding, and weaker students were not paid any attention. There was no attempt made by the teacher to teach any remedial lessons.

School Climate - Physical infrastructure

The school of Teacher 105 featured a rectangular layout with an iron gate, creating a structured entry point. The boundary walls of the school had been recently renovated and painted, contributing to the overall security of the premises. However, the school's short boundary wall still raised concerns about security. There was a locked, broken building within the school premises with a "no entry" sign

Inside the school, the walls had various paintings, and while the outer walls and boundary wall had been newly painted, the inner walls had not received recent attention. The school had functional washrooms, including separate facilities for male, female, and specially challenged students. Both Western and Indian-style toilets were available, and the handicapped washroom was equipped with facilities like a ramp. Additionally, a separate washroom was provided for the staff. The school also had an Anganwadi centre located within the premises.

The basic amenities in the classroom, however, were not functional, which could hinder the learning environment. Despite these challenges, the school was observed to be clean, with the cleaning happening while students were in the assembly.

During the assembly, only five students attended, none of whom were in uniform. The assembly was guided by a teacher, with three girls participating in singing the prayer. The school staff appeared proactive, as they were transferring classroom responsibilities from an irregular teacher to a regular one, ensuring more consistent classroom management.

Overall, the school had a mix of well-maintained facilities and areas needing attention, particularly in terms of classroom functionality and security. The staff were engaged and took measures to maintain cleanliness and manage classroom responsibilities effectively.

The school of teacher 111 had a broken entrance, and the boundary walls were in a dilapidated condition, raising concerns about student safety. Despite these issues, the school had functional amenities within the premises, including a hand pump and separate washrooms for male and female students. On the day of observation, construction for a new room was underway, which the Headmaster mentioned would become a new classroom. The school compound also had a couple of trees.

The school consisted of three classrooms, a kitchen room, and an office room. Functional lights and fans were present in the classrooms, and a working washbasin was available. However, despite these amenities, poor school cleanliness was noted by the observer.

The school's assembly began at 7:33 AM, with the Headmaster and one teacher present. Initially, 12 students (9 boys) were in attendance, and by the end, the number increased to 27 students (19 boys), indicating a higher turnout of male students. The assembly started with a prayer, followed by a story narration, and concluded with a General Knowledge (GK) activity. During this activity, each student would come forward to ask a GK question, to which the entire assembly would respond. If no one knew the answer, the student who posed the question would provide it, and the assembly would repeat it. Example questions included, "Who is the Prime Minister of India?" and "Who is the Chief Minister of UP?"

The school staff were welcoming and cooperative with the observers during the visit.

The school of teacher 121 presented a mix of well-maintained features and areas in need of repair. The presence of a boundary wall provided a sense of security, and the school grounds included greenery that added to a welcoming environment. The school was well-decorated, and the classrooms were clean, creating a positive atmosphere for students. There was also an office on the premises, and a co-located Anganwadi centre, indicating a shared space for early childhood education.

Despite these positives, some areas of the school required attention. The plaster and paint on the walls were chipping in several places, and some windows were broken.

The school had separate washrooms for girls and boys, and there were taps available for washing hands and drinking, with a functional water supply. The classrooms had adequate lighting, ensuring a conducive learning environment. However, the washrooms were noted to be

unclean, which could affect student health and hygiene. Additionally, the electricity supply was irregular, with frequent power cuts, which could disrupt both teaching and learning activities.

The assembly was conducted as part of the school routine. The observed noted the lack of bells to signify the change of periods; this might lead to some confusion regarding the schedule for students.

School Climate - Learning Infrastructure

Teacher 105 mentioned that low internet connectivity in their school significantly restricts student engagement with digital learning resources, making it difficult for teachers to utilise online tools effectively.The school is enriched with wall paintings in both English and Hindi..

The school environment of Teacher 111 is enriched with a variety of teaching and learning materials (TLMs) and infographics displayed on both school and classroom walls, all positioned at student eye level. These include slogans promoting water conservation and yoga, as well as paintings of national symbols and yoga poses. The school prominently features NIPUN Mission themes, with "NIPUN Bharat" and "NIPUN Vidyalaya" painted on the walls.

Inside the classroom, a list of 'NIPUN' students is displayed alongside images of Bhim Rao Ambedkar and Radha and Krishna. The walls are adorned with charts, pictures, and posters that serve as TLMs for counting, poems, yoga poses, and NIPUN goals. These resources are strategically placed at eye level to support student learning.

However, the school faces significant challenges. Workbooks have not been received, leading teachers to use outdated workbooks from the previous year for student exercises, which hinders effective learning. The school operates with only three classrooms, necessitating that Grades 4 and 5 be taught in a Multi-Level Classroom (MLC) setting, while Grades 1 to 3 each have their own classrooms. Students in Grades 4 and 5 are seated in a lobby or verandah, as there are no benches or desks available, so they sit on mats during classes.

Additionally, poor network connectivity severely impacts the use of electronic TLMs, such as the Diksha app and YouTube. One teacher reported that buffering a 5-minute video takes up to 1.5 hours, making digital resources impractical for effective teaching.

The classroom environment of Teacher 121 is well-equipped with educational resources, including a prominent NIPUN Soochi displayed on the wall. There is a whiteboard for instructional purposes. A book shelf is available, and ample charts and posters are positioned on every wall to support learning. Students have benches to sit on,and additionally, the school features one smart classroom, indicating an interest in audio visual teaching by the school. The classroom also benefits from tiled flooring, contributing to a clean and organised space.

HM related themes

HM Practice

The Headmaster (HM) of teacher 105 conducts staff meetings irregularly, generally once or twice a month, rather than adhering to a consistent weekly schedule. There is no established

system for tracking teachers' performance, which affects the ability to monitor and support staff effectively. Additionally, the HM does not take specific actions when a teacher is demotivated, potentially impacting staff morale. The lack of a performance tracking system is attributed to the HM's busy schedule, which limits their capacity to implement and maintain such systems. Additionally, the HM frequently has to address and fix problems with school infrastructure that was previously functioning well.Security issues, including vandalism, have further complicated their responsibilities.

The HM of teacher 111 actively holds meetings to raise awareness among parents about the importance of education. They face significant challenges with online enrollment and Direct Benefit Transfer (DBT) work, alongside additional responsibilities such as keeping the school open for polio drives and household surveys.Despite these numerous duties, the HM prioritises teaching and handles official work after school hours. The HM enjoys teaching and ensures regular communication with staff by holding meetings with all teachers every Saturday to discuss issues faced in the classroom during the week, plan for the coming week, and provide support to teachers.

In addition to their primary responsibilities, HM of teacher 121 is engaged in a variety of administrative tasks. These include attending official meetings, performing Booth Level Officer (BLO) duties during elections, and managing census work. These additional responsibilities contribute to the overall administrative workload, which impacts the HM's capacity to focus solely on educational and instructional activities.

HM's Beliefs and Opinions

The HM of school 105 expressed frustration and concern about having to personally cover the costs of school repairs. They are also troubled by ongoing security issues and vandalism. The HM feels overwhelmed by the extensive operational and administrative tasks that come with their role, which include juggling election duties and coordinating with teachers. This challenging schedule, coupled with responsibilities and miscommunications, has added significant pressure.The HM acknowledged that their additional duties often result in less attention being given to students. In contrast, they noted that in their previous role as assistant teacher they enjoyed a lighter workload and more freedom in their roles.

The HM of school 111 finds their role to be burdensome and expresses dissatisfaction with the responsibilities it entails. They believe that a positive school environment, such as adding swings, could attract more students. The HM views the NIPUN Lakshya Yojna favourably and is confident that the school will meet its NIPUN targets this year as well. They believe that integrating a system into the NIPUN scheme of having one teacher per class would be beneficial for achieving these targets.The HM also expressed they genuinely enjoy the teaching aspect of their role.

The HM of school 121 is assertive and confident about achieving the NIPUN goals. They observe that teachers are actively working towards meeting the NIPUN targets, and there are no instances of demotivated teachers within the staff.

HM-Teacher Relationship

In the current situation in school 105, there is no specific action plan for addressing situations where a teacher becomes demotivated. Weekly staff meetings occur irregularly, impacting consistent communication and support. Additionally, there is no established system for tracking teachers' performance.Despite these gaps, the HM maintains a good relationship with most teachers. However on the day of the observation, a conflict between the HM and a certain teacher was observed indicating a non conducive work environment for a few teachers.

The HM in school 111 holds a meeting with all teachers every Saturday, providing a regular forum for discussion and planning. Additionally, after school hours, the HM and teachers engage in 10-15 minute conversations to address mutual problems, challenges, and plan for the next day.

The HM in school 121 maintains a cordial relationship with the teachers, fostering a positive and supportive work environment.The HM stresses on the need for effective communication between teachers.

TLM Appreciation by HM

The HM of school 105 appreciates the TG and TLM for their significant impact on teaching effectiveness. The workbooks have proven to be extremely helpful, making the student's practice easier and more efficient. The HM specifically values the Sandarshika (TG) resource for its ability to provide ready-made content, which saves time and allows teachers to start lessons immediately without the need for extensive preparation.

The HMs of both schools 111 and 121 did not mention or appreciate TG or TLM in their interviews. Hence no advantages or issues were raised by both of the HMs.

Classroom climate

Student Interest in Content and student-Student Interaction

In the classroom of teacher 105, students were observed not to be interested in the teacher’s content. Most of the students stopped doing their work as soon as the teacher left the classroom, and were engaged in conversations among themselves in the teacher’s absence.

Observations in the classroom of teacher 111 indicate strong student engagement and positive peer relationships.The students demonstrated a keen interest in the classroom activities. When the teacher called 4-5 students to the front to make words from a grid, they eagerly participated and actively engaged with the task. Additionally, students were observed repeating correct answers after the teacher. The classroom environment fostered good and healthy peer relationships. Students were seen helping each other during reading lessons and correcting each other's reading errors. His positive interaction extended beyond academic tasks; during the MDM, students assisted each other by pumping water from the hand pump.

In teacher 121’s classroom, the students were observed to be interested and engaged in the teaching content. Students were fully engaged in the classroom activities, with most children

actively participating.They were responsive to the teacher's instructions, participating eagerly in discussions and activities.The students were also observed working diligently in their notebooks.

Student-Teacher Interaction

The teacher 105 demonstrated a mixed approach in their interactions with students. They effectively built rapport and fostered familiarity, which are crucial for effective teaching. The teacher used open-ended questions to engage students, such as initiating a discussion on "What do students do when they wake up?" This method encouraged students to think critically and participate actively, creating an interactive classroom environment. The teacher also promoted phonetic learning and a trial-and-error approach, allowing students to explore word formation and rhyming. There were also troubling aspects observed of the teacher's approach. At the start of the class, the teacher was observed using physical intimidation by hitting a student to maintain discipline. This incident is concerning, as it contradicts the efforts by the teacher to build rapport and familiarity with students. While there were no further student-student or teacher-student conflicts observed, the use of physical force undermines the overall positive interactions that were also present in the classroom.

Teacher 111 arrived late to the school at 7:46 AM, but The teacher was fully present and engaged in the classroom during both literacy and numeracy classes. Once in the classroom, the teacher began by asking questions from the previous lesson, effectively reviewing and reinforcing what had been taught.When a student forgot their notebook, the teacher addressed the situation by politely asking the student to bring it, reinforcing responsibility. There was a concerning aspect of the teacher's classroom management. The teacher was observed during the beginning of the class, using a stick to intimidate students and threatening them to quiet down, which is a problematic approach to discipline. While this tactic may have maintained order as no student disturbances were observed, it creates a negative atmosphere in the classroom.

Teacher 121 displayed a strong commitment to fostering an engaging and supportive classroom environment, in line with the goals of the NIPUN Lakshaya initiative. Throughout the lesson, the teacher actively engaged students in various activities, and this ensures active student participation in all activities. The teacher’s approach was consistently encouraging, creating a positive atmosphere where students felt motivated to contribute and take part in the activities.The teacher was also observed appreciating students' efforts, offering praise and positive reinforcement.

Student-Teacher Guidance

Teacher 105 demonstrated a strong commitment to guiding students through their learning process by offering both individualised support and collective instruction. As the teacher circled the classroom, they actively checked students' notebooks, ensuring that each student was following along and completing their work correctly. The teacher also used probing questions to encourage students to think critically when they are stuck with a question. By asking questions connected to the students' family structures, the teacher made the content relatable and

accessible, prompting students to respond both collectively and individually. After correcting student notebooks, feedback was provided by the teacher.

Teacher 111 demonstrated a strong commitment to student learning by paying special attention to weak students throughout the lesson. The teacher was observed moving around the class, guiding students on how to write properly and providing individualised support. During a 10-minute period allocated for solving sums, the teacher actively moved around the classroom, closely observing the students' work and offering assistance when necessary. The teacher described complex concepts using real-life examples, which helped students better understand the material. Additionally, the teacher wrote difficult words on the board and explained their meanings. The students were then asked to create sentences using these new words, further reinforcing their learning. The teacher made sure that each group of students had at least one or two books to share during reading activities. The teacher encouraged individual reading by asking students to read aloud while offering support to struggling students and correcting them as needed. The teacher actively ensure student participation by making students solve questions on the board, and supported them with hints when they couldn’t answer.

Teacher 121 exhibited a proactive approach by frequently checking students' work and offering assistance when needed. The teacher provided valuable feedback to students, helping them to understand and improve their work.However, it was also observed that the teacher’s attention was primarily focused on selected students, overlooking those who were disengaged or struggling quietly. This selective attention meant that some students who might have needed help were not noticed.

References to Intervention

Teacher 105 in a couple of instances mentioned their usage of Chatbot to aid in teaching. During the IDI when the teacher was asked about using additional resources mentioned using the Chatbot. The teacher mentioned that they used to use it in the school post assembly and preferred listening to the audio notes from the chatbot.

Teacher 111 mentioned that they had watched all the MPV videos and liked them all. They mentioned MPV Video on literacy- using cards, Numeracy- fish activity, and student name slips to take responses as few of the activities and processes from MPV that they implemented in their classroom. The teacher mentioned that they used MPV Video activities a lot in numeracy classes. They believe that MPV videos in their current form are sufficient but more videos on outdoor activities and games must be included. The teacher mentioned that they believe that the videos have made a difference in their class.

Teacher 121 did not mention MPV in any of the conversations or observations during the day.

Midday Meal (MDM) Administration and Challenges

In School 105 the administration of the MDM program faces several challenges related to the procurement and management of groceries. Currently, groceries are procured from the Pradhan, and the timely preparation of meals is heavily dependent on the prompt arrangement of these groceries. Additionally, the system lacks a formal mechanism for resolving conflicts if

the Pradhan is unable or unwilling to provide the necessary support. This absence of a conflict resolution system exacerbates the challenges, as it leaves meal preparation vulnerable to disruptions and delays.

In School 111, at 10:12 AM students came out for MDM. The program is managed through a joint account held by the HM and the Gram Pradhan. In this arrangement, the Gram Pradhan is responsible for overseeing the MDM process, including the provision of raw materials required for meal preparation. No irregularities or challenges mentioned by the HM during their interview.

The HM in school 121 mentioned that preparation of the MDM requires a dedicated time of 3 hours. Ration supplies for the meal are provided through the Gram Pradhan, ensuring that necessary ingredients are available for timely and efficient meal preparation. The HM in their interview did not mention any challenges or irregularities with ingredients.

Barriers to education and instruction

School Level Barriers

The school of teacher 105 faces several challenges affecting its operation and teaching environment. Frequent vandalism, such as broken taps, requires the teacher to make personal repairs. The lack of boundary walls raises concern for security. There are no workbooks for Grades 4 and 5, leading to concerns about inadequate resources .The shortage of staff and books compounds the issue, with only one book each for Hindi and Maths and no available workbooks hindering classroom practice. Teachers are frustrated by bureaucratic inefficiencies, including delays in bonuses and a lack of administrative support. The in-charge is dealing with task delegation issues, unclear training situations, and feels unfairly penalised for problems beyond their control. This has led to financial and emotional distress, with a sense of lost autonomy and delayed responses from authorities exacerbating the situation.

The school of teacher 111 has an infrastructural barrier, three classrooms for Grades 1-3, while Grades 4 and 5 are situated in the lobby. The teacher has identified issues with the student enrollment policy and faces challenges due to staff shortages, which complicate managing multiple classes and hinder adherence to NIPUN goals. The teacher notes that two classes cannot be effectively handled by one teacher and emphasises the need for an additional teacher. New session’s Sandarshika has been made available online to teachers and the lack of internet at the school makes it inaccessible.

School 121 is a composite school and primary sections do not receive primary focus.Network issues in the area hinder administrative work. There is also a lack of support from the Pradhan, which affects the overall functioning of the school.

Teacher Barriers

Teacher 105 faces numerous challenges, including a lack of motivation and accountability due to unresolved issues and limited authority in government schools. The teacher is disheartened by the lack of value placed on their suggestions and may struggle to provide individual feedback under stress. Achieving NIPUN goals is contingent on students' current learning levels and the

teacher feels out of the locus of control. Teachers express dissatisfaction with the TG mandate, feeling a loss of autonomy and rigidity in the Sandarshika that hampers flexibility and adaptation to students' learning paces. They face multiple duties, including student management and preparation tasks, leading to feelings of overwhelm and ineffective teaching due to unstructured time. The challenge of managing two grades with differing needs and teaching the same topics in a multigrade setting adds to the burden.

Teacher 111 did not mention any specific barrier they personally face in their every day teaching.

Teacher 121 faces issues with the unavailability of workbooks as it hinders their instruction. The teacher also called out the lack of flexibility in the teaching guide (TG), which teachers feel constrained by due to time limitations. The teacher believes that teachers should have more autonomy in deciding when to use the TG. The teacher also mentioned that women teachers face more home responsibilities compared to men, impacting their available time. Despite all these challenges, the teacher brings vegetables and personally calls children from home to ensure their attendance.

Parental Barriers

School 105 faces significant challenges related to poor parental involvement. Difficulties in conducting effective class practice arise from a lack of basic supplies like notebooks and pencils, despite repeated reminders to parents. Irregular student attendance is a concern due to parents' lack of attention and low awareness of educational needs. Additionally, parents are not providing necessary stationery, and there is a lack of parental accountability. The School Management Committee (SMC) is inactive due to disinterest from local leaders and parents, who prioritise their livelihoods over their children’s education and do not appreciate the efforts of government school teachers.

School 111 holds Parent-Teacher Meetings (PTMs) once a month, but parents often do not attend, requiring teachers to individually invite them. Teachers also visit students' homes to encourage school attendance but face challenges as some parents are uncooperative and have even threatened to file complaints against them. This situation leaves teachers feeling demotivated and hurt, especially when students react negatively to encouragement about their future.

In school 121 most parents do not attend Parent-Teacher Meetings (PTMs), and teachers often call children from home and make phone calls to parents to encourage school attendance. Despite these efforts, many parents are not invested in their children's education, and some do not answer the teachers' calls. Teachers visit students' homes to motivate them but face a lack of parental support and appreciation. Parents sometimes find it sufficient to send their children to school irregularly, leading to minimal interaction between teachers and both students and parents.

Student Barriers

School 105 struggles with managing student attendance and the varying levels of student knowledge that come with absenteeism. Due to time constraints and inconsistent attendance,

some students miss initial explanations of concepts and require re-explanations, while others have already understood the material. The average class attendance is around 50-55%, with Grade 3 having a lower rate of 42% to 51%. This means that on an average only half of the enrolled students are present in their classes. Punctuality issues persist, and students' levels of knowledge vary significantly, especially among rural children, impacting their progress towards achieving NIPUN goals.

Student absenteeism is a significant issue in school 111, with children frequently missing school during the threshing period and migration periods when families leave to earn money. Teachers visit students' homes to encourage attendance but face uncooperative parents who threaten to file complaints for bothering them. Despite these efforts, students often arrive only after assembly.

In school 121 parents are often motivated by the monetary benefits of enrolling their children to school, but absenteeism remains high during harvesting and wedding seasons. Regular student attendance is crucial for achieving NIPUN goals, yet high absenteeism demotivates teachers, who frequently encounter only a small fraction of enrolled students attending regularly. Teachers face daily disappointment as students often arrive late, do not complete homework, and lack motivation to attend school.

Enablers to education and instruction

All 3 teachers at a certain level mentioned TG and TLM to be their enablers in classroom instruction. But apart from 111 no teacher mentioned any person or item to be their enablers in effective teaching. Teacher 111 mentioned having ARPs as mentors as enabling. The teacher mentioned how the monthly visits are beneficial as they are trained and offer good actionable advice. Apart from this no instance of any enablers present during the observation.

TLM and TG - Glows and grows

The feedback from teacher 105 highlights that Teaching Guides (TG) and Teaching Learning Materials (TLM) are both valuable resources in education. Teachers appreciate that TG does not impose restrictions and makes teaching easier by saving time on lesson planning and aligning workbook questions with students' levels. The use of TG has led to positive results in literacy instruction, although it does limit teachers' autonomy. TLMs are noted for being particularly useful in teaching literacy and numeracy, aiding students in grasping concepts more effectively. Overall, TG and TLMs are seen as beneficial tools that enhance teaching efficiency and student understanding.

Teacher 111 mentioned that the arrival of TG has significantly improved teaching efficiency by providing structured lesson plans, which has alleviated the uncertainty and stress associated with lesson planning. Teachers feel more at ease with the TG, which facilitates the creation of engaging activities and does not require extensive time to adapt. The inclusion of various Teaching Learning Materials (TLMs) such as maths kits, Sahaj booklets, big books, and Chitrakahani posters further supports teaching by helping explain and connect topics effectively. Additionally, Sandarshika and workbooks are appreciated for their utility. Most teachers, around

90% from other schools, are reported to use TG, reflecting its widespread acceptance and positive impact on educational practices.

Teacher 121 mentions that TGs have made instruction easier and more effective, as their structured format aids in delivering lessons and allows students to learn more efficiently through engaging activities. The TG's structure is particularly beneficial for streamlined teaching, while the use of Teaching Learning Materials (TLMs) is essential for effectively teaching subjects like maths. The quality and abundance of the provided materials further enhance the teaching experience, making complex concepts simpler and more accessible for students

Discussion

External factors

Among the three teachers sampled, there were some common physical conditions observed across their schools, including the availability of washrooms, taps, and water. All three schools had issues such as broken gates, damaged windows, and chipping paint. Assemblies were conducted at all three schools, but each faced distinct challenges. These challenges included students not wearing uniforms, a predominance of male students, and the absence of a bell.Each school the 3 teachers belonged to had its own strengths and weaknesses but generally functioned in a similar manner.

In terms of learning infrastructure, all three schools were well-equipped with Teaching Learning Materials (TLM) and wall paintings. However, both the teachers from Sitapur faced network issues that prevented them from accessing online TLM, while the Hardoi teacher had access to a smart class. All teachers had blackboards, but none had this year's workbooks for student practice. Of the three schools, School 121 was slightly better positioned in terms of learning infrastructure, but Schools 105 and 111 also had adequate resources.

Regarding administrative responsibilities, all three Head Masters (HMs) were burdened with additional tasks. The HMs in Sitapur expressed a reluctance to continue in their roles due to the heavy administrative workload. Schools 111 and 121 had established plans and processes for teacher guidance and mentorship, whereas School 105 did not have a formal mentorship system. There are noticeable differences in mentorship received between teachers in Schools 105 and 111-121.

Only the HM of School 105 reported issues with obtaining ingredients from Pradha. Aside from this, the functioning of the Mid-Day Meal (MDM) program appeared to be similar across all three schools.

Considering external factors, one can state that apart from having the smart class in school 121 and absence of mentorship by HM in school 105, all 3 teachers come from relatively similar schools.

Teacher Practice Inferences

In observing the teaching practices of Teachers 105, 111, and 121, several similarities and differences were observed:

Teachers 111 and 121 effectively engaged students throughout the lesson, with students actively participating in activities and showing interest in the content. In contrast, students in Teacher 105's class appeared to be interested in the content, but their engagement ceased as soon as the teacher left the classroom. This suggests a lack of sustained interest or motivation in Teacher 105's class

All three teachers aimed to maintain a positive rapport with their students by asking questions and engaging them in conversation.They also asked questions that related to students' experiences. However, there were concerns about disciplinary methods: Teacher 105 was observed hitting a child, while Teacher 111 threatened to hit students with a stick. Such practices are highly problematic and undermine the positive rapport they sought to establish.

All three teachers checked students' work and provided feedback. But, Teacher 105's frequent absences from the classroom and Teacher 121's focus on only a few students impacted the effectiveness of their feedback and engagement.

Teachers 111 and 121 demonstrated more consistent student engagement and effective use of questioning and feedback, Teacher 105 faced challenges with student disinterest and inappropriate disciplinary actions. All three teachers shared some common practices, but differences in classroom management and engagement approaches were evident.

Teacher Inferences

In examining the teaching practices and barriers faced by Teachers 105, 111, and 121, several commonalities and distinctions emerge. All three teachers utilise a blend of choral and individual responses in their balanced literacy classes, adhering to the prescribed teaching guidelines. However, there are notable differences in their approaches and the challenges they face.

Teachers 105 and 111 were observed engaging in inappropriate behaviour, such as hitting or threatening students, a concerning practice not evident in Teacher 121's classroom. This difference highlights a critical area for intervention and support. Additionally, while Teachers 111 and 121 are more effective in checking students' work and providing constructive feedback, Teacher 105's approach in this regard appears less consistent.

Attention to students varies significantly among the teachers. Teacher 111 is commended for paying attention to all students, whereas Teacher 105 is frequently absent from the classroom, leading to sporadic attention. Teacher 121, on the other hand, focuses primarily on engaged students, which may impact those who require more support.

A common barrier across all three schools is the lack of workbooks, which hampers the effectiveness of instruction. Teachers 105 and 121 also point to the rigidity of the teaching guidelines (TG) as a limitation, noting that the lack of flexibility and prescribed nature of TG

diminishes their sense of ownership. Teacher 121 uniquely identifies gender as a barrier, highlighting the additional challenge faced by female teachers who must juggle both school and home responsibilities.

Parental involvement poses a significant challenge for all three schools. Common issues include low attendance at parent-teacher meetings, a general unawareness of the value of education, and irregular school attendance by students. Absenteeism is a persistent problem, with Teachers 111 and 121 citing factors such as harvesting, thrashing, and migration as primary causes.

Among the teachers, only Teacher 111 benefits from ARP mentorship, which is seen as an enabler in their teaching practice. No comparable enablers are identified for Teachers 105 and 121, suggesting a potential area for additional support and resources. Overall, these observations underscore the need for tailored interventions to address the specific challenges faced by each teacher and enhance their effectiveness in the classroom.

Teacher Category- Low Delta

Among Low Delta Scoring teachers from both Baseline and Endline, 2 teacher observations and IDIs were analysed, both from Sitapur. There were considerable similarities between practices observed between the teachers.

Teacher pedagogy

Bad Teacher Practices

In School 109, several concerning teacher practices were observed that negatively impacted the classroom environment and student learning. A prevalent issue was the selective checking of student notebooks, leaving others unchecked and without feedback. Furthermore, the teacher focused predominantly on the front-row students, neglecting those at the back who were often disengaged.

Another issue was the teacher's lack of use for the Teacher's Guide (TG). Instead of following the structured lessons provided in the TG, the teacher opted to teach independently, without posing any questions to the students or encouraging their participation. This approach not only undermined the effectiveness of the TG but also resulted in a passive learning environment where students were not actively engaged in the learning process. This, along with the lack of balanced attention, exacerbated the divide between engaged and disengaged students, leading to a classroom atmosphere where many students were left unchecked[2] and uninterested in participating.

In School 115, several teaching practices were identified that hindered the effectiveness of classroom instruction. One issue was the lack of classwork or independent practice assigned to students, which is critical for reinforcing lessons and allowing students to apply what they have learned. Additionally, there was a noticeable absence of the Teacher's Guide (TG) in the instructional process. Another concerning practice was the misalignment of notebook work with the topics being taught, indicating a disconnect between what was being taught and what students were practising. This lack of alignment can confuse students and hinder their ability to consolidate their learning effectively. The absence of a teacher diary, which could have served as a tool for lesson planning and reflection, further compounded these issues. Additionally, the teacher was observed using phones during non-teaching times, which, while not inherently problematic, could distract from their focus on classroom management and student engagement.

Good Teacher Practices

Despite these challenges, there were several positive teaching practices observed in School 115. One was the use of live demonstrations during lessons, which can make abstract concepts more tangible and understandable for students. The teacher also circled the classroom, monitoring student progress, and reteaching concepts when students did not understand. This

[2] Students were seen moving around the class

attention to all students, rather than just a select few, can help create a more inclusive and supportive learning environment.

Decoding and Literacy Practices

Despite the aforementioned issues, there were some positive aspects of teaching practices at School 109. The teacher engaged in decoding activities, which involved segmentation and blending, essential components of early literacy instruction. These activities help students develop phonemic awareness, a critical skill for reading proficiency. Additionally, the teacher encouraged independent reading, allowing students to practise their reading skills individually, which is crucial for developing literacy. Writing activities were also a part of the classroom routine, with students being assigned classwork in their notebooks. However, the effectiveness of these practices was likely diminished by the lack of consistent feedback and the selective attention given to only a few students outlined earlier.

Teacher opinions unverified in teaching practice.

Teacher in School 109 shared opinions on the importance of focusing on the basics, particularly in early grades, to ensure that foundational skills are solid before moving on to more advanced concepts.

Teacher in School 115 expressed several opinions and observations that reflect their approach to teaching. They recognized the importance of circulating around the classroom to check on students' work and provide immediate feedback.

Teacher also highlighted the importance of teaching according to students' levels of understanding. They advocated for categorization and grouping of students based on their abilities, which allows for more personalised instruction and ensures that all students receive the support they need. This approach is particularly important for weaker students who may require more focused attention to catch up with their peers. Furthermore, the teacher in School 115 emphasised the value of relating concepts to everyday life, recognizing that connecting lessons to students' natural surroundings and experiences makes learning more relevant and engaging.

Teacher Suggestions

Teachers at school 109 offered several suggestions to improve classroom practices. One key recommendation was to incorporate more practical teaching methods before relying on TLMs, suggesting that hands-on activities and real-life examples could enhance understanding. Additionally, the teacher emphasised the importance of taking individual responses from students to gauge their understanding and adjust instruction accordingly. They also advocated for using workbooks only after thorough practice on the blackboard, ensuring that students had a strong grasp of concepts before moving to independent practice. The need for more attention to younger and struggling students was also highlighted, with teachers suggesting that these students require more handholding and support to keep pace with their peers.

Teacher in school 115 suggested the need for better preparation of Teaching and Learning Materials (TLMs), as self-made lesson plans were seen as easier to understand than

ready-made notes. Teacher also stressed the importance of ample preparation time, both at school and at home, to ensure that lessons are well-planned and effective. They suggested that TLMs should be prepared in advance to support classroom activities and facilitate a more interactive learning experience. Another important recommendation was the focus on remediation for weaker students, with teacher advocating for more personalised and levelled teaching approaches that cater to the diverse needs of students. They also recognized the importance of student participation and active learning, suggesting that learning is most effective when students are engaged and involved in the process. Teacher also suggested the use of online resources, finding DIKSHA app useful, and internet tools to enhance teaching, particularly in mathematics.

Validation and contradictions in teaching practices

For Teacher 109, there were notable validations of their knowledge in practice, such as the use of the Gradual Release of Responsibility (GRR) model, the beginning of literacy class with poetry recitation, and initiating decoding by clarifying matras. However, significant contradictions were also observed. These included a lack of differentiated instruction, no student reading or reading sessions conducted, failure to engage with students beyond the front benchers, and the absence of any activity-based engagement or lesson planning. The teacher's focus was narrow, primarily on a few regular students, and there was no use of open-ended questioning or independent student reading. Furthermore, no teaching-learning materials (TLM) were used, and the teacher was observed to remain seated, not actively circulating or engaging the entire class. Overall, the teacher's approach was one-dimensional, lacking engagement and active student participation.

For teacher 115, the validations of their knowledge were highlighted in their use of independent reading time with guidance, relating concepts to body parts, and actively asking questions to individual students. However, contradictions were observed in the teacher's focus on a select few students, neglecting non-participative students. Additionally, the teacher guide (TG) was not utilised during the observation, suggesting a missed opportunity to integrate structured guidance into the lesson. Despite positive efforts in individual student engagement, the lack of broader class involvement and TG use marked areas for improvement.

School Climate - Physical Infrastructure

At School 109, there were issues regarding access to basic sanitation facilities. The washrooms were unclean, with poor drainage systems that resulted in waterlogged toilets. This situation was further exacerbated by a malfunctioning tap inside the washroom that continued to allow water to flow unchecked, contributing to the overall unhygienic environment. Despite the challenges noted above, School 109 exhibited some positive aspects regarding water and sanitation. A hand pump was available for drinking water, ensuring that students had access to safe and potable water throughout the day. Additionally, the school had installed 7-8 water taps specifically for handwashing, promoting hygiene among the students. The classrooms were also equipped with water purifiers and light bulbs, placed at a height accessible to students, indicating efforts to ensure a clean and well-lit learning environment. The classrooms

themselves were spacious, with large windows that allowed for ample natural light and ventilation. There were also two washrooms (one for males and one for females).

School 115’s water and sanitation facilities were well-maintained. The washrooms were clean, with functional taps ensuring that students could maintain good hygiene. The presence of a hand pump provided access to safe drinking water, which is essential for the students' health and well-being. These facilities are crucial for supporting a healthy and conducive learning environment.

The other physical infrastructure of school 109 was mixed in terms of quality. On the positive side, the school had a main gate and two pillars beside it, which, although they showed signs of paint peeling, contributed to a secure school environment. The school had been recently painted, with the exception of the gate pillars. The small gate within the main gate allowed for controlled entry and exit of students, contributing to their safety. The school was also gated with high boundary walls. The infrastructure included big verandahs, two classrooms, an office, two washrooms (one for males and one for females), a hand pump for drinking water, and 7-8 water taps for handwashing, reflecting aspects of positive infrastructure. Additionally, a co-located Anganwadi within the school premises provided early childhood care and education.

The physical environment of School 115 was largely positive. The school was gated with a secure boundary, ensuring the safety of students and staff. The outer walls of the school were adorned with paintings, adding a vibrant and welcoming atmosphere. The school was clean, with three classrooms and one office room providing the necessary space for both learning and administrative functions. The school also had separate washrooms for boys, girls, and persons with disabilities (PWD), all of which were clean and equipped with functional taps. The classrooms were clean and well-maintained, with basic amenities that supported a conducive learning environment. The co-located Anganwadi within the school premises supported early childhood education, creating a continuum of learning from a young age.

School Climate - Learning Infrastructure

The learning infrastructure at School 109 was generally in good condition. The classrooms were well-maintained, with walls adorned with educational materials such as paintings, calendars, and charts featuring the alphabet (A-Z), flower names, vegetable names, and numbers. These visual aids are crucial for reinforcing learning and providing a stimulating environment for students. The school infrastructure included large verandahs, two classrooms, and one office, providing ample space for both learning and administrative activities. The exterior of the school was also well-maintained, with colourful paintings depicting children engaged in play and study on the front wall, and another wall featuring the 'Sarva Shiksha Abhiyan' slogan.

However, there were some deficiencies in the school's learning infrastructure. Notably, workbooks had not been distributed to the students, which is a significant impediment to effective learning. The absence of a library was also a concern, as it limited students' access to additional reading materials. Books were scattered throughout the school, suggesting a lack of organisation and perhaps insufficient storage or shelving. The school faced difficulties in

procuring Teacher Guides and workbooks, which had not yet been received, further hindering the teaching and learning process.

At School 115, a weakness in learning infrastructure was due to the unavailability of Teacher Guides. In their absence, the school was compelled to continue with the previous grade's topics, which could hinder the students' progression and mastery of new concepts. However, school 115 also displayed several strengths in its learning infrastructure. The classrooms were decorated with charts and posters, which are useful in creating a visually stimulating and educational environment.

On the human resources front, School 109 demonstrated some positive aspects. The school assembly was conducted by two teachers, and 15 students were present, indicating active participation in daily school routines. Assemblies are vital for fostering a sense of community and discipline among students, and the involvement of teachers in these activities reflects a degree of commitment to their roles. However, there were some issues related to human resources at the school. While three teachers were present, one of them was noted to be the Headmaster's sister. Furthermore, while 15 students were present at the assembly, others arrived late, suggesting possible issues with punctuality and attendance, which could impact the overall learning environment.

In terms of human resources, there were some challenges observed at School 115. During the assembly, 22 children were present, but it was noted that the assembly area was cleaned by the children themselves, which could indicate a lack of support staff. However, this speculation needs further investigation and may indicate an ownership on part of the students instead. Additionally, the full implementation of the Teacher Guide was not possible due to a lack of resources, which may compromise the quality of instruction and the students' overall learning experience. Despite these challenges, there were positive aspects related to human resources at School 115. The assembly was well-organised. It had separate rows for girls and boys, with girls leading the assembly. This may be a positive indication of female leadership and gender equality within the school environment.

HM related themes

HM Practice

The Headmaster at School 115 demonstrated commendable adherence to prescribed teaching methodologies by conducting classes as per the Teacher's Guide (TG). This practice underscores a commitment to structured pedagogy, ensuring that the curriculum is delivered systematically and effectively.

The HM at School 109 shoulders a wide array of administrative and managerial duties alongside their educational leadership role. Conducting monthly teacher meetings of 30 minutes demonstrates an effort to maintain regular communication, discuss progress, address issues, and strategize collectively with the teaching staff. These meetings are crucial for aligning goals, sharing updates, and fostering a collaborative environment. Additionally, the HM was responsible for admissions, transfer certificates (TC), and other administrative tasks, indicating a heavy workload that spans beyond instructional leadership. The HM also engaged directly with

parents in efforts to reduce student absenteeism, showcasing involvement in addressing attendance issues that affect learning continuity.

HM's Beliefs and Opinions

The HM at School 109 expresses concerns regarding the challenges in achieving the NIPUN goals. To address these challenges, the HM prioritises providing more attention to regular students, possibly to ensure consistent progress and support for those who are consistently engaged. This focus indicated an allocation of attention and resources to maximise educational outcomes where there is steady student presence, while also highlighting potential issues such as irregular attendance that may need addressing through additional measures.

The HM at School 115 holds a belief in the necessity of disciplinary rigour within the educational setting. Observing that students exhibit a nonchalant attitude attributed to a lack of fear of consequences, the HM advocates for stricter disciplinary measures to foster a more conducive learning environment. This perspective suggests an understanding that discipline plays a pivotal role in shaping student behaviour and engagement. The HM likely believes, though there is no direct evidence, that implementing appropriate and consistent disciplinary policies can instil a sense of responsibility and respect among students, thereby enhancing their focus and commitment to academic pursuits. However, such inference also raises considerations about balancing firmness with fairness to ensure that disciplinary practices are supportive and not punitive, promoting a positive school climate where students feel secure and motivated.

HM-Teacher Relationship

The relationship between the HM and teachers at School 109 was marked by cordiality and mutual respect. Teacher and HM spent time together during lunch breaks and Mid-Day Meals (MDMs). These interactions likely contribute to a supportive and friendly work atmosphere, where teachers feel comfortable sharing their thoughts and experiences. The school conducted monthly half-hour teacher meetings that may provide structured opportunities for collaboration, discussion, and collective planning.

The relationship between the HM and teachers at School 115 was characterised by collaboration and mutual support. Teachers assisted the HM in daily tasks, reflecting a shared responsibility. The HM's engagement with teachers extended beyond formal duties, as they spent time together during and after school hours. They engaged in conversations predominantly centred around school-related matters.

TLM Appreciation by HM

The HM at school 109 values the effectiveness of both the Teacher's Guide (TG) and workbooks as essential tools in the teaching and learning process. Recognizing that TGs assist in saving time during the preparation of lesson plans and daily targets indicates an appreciation for structured and efficient planning resources that streamline instructional preparation. Similarly, HM's appreciation for workbooks underscores their importance in facilitating student engagement and reinforcing learning. The HM's positive stance towards these materials likely

encourages their widespread and effective use within the school, contributing to a more organised and impactful teaching approach that supports student learning and progress.

The HM at School 115 expressed appreciation for the effectiveness of workbooks as Teaching and Learning Materials (TLM). Recognizing workbooks as supportive tools indicates an understanding of their role in reinforcing classroom instruction and providing students with opportunities for practice and application of learned concepts.

Classroom climate

Student Interest in Content and student-Student Interaction

At School 109, the classroom climate was marred by issues related to student engagement and interest in the content being taught. Teacher highlighted the issue of inattentive and disinterested students, with a noticeable lack of focus during lessons. This disengagement was evident in the students' behaviour, as they took minimal time to complete practice exercises and often did not participate in classwork. The situation was further compounded by the lack of feedback from teachers as outlined earlier, which could have provided the necessary guidance and encouragement to re-engage students. The presence of indiscipline among students, particularly those seated at the back of the classroom, was another concerning factor. These backbenchers were reported to be noisy, disruptive, and unresponsive to scolding, often laughing when reprimanded.

Despite the challenges in student-teacher interactions, the climate among students at School 115 was generally positive. The classroom environment was described as cordial, with students interacting in a friendly and supportive manner.

Student-Teacher Violence

The classroom climate at School 109 was also negatively impacted by the presence of student-teacher violence. Teachers were observed scolding and physically disciplining students in an attempt to manage the classroom and enforce discipline. This included hitting students to ensure they sat properly, scolding those who were talking, and even threatening them with 50 sit-ups as punishment. Such practices are not only detrimental to the students' emotional and psychological well-being but also create an atmosphere of fear and resentment, rather than one of mutual respect and positive reinforcement. The reliance on punitive measures highlights a lack of effective classroom management strategies and suggests that the teachers may struggle to maintain control and foster a conducive learning environment without resorting to physical discipline.

The student-teacher interactions at School 115 presented a more nuanced picture. On one hand, there were clear efforts by the teacher to create a friendly and supportive environment. Teachers were observed engaging with students in a positive manner, asking questions of non-participative students, and actively observing and assisting them during class activities. On the other hand, the previously mentioned lack of effort to engage all students, particularly those who were disengaged, highlights an inconsistency in this approach. While the teacher-student relationship was generally positive, the selective engagement of students suggests that not all

students were receiving the same level of support and attention, which could lead to disparities in learning outcomes.

Student-Teacher Guidance

While there were several negative aspects of student-teacher interactions at School 109, there were also instances of positive guidance provided by teachers. In some cases, teachers were noted to provide corrective and individual feedback on classwork, which is a critical component of effective teaching. This type of feedback helps students understand their mistakes, encourages improvement, and fosters a more personalised learning experience. However, these positive interactions were overshadowed by numerous negative observations. For instance, many students were not given opportunities to participate in class discussions, and their notebooks were left unchecked. The lack of collective or individual responses from students indicates that the teachers did not actively encourage student participation, leading to a disengaged and passive learning environment. Furthermore, the teachers' tendency to focus solely on the students seated at the front, while ignoring those who were distracted or roaming, reflects an inconsistent approach to student guidance and support, ultimately undermining the effectiveness of the classroom environment.

In School 115, there were notable shortcomings in the student-teacher dynamic, particularly regarding the engagement of non-participating students. Teachers made little to no effort to involve students who were disengaged or not actively participating in class activities. This lack of initiative to re-engage these students suggests a missed opportunity to foster a more inclusive and supportive classroom environment where every student feels valued and motivated to contribute. The failure to address non-participation not only allows disengagement to persist but also risks creating a divide within the classroom, where only the more active students receive attention and support, while others are left behind.

Teacher-Parent Interaction

While this was not observed in school 109, an additional aspect of the classroom climate at School 115 was the interaction between teachers and parents. While limited information was available about this interaction, it seemed to pose a barrier to child’s education.

References to Intervention

At School 109, one of the tools introduced to aid teaching practices is a chatbot, designed to support teachers by providing quick access to lesson summaries. However, this tool has been found lacking in detail, forcing teachers to refer back to the Teacher's Guide (TG) despite using the chatbot. The TG itself presents its own set of challenges (see last section). In school 115, MPV were used, which the teacher reported to have seen and found useful.

Resource availability was a challenge at School 115. The unavailability of workbooks forced the continuation of previous grade topics, hindering the progression of the curriculum. This lack of resources is compounded by the restrictions imposed by the TG, which many teachers find difficult to implement due to the varying learning paces of their students. The TG's approach does not always align with the students' actual learning levels, leading to frustration among

teachers who find it challenging to teach effectively under these constraints (see TLM and TG section).

Midday Meal (MDM) Administration and Challenges

The administration of the Midday Meal (MDM) program at School 109 also poses significant challenges. The preparation of the meal itself takes up to an hour, which, along with the stock rotation every 15 days, adds a considerable administrative burden. A particularly challenging aspect is the procurement of materials for the MDM, which is difficult to manage without the presence of a male teacher. This gender-related barrier highlights a broader issue of resource management and the reliance on specific personnel for tasks that could otherwise be streamlined with better support and infrastructure.

In School 115, the administration of the Midday Meal (MDM) program is primarily managed by the Pradhan (village head), who is responsible for providing the necessary materials. The financial transactions between the school and the Pradhan occur monthly, ensuring the smooth operation of the program. While this arrangement alleviates some administrative burden from the teachers, it also introduces dependency on external support, which could pose risks if the Pradhan's role is compromised for any reason.

Barriers to education and instruction

School and Parental Challenges

School 109 faces challenges due to its multigrade classrooms, where students from the 3rd, 4th, and 5th grades are taught together. This situation complicates the delivery of instruction, as teachers must cater to varied learning levels simultaneously. The problem is exacerbated by the indiscipline among students (see earlier sections), who often create noise and disruptions, making it difficult for teachers to maintain order and deliver effective lessons. The multigrade setup also hinders the achievement of NIPUN goals, which require focused attention on literacy and numeracy skills, particularly in early grades.

Parental engagement, or the lack thereof, presents another significant barrier. Many parents in the community are manual labourers who, as per the teacher, show little interest in their children's education. Compounding this issue is the prevalent gambling habit among both adults and children, which detracts from the focus on education. Teachers report that there is minimal support from parents in encouraging their children to study, and in some cases, parents actively push their children away from academic pursuits. This lack of parental support is considered a major obstacle to student achievement.

Parental attitudes in School 115 present significant challenges to student achievement as well. Teacher reported that many parents belong to backward castes and perceive that teachers prioritise their own interests over the students' educational needs. There is also a divergent attitude towards government and private schools, with some parents favouring private institutions. Moreover, despite regular home visits by teachers, student absenteeism remains a major issue, largely driven by the parents' lack of support and engagement.

Student Absenteeism and Teacher Challenges

Student absenteeism is a pervasive issue at School 109, significantly hindering the achievement of NIPUN goals. The irregular attendance of students, who often attend school only 15-20 days a month when the minimum requirement is 75%, poses a major challenge for teachers. This absenteeism is linked to the multigrade classroom setup, where the distractions and noise from other grades further discourage students from attending regularly. Teachers express a lack of motivation to combat absenteeism, citing their limited ability to influence students who do not show up. The problem is compounded by a shortage of teachers and classrooms, making it difficult to provide individualised attention to students who need it most.

Student irregularity is cited as a major barrier to achieving the desired educational outcomes in School 115. The inconsistent attendance of students prevents the effective application of the TG, as the lessons are designed with the assumption of regular student participation. Teachers note that students like Sameer struggle due to poor attendance, which creates a gap in their learning that is difficult to bridge. The reliance on TGs assumes a certain level of student readiness, which is often not met due to these attendance issues, leading to frustration for both teachers and students. The involvement of children in daily activities, particularly during harvesting season, exacerbates absenteeism. With only 43% attendance, the school struggles to meet educational targets, including the NIPUN goals, which are heavily dependent on consistent student participation. Teachers report that their efforts are often undermined by parental disengagement, leading to a cyclical pattern of low attendance and poor academic performance.

Additionally, teachers at School 109 face cognitive barriers in their practice. While the TG is helpful, its comprehensive nature makes it challenging to cover everything within the limited time available, particularly when students require more time for independent practice. Teachers also report that maintaining a teaching diary is difficult due to personal health issues, further complicating their ability to track progress and reflect on their teaching practices. Teachers in School 115 also face similar issues. While training is provided to help teachers understand the guide, many still struggle with its application in the classroom, especially when it does not match the students' needs. The soft copy of the TG, received only three days before the start of the academic session, does not allow sufficient time for thorough preparation, further complicating its use.

Disciplinary issues present a significant barrier in School 115. Teachers report that students' lack of fear of consequences leads to a nonchalant attitude towards their studies, making it difficult to maintain classroom discipline. This problem is exacerbated by the restrictions on scolding children, which limits teachers' ability to enforce rules effectively. The cognitive demands placed on teachers to understand and implement the TG further add to the challenge, particularly when they must balance this with the need for independent initiative and commitment to student learning.

Additionally, the long commutes faced by some teachers, ranging from 40 minutes to two hours daily, reduce the time and energy available for personalised attention to students, which is crucial for addressing the diverse needs within the classroom.

TLM and TG - Glows and grows

The teacher in school 109 expressed that the TG is restrictive, offering limited independence in teaching, and it does not change significantly as the syllabus remains largely the same. This lack of flexibility can stifle creative teaching approaches and adaptation to the specific needs of students. Moreover, some teachers feel that following the TG too rigidly can be counterproductive, as it does not always align with the students' learning levels, leading to a scenario where “student[s] were not benefiting with this style and were lagging behind”. The cognitive demands of understanding and effectively using the TG for the first time also present a barrier, especially when time constraints prevent thorough preparation.

Teacher observations in School 109 revealed a mixed approach to the use of the Teacher's Guide. The teacher shared that some teachers regularly used the TG and found it beneficial, others ignored it, preferring to teach according to their own understanding. This inconsistency in the use of the TG points to a broader issue of teacher autonomy versus adherence to structured curriculum guidelines. The teacher further mentioned that some teachers expressed that TG helped save time in lesson planning and provided a clear framework for instruction. However, others felt that the TG did not align with the students' needs, particularly for those with varying levels of understanding, and chose to adapt their teaching methods accordingly.

As outlined earlier, at school 115, scarcity of resources is further exacerbated by the limitations of the TG, which many teachers struggle to implement effectively due to the differing learning paces of their students. Moreover, the TG's methods do not consistently match the students' actual proficiency levels, resulting in frustration for teachers who find it difficult to teach effectively within these constraints.

However, the teacher at School 109 also expressed an appreciation for the Teacher Guide (TG), recognizing its value in enhancing their lesson plans and filling in gaps that may arise during their instructional planning. The TG was seen as a helpful tool and the teacher would encourage others to refer to it daily to ensure they are on track with their teaching objectives. One of the key aspects that the teacher appreciated about the TG is its role in providing a structured framework that can be used as needed. The teacher values the ability to double-check their lesson plans against the TG, ensuring that they are not missing any critical elements. Additionally, the teacher has noted that students enjoy the lessons derived from the TG, indicating that the guide’s structure and content are engaging for learners.

The teacher at School 115 also showed appreciation for the Teacher Guide (TG) and Teaching and Learning Materials (TLM). The teacher believed that the TG enhances their teaching methods, providing a structured approach that facilitates the comprehensive implementation of "balanced literacy" in their classrooms. Balanced literacy, which encompasses a mix of whole language and phonics-based instruction, is effectively supported by the TG, enabling teachers to deliver well-rounded literacy education. This structured support helps ensure that various aspects of literacy, such as reading, writing, and comprehension, are addressed in a balanced and systematic way.

The TG is also seen as instrumental in teaching numeracy, guiding teachers through the necessary steps to deliver mathematical concepts effectively. Teachers value the TG for its role

in organising and sequencing lessons, making it easier to cover all necessary content systematically. Similarly, TLMs are appreciated for their usefulness in complementing the TG. These materials provide tangible resources that students can interact with, reinforcing the concepts taught through the TG. The combination of a well-structured guide and supportive materials creates a cohesive teaching strategy that enhances the overall learning experience for students.

Interestingly, the feedback from teachers at School 115 regarding the TG is largely positive, with little to no recommendations for significant changes. Teachers have indicated that they find the TG to be "fine as it is". Tempting as it may to infer that such lack of direct feedback indicates that TG meets their instructional needs effectively. However, there is a clear outline of limitations that the TG poses, thereby outlining the need for further iterations.

Discussion

External factors

Among the two schools surveyed, Schools 109 and 115, there were noticeable differences in their physical infrastructure and operational dynamics.

School 109 presented a mixed picture, with some positive aspects like spacious classrooms, boundary walls, and functional taps, but also significant issues such as unsanitary washrooms and the absence of a library. In contrast, School 115 had a more positive physical environment, with clean washrooms, three classrooms, and well-maintained premises. Both schools had colocated Anganwadis and walls covered in informative pictures, contributing to a visually engaging environment for the students.

Assemblies were conducted in both schools, though the manner in which they were held differed. School 109's assembly, led by two teachers, had the participation of 15 students, while School 115's assembly involved 22 students and was notably led by female students, promoting female leadership. However, concerns were raised in School 109 about the involvement of one teacher who is the Head Master's (HM) sister, and in School 115, the observation of students cleaning the assembly area raised questions about the appropriateness of student duties.

Both schools faced challenges related to the availability of Teaching Guides (TG) and workbooks, which hindered the learning environment. Despite this, both schools made efforts to create a conducive learning space by covering classroom walls with Teaching Learning Materials (TLM), charts, and posters. However, the lack of a library in School 109 further limited students' access to learning resources.

The HMs of both schools had distinct approaches to their roles. The HM of School 115 emphasised adherence to TG and instructed teachers to follow the prescribed teaching pedagogy strictly, advocating for a disciplinary approach that could be concerning if punitive. The HM of School 109, on the other hand, was more focused on administrative and managerial tasks, holding monthly meetings to strategize and manage admissions and transfers. However, the HM's concern about achieving NIPUN Goals by focusing only on regular students highlighted an issue of equitable access to education.

Both HMs were reported to have good relationships with their teachers, fostering a collaborative environment. In School 109, the HM and teacher were observed spending time together during the Mid-Day Meal (MDM), while in School 115, teachers were noted for sharing administrative duties, indicating a cooperative working atmosphere.

The functioning of the MDM program differed between the two schools. School 109 faced challenges in procuring ingredients due to the absence of male teachers, while in School 115, the Pradhan managed the MDM and ensured the provision of ingredients, reflecting better local governance support.

Overall, School 115 appeared to have stronger local support and better infrastructure, while School 109 faced more significant challenges despite some positive aspects.

Teacher Practice Inferences

In observing the teaching practices at Schools 109 and 115, several similarities and differences were evident.

Students in School 109 were generally cordial and responsive to teaching, creating an atmosphere conducive to learning. In contrast, students in School 115 displayed a significant lack of interest and attentiveness, with many being disruptive and unperturbed by teacher reprimands, particularly those seated in the back row..

Teacher 115, despite facing challenges with student disengagement, attempted to create a friendly and supportive environment, though their efforts were primarily directed at a select group of students. This selective engagement reflects the headmaster's belief in focusing on attentive and regular students, which was clearly observed in Teacher 115’s approach. On the other hand, Teacher 109, while maintaining a more disciplined classroom, resorted to verbal and physical disciplining, including hitting students, which is a serious cause for concern. Both teachers demonstrated poor classroom management strategies, with neither able to effectively engage their entire class.

In terms of feedback, both teachers provided effective responses to students, but their focus on a selective few raises concerns about equitable access to education. This bias in engagement undermined the potential benefits of the feedback provided, as it was not extended to all students. Additionally, both teachers were observed not adhering to the protocols outlined in the Teacher's Guide (TG), an issue that requires attention.

Although Teacher 109 used activities to teach decoding and Teacher 115 employed live demonstrations to make abstract concepts more relatable, the effectiveness of these strategies was compromised by their selective engagement.

The common thread in both classrooms was the failure to involve all students in the learning process, which significantly diminished the impact of their instructional methods.

Teacher Inferences

In examining the teaching barriers faced by Teachers 109 and 115, several commonalities emerge.

Lack of parental involvement presents a significant barrier for both teachers. In School 109, the parents of students are primarily manual labourers who do not prioritise education, often encouraging their children to forgo academic pursuits in favour of work. Similarly, in School 115, parents are reported to prioritise their own needs over their children's education, further distancing the students from academic success. This common issue points to a broader community-level challenge that may require targeted interventions to foster greater parental involvement in both schools.

Both teachers struggle with rampant student absenteeism, and this was quoted as the reason for their ability to implement the teaching guidelines (TG) effectively.
This shared challenge is exacerbated by the cognitive difficulties both teachers face in understanding and applying the prescribed teaching practices, indicating a need for additional support and training.

Teacher 109 encounters significant difficulties in managing a MLC, and this challenge is compounded by issues of indiscipline, with students frequently disrupting the class.
Teacher 115 faces additional challenges due to long commute hours, which add to the overall strain of their teaching responsibilities.

No enablers were cited by either teacher during their IDIs.

Overall, these observations highlight the necessity for tailored interventions and resources to address the specific challenges encountered by each teacher, thereby enhancing their effectiveness in the classroom.

Teacher Category - Low Score

Among Low Score teachers from both Baseline and Endline, 2 teacher observations and IDIs were analysed, 2 from Sitapur and 1 from Hardoi

Teacher pedagogy

Bad Teacher Practices

At School 108, the observed teaching practices raise concerns about the teacher's motivation and engagement. The teacher appeared unmotivated, expressing a reluctance to start teaching until more students were present. The teaching methods observed were problematic, with a noticeable lack of appreciation for students, instances of hitting both male and female students, and projecting frustration and disappointment onto them.While the teacher did make efforts to move around the classroom to check students' work during dictation, there was a notable lack of engagement and interest in the process. No feedback or guidance was provided to students during the activity, which limited the effectiveness of this interaction.

Additionally, the teacher was often uninvolved, providing only occasional guidance and leaving students unsupervised by stepping out of the classroom.

In School 114, several poor teaching practices were observed. There were no group activities conducted, and while the teacher checked students' notebooks, no constructive feedback was given, only errors were marked. The teacher pointed out mistakes without providing guidance or suggestions for improvement.

Additionally, the teacher admitted to not preparing for classes, citing confusion and forgetfulness as reasons. As a result, they often teach whatever comes to mind instead of following a structured plan. The Teacher Guide (TG) was not used, and the teacher followed their own lesson plan during the observation. Understanding of concepts was assessed through collective responses rather than individual ones, with the teacher assuming that students already understood the material.

In School 118, the classroom environment and teacher practices reflect several challenges. The teacher was observed outside the classroom, writing and reading questions while yelling at students to pay attention. They attempted to relate new concepts to real-life examples but used negative reinforcement, including hitting students with sticks and shouting when they couldn't answer questions.

Additionally, the teacher was busy with hand pump maintenance work, which further distracted from classroom management. When assigning tasks to grade 2 students, the teacher faced challenges with engagement; students were doing random things and not focusing on the work provided. Only 15 out of 40 students were engaged at that time. Overall, the teacher's multitasking and negative practices contributed to a less effective learning environment.

Good Teacher Practices

In School 114, some good teaching practices were observed. The teacher effectively explained the poem while reading, which helped students better understand the content. Positive reinforcement was also used; the teacher appreciated students for their reading efforts, and peer appreciation was encouraged through applause, creating a supportive classroom environment. Additionally, the teacher made learning relevant by relating counting lessons to everyday life and the students' surroundings, helping them connect academic concepts to real-world contexts.

In School 118, some positive practices were observed despite the challenges. The teacher made efforts to teach according to the Teacher's Guide (TG) and aimed to relate topics to students' surroundings.

Decoding and Literacy Practices

At School 108, the literacy class began with the poem "Badal Kiske Kaka," engaging students in reading activities where three students from the first row read fluently, while one read more slowly. The teacher distributed books from the reading section, allocating 15 minutes for reading practice. The session included dictation of difficult words, followed by a discussion where students were asked to solve questions, demonstrating an interactive approach.

During notebook correction, the teacher employed check-for-understanding questions and provided feedback, though this was inconsistent, as not all notebooks were checked thoroughly, and some received no feedback despite being signed. The teacher utilised both collective and individual responses to engage students

In School 114, the literacy practices observed included a mix of effective and less effective approaches. The teacher used open-ended questions related to the poem, which encouraged students to think critically and engage more deeply with the text. However, there was a heavy reliance on collective responses and chorus answers to gauge understanding, which might not address individual learning needs.

Students were asked to come up to the board and read aloud, and to count the total number of people in the class, which provided individual practice and assessment opportunities. Writing practice involved copying sentences from the poem and practising varnas. On the downside, notebook checking was not very constructive. The teacher only marked errors and correct answers without providing detailed feedback, which limited the effectiveness of the review process. There was also a tendency to ask both open-ended and close-ended questions, but the focus seemed uneven, potentially affecting the overall learning experience.

In School 118, the literacy practices in place involve several strategies, though they are mixed with some challenges. The teacher instructed students to copy paragraphs into their notebooks, working with grades 2 and 3 simultaneously. The teacher aims to teach according to the Teacher’s Guide (TG) and related topics to students' surroundings. They use strategies like linking new content to prior knowledge, focusing on revisiting material multiple times to reinforce

learning, and encouraging oral language development to help students express themselves and communicate freely.

Collective responses are used to get quick feedback from the class, which is followed by individual questioning to assess understanding more deeply. The teacher roams around the classroom to monitor students' work and provide guidance on proper writing techniques, which helps maintain some level of engagement.

However, there are issues with classroom management and teacher behaviour. For instance, the teacher is seen yelling at students when they struggle and exhibits inconsistent application of TG principles. The teacher's method of using oral language and breaking down words into letters is intended to aid learning, but the overall effectiveness is diminished by the negative classroom environment and the teacher's involvement in non-teaching tasks.

Teacher opinions unverified in teaching practice.

For literacy, the teacher 108 prefers beginning with storytelling and discussions, as students face challenges with varnas and mantras. Sahaj is highlighted as a helpful resource for OLD, and the teacher finds that independent practice significantly aids student retention. In numeracy, activities and TLMs like maths kits are utilised, particularly with currency-related activities, followed by discussions and written work.

The teacher advocates for activity-based learning and emphasises the value of moving around the classroom to focus on individual students, although large class sizes often impede personalised attention.

The teacher at School 118 believes that tagging students to a specific class helps ensure accountability and contributes to their success. They consider the NIPUN goals to be achievable but emphasise that achieving them requires sufficient staff for regular teaching and effective cooperation and training from the government.

The teacher notes that focusing on "sankhya gyan" (numeracy) is crucial and suggests that Sameer should adjust his teaching methods. They recommend that tasks should include reading tests for students. The teacher finds the books available in the library to be knowledgeable and valuable resources.

Teacher Suggestions

At School 114, the teacher suggests removing the tracker from the TG and making the TG easier by simplifying the language for teachers, tailoring it to the various student levels. Teacher also advocates for starting classes with discussions and conversations to make students feel comfortable. Emphasising the importance of regular student attendance, the HM believes it significantly impacts learning outcomes. The HM also supports the use of numeracy micro-practice videos for their creativity and effectiveness. They see individual questioning as a key strategy, as it ensures that every student has a chance to respond, which helps weaker students stay alert and focused.

Validation and contradictions in teaching practices

The teacher at 108 engaged students in independent practice and moved around the classroom to assist them. However, they did not pay sufficient attention to struggling students.They were also not seen utilising TG or TLM. Although they emphasised the importance of various teaching practices like decoding and the Gradual Release of Responsibility (GRR), these methods were not effectively implemented in the classroom. The teacher did not engage students either collectively or individually during the observation.

The teacher at 114 recognized the potential benefits of Teaching Learning Materials (TLM) and the Teacher's Guide (TG) for helping students understand concepts. Despite this recognition, these tools were not visibly utilised during the observation. While the teacher made an effort to make students comfortable in class, there was a lack of focus on ensuring that students understood the concepts. The teacher emphasised the use of TLM, Varna Matra cards, and independent practice but did not implement these strategies effectively in the classroom.

The teacher at 118 advocated for the use of the TG and its benefits, stressing the importance of engaging students in activities. However, during the observation, the teacher was occupied with administrative tasks, such as tap maintenance, and students were often idle or not engaged. Despite their advocacy for TG and student engagement, the teacher's classroom management did not reflect these principles during the observation.

School Climate - Physical Infrastructure

The physical infrastructure across Schools 108, 114, and 118 presents various challenges that impact the overall environment. School 108 has a disparity in facilities between the primary and upper primary sections, with the primary section lacking basic amenities like toilets. The classrooms are poorly maintained, with damaged and unclean furniture, and students often sit in the verandah due to inadequate seating arrangements.

Similarly, School 114 has clean classrooms but lacks functional water taps in the toilets, and maintenance work is ongoing. In School 118, there are no desks or chairs, and students sit on mats; the washroom for PWD students is in poor condition, and the hand pump in the courtyard needs repair.

School Climate - Learning Infrastructure

The learning infrastructure also varies but generally lacks consistency in support for an effective learning environment. At School 108, Teaching Learning Materials (TLMs) are displayed in classrooms but not at eye level, potentially reducing their impact, though a reading corner with a variety of books is a positive aspect.

School 114 lacks any educational content on the walls, which could otherwise enhance the learning experience. In School 118, while the classroom benefits from natural light, it lacks essential items like workbooks and functional electric bulbs, and there are no proper desks or chairs for students, who have to make do with mats.

HM related themes

HM Responsibilities

At School 114, the Headmaster is responsible for managing school operations and maintenance, overseeing construction and repair work, and handling necessary paperwork. The HM is actively involved in ensuring the school's accountability and regularly conducts monthly review meetings with teachers. On the day of observation, the HM was occupied with electrical and plumbing work, as well as preparation for the elections, since the school is serving as a polling booth.The HM also checks student learning levels, assesses teacher performance through random student questions, and conducts surprise classroom visits to ensure teaching quality. Regular weekly meetings address teacher challenges, and the HM encourages teachers who may feel demotivated.

Additionally, the HM maintains Mid-Day Meal (MDM) records, ensures the availability of MDM groceries, and prepares for MDM immediately after assembly. If needed, the HM also helps procure groceries if the Pradhan is unavailable. The Headmaster at School 118 uses personal time to prepare for the Midday Meal (MDM), as there is no government policy that allocates specific time for this task.

HM's Beliefs and Opinions

The Headmaster at School 114 believes that the NIPUN Goals are achievable and considers them to be basic. The HM feels that the current standard of students in the school is above these goals. The Headmaster at School 118 suggests that Training Guides (TG) training should be provided at the beginning of the session, rather than at the end. This would help teachers become familiar with the TG materials and methods before they start implementing them in their classrooms.

HM-Teacher Relationship

The Headmaster (HM) at School 114 maintains a good, supportive relationship with teachers. The HM speaks to teachers daily, regularly checks their teaching methods, and provides encouragement if teachers are feeling demotivated. This supportive approach helps in maintaining a positive and collaborative work environment.

TLM Appreciation by HM

The Headmaster at School 114 prefers activity-based learning over rote-based methods. The HM believes that activity-based learning helps students understand concepts more easily and that learning from one's surroundings is crucial. According to the HM, using the environment to teach makes concepts clearer and more comprehensible for students.

Classroom climate

Student Interest in Content and student-teacher Interaction

At School 108, students generally appeared comfortable with each other, suggesting a positive peer dynamic. However, the presence of the teacher seemed to create discomfort among the students, which may have impacted their engagement and willingness to participate. This was evident when distracted students did not respond to questions posed by the teacher, highlighting a disconnect in the teacher-student interaction. At School 114, the teacher maintains a friendly demeanour and fosters a positive learning environment by asking open-ended questions and showing appreciation for students. This approach helps motivate students to speak and engage actively in class discussions. However, it was observed that only the students in the first row completed their tasks, and those who were more engaged in class were the ones providing responses.

In School 118, out of 40 students, only 15 were engaged with the tasks. Many students were involved in random activities rather than focusing on their work.

Student-Teacher Guidance

In School 108, the classroom dynamics showed a clear disparity in student engagement. While only one student from the first row was made to read, the rest of the students appeared distracted.

At School 114, the teacher checked notebooks but only pointed out errors without providing constructive feedback. The focus was mainly on students in the first row, and no additional feedback was given to the rest of the students.

In School 118, student-teacher guidance practices show some concerns. During writing practice, only 7 to 10 students from grade 3 were engaged, while others appeared disengaged. The teacher assigned tasks to grade 2 students, but many of them ended up doing random activities rather than focusing on the given work.

In terms of correcting students' work, the teacher’s approach was limited to merely ticking the work without providing specific dates or detailed feedback. There was only one instance where a date from 2022 was mentioned, and some incorrect work was marked as correct, which was then signed by the teacher.

References to intervention

In School 108, the WhatsApp chatbot provided by the department and Shikshak Sathi is effectively utilised to access lesson plans and Teacher Guide (TG) content. This resource has proven beneficial, making it easy for teachers to retrieve and utilise educational materials. Conversely, in School 118, financial constraints impact the teacher’s ability to maintain access to a smartphone and recharge it, leading to challenges in receiving and viewing messages from the chatbot.

Midday Meal (MDM) Administration and Challenges

In School 114, the school operates a joint bank account with the Pradhan for managing Mid-Day Meal (MDM) logistics. The in-charge needs the Pradhan's approval for all MDM-related decisions and often shares the list of groceries with them. Occasionally, if the Pradhan is unable to send the groceries, the in-charge will procure them directly. In School 118, the midday meal program, known as "Madhyan Bhojan," is managed through a joint account held by the headmaster and the village head. The pradhan visits the school to issue checks for this purpose. However, there is a mismatch between the government’s attendance targets and the amount of MDM logistics provided.

Barriers to education and instruction

School and Parental Challenges

In School 108, the proximity to the city was highlighted as a significant factor influencing the school environment and student outcomes. It was noted that schools closer to the city tend to benefit from greater awareness and involvement from parents, who are often more educated and engaged in their children's education. In contrast, rural settings further from the city face challenges in parental engagement.

The teacher at School 114 regularly visits students' homes to encourage parents to send their children to school, but struggles with the lack of parental support and community prioritisation of education. The teacher finds it challenging when parents do not take responsibility for their child's education, often due to their own limited education. They believe that if a system were in place to cancel enrollment for poor attendance and tie benefits like Direct Benefit Transfers (DBT) to student attendance, it might improve school participation.

In School 118, the teacher faces significant challenges due to a lack of support from parents. The prevailing attitude among parents is primarily focused on earning money and meeting immediate needs, rather than valuing education. The teacher often has to personally go and call students, but even then, parents do not always send their children to school.

There is also a significant challenge due to a lack of staff. The school needs separate teachers for each class and a head teacher to manage effectively. The current student-teacher ratio is not maintained, and the ratio should be equal to ensure proper teaching and attention.

Student Absenteeism and Teacher Challenges

In School 114,the teacher faces several significant challenges that impact their effectiveness. Managing a multigrade classroom is particularly demanding, as it requires balancing teaching with other responsibilities.The teacher struggles with the Teaching Guide (TG), finding its structure and tracker complex. This difficulty often leads to inadequate class preparation and a lack of understanding of the TG. Simplifying the TG text to better align with teachers' needs and standards could potentially address this issue.

Another challenge is the resistance students sometimes show toward independent practice. Many students find it boring and may not engage willingly, which means only those who are

actively participating in class tend to respond. Time management issues exacerbate these challenges.The teacher struggles to allocate sufficient time for independent practice due to non-teaching responsibilities and personal health problems.

In School 118, the teacher feels overwhelmed and believes their efforts are undervalued, despite their dedication to helping students succeed. The long commuting time is another issue, with a suggestion that teachers should live within 10-15 km of the school. Physical challenges also arise, as walking around the classroom is considered important but difficult. Managing both grade 2 and 3 students simultaneously, particularly with students instructed to copy paragraphs in their notebooks, adds to the complexity of their responsibilities.

One major challenge is student irregularity, which has led to merging grades 1 through 3 due to low attendance.

TLM and TG - Glows and grows

In School 108, teachers use the Teacher Guide (TG) occasionally, and there are mixed feelings about it. Some teachers feel restricted by the TG and prefer teaching in their own style. However, others find the TG helpful as it provides structure and a clear plan, especially for lesson planning when time allows. Before the TG, teaching was unstructured and varied according to the teacher’s mood.

While some see the TG as a useful guide, not all teachers like it because they feel it limits their freedom. Challenges with using the TG are sometimes eased with help from other teachers. For teaching numeracy, department materials and the chatbot are also seen as helpful. However, motivation levels vary, and some teachers are less willing to put in the extra effort, affecting how often the TG is used.

In School 114, the teacher expresses that the Teaching Guide (TG) and workbooks do not need changes, but they feel that TG is not tailored to the needs of all teachers. They find the TG’s text heavy and bulky, suggesting that it should be simplified to better match teachers' standards and needs. The teacher also struggles with understanding the TG structure and tracker.

The teacher believes that all resources are generally helpful, though they would prefer the TG to be more straightforward. They would attend future training sessions on TG if available. A specific suggestion includes removing the tracker from TG to make it easier to use and better aligned with students' levels.

At School 118, the Teacher’s Guide (TG) is considered beneficial and should be used to guide teaching. It is not seen as restrictive but as providing useful direction. Teachers are encouraged to connect the main points of the TG with the students' environment, even in combined classes.

However, workbooks are not available, as they have not yet arrived at the school. Despite this, Teaching Learning Materials (TLMs) are viewed as helpful in promoting faster learning and maintaining student concentration.

Discussion

Teacher Practice Inferences

At Schools 108, 114, and 118, several common themes emerge in the challenges observed. A recurring issue is the lack of effective student engagement and feedback. At School 108, the teacher's unmotivated approach and lack of engagement resulted in ineffective classroom interactions and limited student support. Similarly, at School 114, despite some positive aspects, there was a noticeable absence of constructive feedback, and the teacher's lack of preparation led to poor instructional quality. At School 118, challenges with student engagement were also evident, with many students participating minimally or engaging in unrelated activities.

Another common issue across these schools is inadequate classroom management and supervision. At School 108, the teacher frequently left the classroom unsupervised, impacting the learning environment. School 118 also faced challenges with classroom management, where the teacher's multitasking and negative reinforcement affected student engagement and classroom dynamics.

Additionally, there was a noted lack of effective use of the Teacher's Guide (TG) and structured lesson planning. At School 114, the teacher did not utilise the TG and often taught without a clear plan. Similarly, at School 118, although efforts were made to follow the TG, the teacher's multitasking and lack of focus affected the implementation of lesson plans.

External factors

Across Schools 108, 114, and 118, common themes reveal significant infrastructure and management challenges. School 108 struggles with basic facilities, including a lack of toilets for primary students and poorly maintained classrooms with damaged furniture. This creates an unstructured learning environment, compounded by multi-grade teaching setups and inadequate seating. School 114, while cleaner, faces issues such as non-functional water taps and blank walls, which hinder the educational environment. Similarly, School 118 deals with severe infrastructure problems, including inadequate seating, a dilapidated washroom for PWD students, and broken water facilities.

In Schools 114 and 118, Headmasters face significant operational challenges, taking on extensive responsibilities, such as managing Mid-Day Meal (MDM) logistics and other administrative tasks, often during personal time, highlighting a lack of formal support. At School 114, the Headmaster is particularly proactive, managing diverse duties, including election preparations. Despite these demands, the Headmaster at School 114 maintains a supportive relationship with teachers, engaging with them daily, monitoring their teaching methods, and offering encouragement. The Headmaster also advocates for activity-based learning over rote methods encouraging TLM's usage.

Teacher inferences

Across Schools 108, 114, and 118, several common themes emerge regarding parental engagement, infrastructure challenges, and teaching difficulties. Schools located closer to urban

areas, like School 108, benefit from higher parental involvement and education levels, which positively impacts student outcomes. In contrast, rural schools such as School 114 and School 118 face significant barriers, including low parental engagement and a focus on immediate economic needs rather than education.

Teachers at School 114 and School 118 struggle with limited parental support and the need to motivate parents to prioritise their children's education. School 114’s teacher visits students’ homes to encourage attendance but faces challenges due to parents' own limited education. The suggestion to tie benefits like Direct Benefit Transfers (DBT) to school attendance reflects a potential solution to improve participation. Similarly, at School 118, the lack of parental support is compounded by significant staff shortages and a need for improved student-teacher ratios.

Both schools also face challenges with infrastructure and teaching practices. At School 114, managing a multigrade classroom and the complexity of the Teaching Guide (TG) lead to inadequate preparation and difficulties in independent practice. Time management issues further exacerbate these challenges. School 118's teacher, on the other hand, experiences physical and logistical difficulties, such as long commutes and the need to manage multiple grades simultaneously. Student irregularity has forced the merging of grades, complicating classroom management.

Across all schools teachers didn’t mention any enablers that supported them.

Teacher Category - Average Scorers

Among average Score teachers from both Baseline and Endline, 2 teacher observations and IDIs were analysed, 3 from Sitapur and 1 from Hardoi

Teacher pedagogy

Bad teacher Practices

In the classroom observation of Teacher 109, it was noted that the instructions given for the writing task were unclear, which may have led to confusion among students. Additionally, the teacher stepped out of the classroom and was absent for approximately five minutes, which interrupted the flow of the lesson. Furthermore, there was inconsistency observed between the previous work in the students' notebooks and the task assigned during the observation, indicating a possible disconnect in lesson continuity.

In the classroom observation of Teacher 116, it was observed that the teacher exited the class twice for administrative reasons, disrupting the class continuity. The teacher did not follow the Gradual Release of Responsibility (GRR) system and there was no usage of Teaching and Learning Materials (TLM) in the Numeracy class. The teacher's diary appeared to be filled out, but primarily for administrative purposes rather than instructional planning. Additionally, the teacher followed only half of the Teacher's Guide (TG) and conducted lessons according to his own plan. It was also noted that the teacher did not address a student-student conflict, and was not present when students were working on the assigned tasks, which were left unchecked.

School 120 showed a similar picture where it was noted that the teacher did not use the Teacher's Guide (TG) and instead followed his own lesson plan for instruction.

Good teacher practices

Teacher 104 demonstrates a well-rounded approach to teaching with several effective practices. The teacher is aware of students' levels and uses categorization based on these levels to tailor instruction. They circulate around the class, which helps in providing individual support and maintaining engagement. The teacher has planned a revision curriculum for April and May and conducts student assessments to gauge progress. They also intend to group students based on assessment results to address varying needs effectively.

In the classroom, the teacher employs several strategies to enhance learning, including the raised hand method for student responses, the use of Teaching Learning Materials (TLM) to explain concepts, and relating concepts to everyday life. The teacher models problems and explains how to solve them, encouraging students to articulate their reasoning. Additionally, extra work is assigned when student work is unsatisfactory, indicating a commitment to ensuring all students meet learning objectives

Teacher 110 has demonstrated notable strengths as well. She effectively relates stories to students' contexts, adjusts lesson plans based on feedback and the specific needs of her students, and employs flexible teaching methods tailored to what students find easiest.

Moreover, she strategically manages merged classes by grouping high performers and struggling students appropriately. These positive practices reflect her potential to enhance her overall effectiveness as an educator.

Teacher 116 has shown some promising practices. The teacher effectively contextualises lessons by using examples relevant to the students' village, which helps make the content more relatable. They invest the necessary time and effort typical of an average teacher but would benefit from additional preparation before class. Seating students according to their learning levels and focusing on those with lower levels demonstrates a thoughtful approach to addressing diverse needs.

Decoding and Literacy practices

Teacher 104 employs a range of strategies to support literacy development. They utilise a variety of traditional methods, such as using pictures, poems, and stories to enhance learning. Open-ended questions and writing tasks are frequently assigned to encourage deeper engagement and expression.

In terms of decoding and blending, the teacher has students practise Hindi Varnas (letters) and assigns writing tasks focused on decoding skills. Reading and decoding activities are conducted together, with some students also engaging in independent reading practice. These approaches reflect a comprehensive effort

Teacher 110 incorporates a range of literacy practices aimed at reinforcing student learning. The teacher introduces lessons by detailing the focus on Varn (letters) or Matra (vowel signs) and engages students with words related to the day's topic. Homework and class tasks, such as identifying and copying words from the textbook, are clearly outlined on the board.The classroom environment supports independent reading, with most students reading on their own while a few continue to work on previous tasks. Writing exercises include forming words with the Varn or Matra being taught, and the teacher frequently updates the board with new words from student contributions, explaining their meanings as they write.

In addition, students are encouraged to create and write their own stories, and the teacher uses a poster to facilitate discussion and comprehension. While students sometimes shift to new tasks before finishing current ones, the teacher maintains a focus on understanding by allowing them to write based on their interpretation, promising further explanation if needed.Notebooks are reviewed with corrections made and errors explained, though no written remarks are provided. Students are tasked with correcting their notebooks and copying additional words from the board. The teacher also uses comparative examples, such as a see-saw and scales, and visual aids like picture story posters to reinforce concepts, alongside initiating open-ended discussions to further engage the class.

Teacher 116 implements a variety of literacy practices tailored to different student needs. Differentiated teaching is a key component of Teacher 116's strategy. Students with foundational Akshar Gyan (knowledge of letters) engage in decoding exercises, while others assist by thinking of new words. The teacher groups students based on their literacy competencies,

providing additional practice to those who are struggling. Lower competency students are given more time to answer, ensuring that no student is left behind.

The class begins with revision and OLD (oral language development) exercises, where the teacher starts by asking open-ended questions about words that start with a specific letter. This approach is used to transition from OLD to decoding activities, where students break down words they previously mentioned. Higher-order competency students are encouraged to recite poems, while the teacher reads and explains stories using expressions and sounds to enhance comprehension. The class also includes reading and decoding activities, with explanations of difficult words. Although some middle-order students had limited reading opportunities due to time constraints, the approach remains focused on gradually advancing from decoding to reading.

In terms of classroom management, the Teacher frequently checks and corrects notebooks, providing verbal praise for correct answers. However, incorrect answers are not always documented, and no additional remarks are given.

Teacher 120 incorporates a variety of literacy practices to enhance student learning. The literacy period begins with the story of "लोमड़ी और मुर्गा" (The Fox and the Rooster), which the teacher reads aloud and then discusses with the students. The teacher emphasises independent practice by encouraging students to read the story themselves, and addresses difficult words to aid comprehension.During lessons, the teacher uses both close-ended and open-ended questions to engage students and gather collective responses. This approach is used not only to check understanding but also to explain concepts more thoroughly.

In terms of assessment, the teacher reviews student notebooks, marking answers as correct or incorrect without providing additional feedback. Maths notebooks are also filled out and checked, with a focus on accuracy. While previous work is reviewed, there is no detailed feedback given, and only correctness or incorrectness is noted.

Teacher Suggestions

The teacher 110 highlights several improvements to the Teaching Guide (TG) to enhance its effectiveness. She believes that teachers should have the flexibility to modify the TG method as needed and that making connections to the physical environment helps children grasp concepts more effectively. While the TG provides a structured plan, she recommends incorporating materials and activities related to the surrounding environment to make them more relatable and easier for children to understand.

Specifically, she suggests including poems and jokes that reflect the local or rural environment, as these are more familiar and accessible to the students. The teacher notes that the current poems lack the popular rhythm of past selections, which may affect students' ability to understand, read, and remember them. To address this, she advocates for adding more activities related to each topic in the TG, ensuring a richer and more engaging learning experience for the students.

Validation and contradictions in teaching practices

The teacher's approach for School 104 emphasises the significance of using the Teacher's Guide (TG) effectively, asserting that pre-planned lessons can reduce confusion and enhance student understanding. They believe that TG is crucial for guiding remediation and teaching concepts, and they stress the importance of relating lessons to real-life situations. However, these beliefs were not fully reflected in their observed practices. Despite acknowledging TG's benefits, its use was not evident during observations, and the teacher did not demonstrate its application in lesson planning or execution. The teacher also values decoding and reading but conducted these activities together, contrary to their belief that separate decoding is essential. Although the teacher supports making reading compulsory, only a few students engage in independent reading. They also advocate for integrating activities with workbook practice, yet the workbook was not utilised, leading to a contradiction between their stated values and actual practice. While the teacher recognizes the usefulness of guided reading and response (GRR) apps, the observed GRR approach was incomplete, missing the "We Do" phase. The teacher's commitment to tracking student levels and fostering peer collaboration was validated, and they effectively assigned tasks and sought individual responses from students.

The teacher in School 110 demonstrates a commitment to student learning and teaching practices, but there are notable contradictions between stated practices and observed behaviours. The teacher emphasises the importance of using the Teacher's Guide (TG), decoding difficult words, and providing independent practice. They make an effort to engage students with individual attention and explain the meanings of difficult words, while also using various teaching methods like decoding and providing independent reading time. Observations validate these efforts, showing that the teacher instructs students individually, uses the board frequently, and provides students with practice time.

However, there are contradictions regarding the use of TG and Teacher Learning Materials (TLM). The teacher claims to follow TG and utilise TLM effectively, yet there is evidence that TG was not used in numeracy classes and TLMs were not observed. The teacher's diary was incomplete and not filled out daily as prescribed, and there was a lack of TLM usage during the lessons. Moreover, while the teacher supports the idea of independent practice and real-life application, the actual implementation fell short. Students were seen working on tasks without clear instructions, and the teacher was not present during independent reading time, impacting the effectiveness of the practice.

The teacher's practices in School 116 reflect a range of validated strategies and some contradictions. The teacher effectively begins classes with engaging activities and uses voice modulation to capture students' attention. They also recognize the importance of peer learning and decoding, which aligns with their stated belief in these methods. The teacher responsibly monitors student performance and groups those who need additional support, demonstrating their commitment to differentiated instruction. Additionally, the availability of a substitution teacher supports the continuity of learning.

However, there are notable contradictions. The teacher mentioned that workbooks are helpful for assessing and differentiating student performance but has never received them. Similarly,

the teacher referred to various tools and methods—such as Form 3 strips, audio-visual narratives, flashcards, and physical materials for teaching maths—none of which were observed in practice. Additionally, the teacher stated that GRR (Gradual Release of Responsibility) is fundamental to their teaching approach, but there was no evidence of its consistent use. Despite acknowledging the importance of independent practice, time constraints and other duties seemed to limit this practice, leading to a discrepancy between stated intentions and observed actions.

In summary, while the teacher's approach includes several validated strategies, the inconsistencies between their stated methods and classroom practices, particularly around the use of workbooks and various teaching tools, suggest areas for alignment and improvement.

In School 120, the teacher demonstrated several effective practices that align with their stated goals. The teacher engages students in discussions about the story and encourages them to retell it in their own words, which supports comprehension and validates their understanding. They provided ample independent reading time and interacted with students by asking questions and giving praise, fostering a positive learning environment.

However, there were significant contradictions between the teacher's stated practices and observed actions. Although the teacher emphasised the importance of proper planning and using the Teacher's Guide (TG), there was no evidence of planning or adherence to TG guidelines on the day of observation. Additionally, the teacher did not utilise Teaching Learning Materials (TLMs), despite recognizing their importance for teaching.

School Climate - Physical Infrastructure

Across Schools 104, 110, 116, and 120, the physical infrastructure exhibits both strengths and weaknesses. School 104 is well-maintained with clean boundaries, secure entrances, and a well-kept environment, though the classroom floor's cleanliness could be improved. In contrast, School 110 faces significant issues with poor bathroom conditions, broken windows, and lack of electricity, though natural light and ventilation are available.

School 116 benefits from essential amenities like fans, a smart TV, and solar backup for electricity, but faces challenges with inadequate seating and inaccessible community toilets.

School 120 has poorly maintained classrooms with no benches, forcing students to sit on mattresses, and faces issues with non-functional taps and security concerns due to an incomplete boundary wall.

School Climate - Learning Infrastructure

The learning infrastructure across the schools also shows a mix of positive aspects and areas needing improvement. School 104 is equipped with essential educational materials, including NIPUN Lakshayas, and provides a conducive learning environment with good ventilation and lighting.

In School 110, classrooms are decorated with educational materials, though some charts are not legible, and students use outdated notebooks and lack new workbooks and Teaching Guides.

School 116 offers various educational resources, including TLMs and a smart TV, but faces issues with the placement of some TLMs above student eye level and the absence of workbooks.

School 120 has basic educational resources and TLMs displayed on the walls, but faces challenges with classroom management and a lack of proper scheduling, impacting the overall learning experience.

HM related themes

HM Practice

In School 104, the Headmaster (HM) plays a key role in maintaining and improving the school environment. The HM values the upkeep of the school and has made concerted efforts to address infrastructure issues, including requesting repairs for the school boundary and floor from the Pradhan and using the composite grant to fund painting and electrical work.

The Headmaster regularly visits classrooms to monitor teaching and learning and organises staff meetings to facilitate communication among the staff. Additionally, the Headmaster is proactive in engaging with the community by visiting homes to encourage parents to send their children to school, which aims to increase student attendance and participation.

HM's Beliefs and Opinions

The HM of School 104 also compares the school to a home, emphasising the importance of creating a nurturing and well-maintained environment for students and staff. Additionally, the Headmaster believes that having clear goals is crucial for guiding teaching decisions, ensuring that educational objectives are met effectively.

The Headmaster of School 110 is optimistic about the school’s ability to achieve NIPUN goals. The HM believes that the efforts of the teachers are yielding positive results and that departmental programs are having a beneficial impact. However, the HM acknowledges that the school staff will need to put in additional effort to address any remaining challenges. There is a strong belief in the importance of grouping children according to their levels and focusing on identifying and addressing their shortcomings to enhance learning outcomes.

The Headmaster (HM) of School 116 views themselves as the overall in-charge of the school's operations.While the HM considers the NIPUN initiative to be valuable, they believe it requires specific conditions to be effective.The Headmaster emphasises the importance of teachers focusing on their classroom responsibilities and adhering to the curriculum.

Additionally, the HM actively seeks parental support to ensure that homework is completed. They encourage parents to inform the school if no homework is assigned, reflecting a belief that increased parental involvement in education positively impacts student performance.

HM Responsibilities

The Headmaster of School 104 additionally sees themselves as a guide for teachers and staff, responsible for setting a positive example. They believe it is crucial to model appropriate behaviour and maintain school discipline, reflecting their commitment to leading by example and ensuring a well-ordered learning environment.

At School 110, the Headmaster (HM) handles a range of administrative responsibilities that extend beyond teaching. They spend approximately 1 to 1.5 hours on non-teaching tasks, including managing school operations and overseeing multiple classes. The HM also engages with parents during Parent-Teacher Meetings and proactively communicates with them when they are present in the school. The HM is also responsible for managing the Mid-Day Meal program, including procuring necessary materials and coordinating with the cook. They also ensure that MDM-related funds are managed through the Pradhan. Additionally, the Headmaster gathers feedback from teachers and students to inform further teaching and school improvement efforts.

The Headmaster (HM) of School 116 views their role as one of leadership and collaboration. They see themselves as a mentor who periodically reviews the quality of teaching and lesson delivery, ensuring that lessons align with the prescribed Teacher Guide.The HM also monitors teacher diaries, though they note that some teachers maintain their diaries but do not always follow them.

In addition to their administrative duties, the HM actively engages in community responsibilities. They address absenteeism by visiting students' homes and encouraging attendance. When the Pradhan is unavailable, the HM steps in to procure necessary materials, ensuring that the Mid-Day Meal (MDM) program remains unaffected. Additionally, the HM is responsible for taking students to the doctor or seeking medical help when needed.

HM-Teacher Relationship

The Headmaster of School 104 maintains a cooperative and positive relationship with teachers, fostering an environment where concerns and feedback are openly shared. They utilise praise and positive reinforcement to support and motivate staff, demonstrating a commitment to creating a healthy and collaborative working environment.

The Headmaster of School 110 reports a positive and supportive relationship among staff members. There are no issues between staff; they work collaboratively to resolve any problems that arise. Staff members support each other and engage in discussions during lunch or after school hours. Additionally, teachers seek support from members of the School Management Committee (SMC) as needed.

TG/ TLM Appreciation By HM

The teacher at School 104 appreciate the Teacher's Guide (TG) and Teaching Learning Material (TLM) for several reasons. They find the TG to be a valuable guide that reduces confusion through its pre-planned lessons. The TG is considered crucial for effective teaching, with its clear language making concepts easier for students to understand. The content of the TG is seen as beneficial and not limiting, providing significant support in delivering lessons and helping students grasp concepts.

The Headmaster (HM) of School 110 appreciates the Teacher's Guide (TG) and Teaching Learning Material (TLM). They find the topics specified in the Sandarshika and lesson plans to be accurate and useful. The new activities included in the TG are considered beneficial, and the Sandarshika is valued as a useful directory for classes 2 and 3.

In School 116, the Headmaster appreciates the Teacher's Guide (TG) and Teaching Learning Materials (TLM) for their significant contributions to lesson planning and teaching. The TG is valued for providing structured activities that allow teachers some flexibility and for encouraging practice time for students. Workbooks are also seen as beneficial; they assist in evaluating whether students can complete their work and in identifying students' performance across different levels.

Classroom climate

Student-Teacher Guidance

At School 110, the classroom climate reflects a mix of strengths and areas for improvement in student-teacher guidance. The teacher demonstrates energy and engagement, standing in a corner while students work independently and asking them to recap the story poster to reinforce understanding. However, there are inconsistencies in the support provided: feedback is often limited, with errors pointed out without detailed explanations. Instructions on specific book sections are sometimes unclear, and the teacher's focus is primarily on students who regularly participate, which might leave others with less support. While some students ask for clarification, overall guidance could be enhanced by circulating more frequently and providing clearer, step-by-step instructions to all students.

In School 116, the approach to teacher-student guidance involves several key practices. The teacher pays special attention to students with lower competencies and provides individual support, especially during tasks like solving additional problems. Giving feedback is emphasised as a method to assess student understanding and monitor class performance. However, there are concerns about a substitute teacher who was observed not checking students' work and using threats with a stick to enforce participation.

In School 120, student-teacher guidance varies notably. The teacher's approach includes encouraging students to share their understanding of the story and providing support for those struggling with difficult words. There is active observation and assistance during classroom exercises, with the teacher motivating and appreciating students for correct responses. However, there are also gaps in feedback: some activities lack detailed guidance, and answers

are marked as simply correct or wrong without further explanation. While previous work is checked, the lack of constructive feedback could hinder deeper learning and understanding.

Student-Teacher Interaction

At School 104, the classroom environment is characterised by positive student-teacher interactions. The teacher actively engages all students, ensuring that each individual receives attention. They provide constructive feedback and guidance on classwork, regularly checking and correcting student notebooks with detailed comments. The use of open-ended questions encourages critical thinking and allows the teacher to seek individual responses, fostering a more interactive and inclusive classroom atmosphere. Praise and positive reinforcement are used effectively to motivate students, enhancing their learning experience and promoting a supportive educational environment. However, there is also some frustration evident with struggling students.

In School 110, the student-teacher interaction reflects a mixed atmosphere. Post-lunch, the classroom becomes noisy and chaotic, with students frequently getting distracted and leaving the class. There is a tendency for students to answer out of turn and engage in disruptive behaviours, such as shouting and creating a commotion when errors occur. Despite this, there is a notable positive aspect where children help each other, and there is no discrimination among them. The teacher employs praise and encouragement, often using appreciative phrases and clapping for correct answers, which fosters a supportive environment. However, there are issues with maintaining control and attention, as some students are ignored, and there is a lack of intervention when students wander or leave the classroom.
In School 116, the student-teacher interaction is characterised by a supportive and respectful approach. The teacher engages students by probing them with questions that guide them towards finding the answers themselves. This method encourages active participation and critical thinking. Classroom management is handled politely, with the teacher avoiding threats and maintaining a positive atmosphere. The teacher regularly checks and corrects students' notebooks, providing verbal appreciation to reinforce good work and encourage further improvement.

In School 120, the student-teacher interaction reflects a positive and supportive environment. Students of all genders and social categories interact amicably, with no evidence of discrimination or conflict. They assist each other with tasks, share resources, and engage in friendly conversations. The teacher fosters a motivating atmosphere by appreciating correct responses and providing help when needed. Students are comfortable with the teacher, as evidenced by their willingness to volunteer and seek clarification on difficult words.

Student Interest in Content

In School 104, students not called to the board remain engaged by focusing on individual problem-solving tasks. Their notebooks are filled with classwork and homework, indicating active participation and interest in the content.

In School 110, students demonstrate a strong interest in the content. They are engaged and on task, even when the teacher is not present. Many students actively participate by answering

questions, reading different books, and seeking more challenging tasks. Some students show initiative by calling the teacher to showcase their completed work, discussing questions and answers in small groups, and asking for homework. This level of engagement reflects their enthusiasm and curiosity towards their studies.

References to Intervention

At School 104, the MPV (Multi-Purpose Videos) are viewed positively by the teacher.. They believe that implementing MPV practices is beneficial and would like the content to be more comprehensive. Teacher has expressed a desire for more videos featuring stories and poems, as well as PDF versions of video content to share with students. Additionally, MPV videos help teachers identify and understand their own shortcomings.

At School 110, the chatbot has been found helpful by the teacher . They are aware of its functionalities and use it to review the day's tasks when they haven't been able to prepare in advance. However, there is some inconsistency in its use, as the teacher did not listen to or utilise the chatbot's audio notes.

At School 120, the unavailability of internet access and Android phones in rural areas poses a significant challenge in utilising the chatbot effectively.The teacher faces challenges with the unavailability of workbooks and the teacher diary.

Midday Meal (MDM) Administration and Challenges

At School 110, the cleaning lady is responsible for counting the total number of children for the Mid-Day Meal (MDM). The Pradhan manages the ration work and oversees the joint account for MDM, though there is no direct money allocation for the ration itself as it's handled by the Pradhan. Instead, funds are received for other MDM materials.

The ration is procured from a government department and provided through a contractor. All other MDM materials are funded separately. When needed, the Pradhan sends the ration materials via the cook upon request from the HM.

At School 120, challenges include the need to exclude non-teaching duties from the classroom to improve time management and reduce workload.The teacher is often occupied with BLO (Booth Level Officer) work and other information-sharing tasks, which detracts from their classroom time. Reducing this extra workload would enable the teacher to focus more on teaching and provide better support to their students.

Barriers to education and instruction

School and Parental Challenges

At School 116, several community-related challenges impact the educational environment. The community's support for education is limited, contributing to issues such as theft of school materials and damage to property, including the loss of kitchen utensils, cylinders, stoves, and fans. The agrarian nature of the local community means that many parents work in the fields

throughout the day, which affects their ability to support their children's education. Gender-based discrimination is prevalent, with female students often staying home to handle household chores and care for younger siblings. Additionally, many families cannot afford educational supplies, further hindering student progress. The School Management Committee (SMC) and Parent-Teacher Meetings (PTMs) serve as opportunities for the teacher to engage with parents and emphasise the importance of education and regular attendance, but there is a noticeable lack of interaction between parents and the teacher..

Student Absenteeism and Teacher Challenges

At School 104, the teacher faces several challenges that impact their effectiveness and the learning environment. The workload and non-teaching duties significantly hinder their ability to focus on teaching. Administrative responsibilities and additional tasks contribute to difficulties in using the Teacher's Guide (TG) effectively and providing adequate practice time for students. Managing combined classes further complicates the situation, making it challenging to allocate sufficient time for student practice and individualised attention.

At School 110, several challenges affect the smooth running of the school. The teacher often sends students to call additional peers, as the school generally sees only about 50% attendance. Students continue to arrive until around 9 am, and attendance issues are exacerbated by children disappearing due to household responsibilities, which disrupts the class schedule. Consequently, the teacher must repeat concepts for those who miss class, and sickness also contributes to the low attendance.

Despite being busy with various responsibilities, the teacher manages to ensure that some independent practice occurs. Additionally, the ARP has instructed teachers to fill out the diary daily, but in the absence of workbooks, the teacher creates their own worksheets. Adjustments to the routine are made as needed to accommodate additional work duties.

At School 116, several challenges impact the educational environment. The school faces an insufficient number of teachers relative to the number of grades and subjects, particularly in higher grades, which affects overall teaching capacity and gender parity among staff. Additionally, there is a mismatch between the number of rooms and the grades taught, with all classes being conducted in a single MLC (multi-grade classroom). Absenteeism is a significant issue, leading to student lag, and the teachers often find themselves occupied with calling parents and engaging in community activities, which further detracts from instructional time. External factors like election and harvest seasons also contribute to a reduced focus on teaching. Work pressure, large class sizes, and insufficient training sometimes result in skipped independent practice and reduced feedback for students.

TLM and TG - Glows and grows

Teacher 104 finds the TG (Teaching Guide) somewhat limiting and time-consuming, especially regarding maintaining the teacher's diary. They prefer traditional methods of teaching over TG. Additionally, Teacher 104 mentions that sometimes the three kalanshes (likely referring to different stages or aspects in the teaching process) become mixed up, and students struggle with various aspects of literacy, particularly writing and matras (phonetic symbols).

Teacher 110 appreciates the flexibility in teaching methods, allowing for personal adjustments beyond those specified in the sandarshika. They believe that if the TG (Teaching Guide) activities are not connected to the physical environment, students might find them awkward and disengage. Teacher 110 also notes that if the TG is followed rigidly, it could lead to difficulties for both students and the teacher. They mentioned that the topic for the day cannot be altered and that while the teacher diary is present, it is filled out weekly instead of daily as instructed. Additionally, Teacher 110 sees the value of TLM (Teaching Learning Materials) in helping students transition from concrete to abstract concepts, such as moving from counting stones to recognizing numbers.

At School 116, the TG (Teaching Guide) is seen as overwhelming, particularly for underperforming students, and does not account for learning loss that occurs during the summer break. Despite the challenges, the teacher values the TG's role and refers to it diligently, even after enduring a 2-hour commute. However, the teacher's work pressure sometimes results in skipped independent practice and not all students getting the chance to read.

Workbooks are recognized as detailed but difficult to follow comprehensively. Currently, the blackboard and chalk are the primary teaching resources, with the workbooks yet to arrive.

At School 120, the Teaching Guide (TG) is generally seen as beneficial, with reforms that focus on students' needs and backgrounds. It is systematic and helpful for lesson planning, maintaining the teacher's diary, and covering missed topics, with guidelines that assist in addressing learning gaps.

However, the effectiveness of the TG is limited when teaching in a multigrade setting due to the combined class strength and the student-teacher ratio challenges. The teacher finds that some students struggle to understand methods like bundling, leading them to revert to traditional teaching techniques.

Discussion

External factors

Most schools exhibit a mix of well-maintained and poorly managed physical infrastructures. For example, School 104 has well-kept facilities with proper boundaries and educational materials displayed, while School 110 and School 120 face challenges like broken windows, insufficient student seating, and non-functional taps. All schools, including School 116, display educational materials on walls, but the accessibility and legibility of these materials vary, with some charts placed too high or not clearly visible. A common issue across these schools is the lack of sufficient seating and delayed availability of updated Teaching Guides (TG) and workbooks.

Headmasters across schools play multifaceted roles extending beyond instructional leadership. In School 104, the HM is actively involved in maintaining school infrastructure and engaging with parents, similar to the HMs in School 110 and School 116, who also handle MDM programs and community engagement. A trend of heavy administrative and community duties is observed, impacting the Headmasters’ capacity to focus solely on instructional leadership. All

Headmasters strive to foster a supportive school environment through regular monitoring of teaching practices and engaging with parents to boost student attendance.

The use of TG and TLM is valued across all schools, with positive feedback from HMs on their structured support. In School 104, the TG is appreciated for its clear language and pre-planned lessons, similar to the appreciation shown in Schools 110 and 116 for the detailed activities and lesson plans provided. A shared challenge, however, is the reliance on outdated resources due to delays in receiving new materials, affecting the quality of lesson delivery.

A recurring trend is the significant administrative workload faced by Headmasters, as seen in Schools 104, 110, and 116. This includes overseeing MDM programs, handling non-teaching responsibilities, and managing operational tasks. In School 120, additional duties like BLO work further detract from teaching time. These extra responsibilities often impact the ability of Headmasters and teachers to concentrate fully on educational leadership and student support.

Teacher Practice Inferences

All sampled teachers faced challenges with instructional clarity and lesson continuity. Unclear instructions could be observed in Schools 109 and 116, and inconsistent TG usage in School 120, impacted lesson effectiveness across these schools.

Issues with classroom management were observed in Schools 109, 116, and 110. Teachers' absences and lack of consistent oversight in these schools disrupted class flow and student focus, reflecting a need for improved management strategies.

Effective use of Teaching and Learning Materials (TLM) was inconsistent. School 104 effectively used TLM to enhance learning, while Schools 116 and 120 showed limited TLM incorporation, indicating varied application of these resources.

Schools 104 and 116 demonstrated effective differentiation and engagement strategies by grouping students based on needs. Schools 110 and 120 showed varied engagement levels, with School 110 experiencing disruptions and School 120 lacking structured differentiation.

Feedback was detailed and constructive in School 104 but minimal in Schools 110 and 120. School 116 provided mixed feedback, emphasising the need for consistent and detailed responses to student work.

School 104 had a positive, engaging environment with active teacher participation. In contrast, Schools 110 and 120 experienced issues with classroom control and feedback, affecting overall student engagement and behaviour.

Teacher Inferences

In the schools observed, several common challenges emerge that impact the educational environment and teaching effectiveness. A recurring issue is the limited community support for education, which manifests in various ways. For example, at School 116, theft of school materials and damage to property, including kitchen utensils and fans, is prevalent. Similarly, at

School 104, the teacher's effectiveness is compromised by a heavy administrative workload and non-teaching duties, which interfere with the use of the Teacher's Guide (TG) and student practice time. The agrarian nature of the community in School 116 also contributes to difficulties, with many parents working in the fields and unable to support their children's education. Gender-based discrimination further exacerbates the problem, as female students often miss school to handle household chores and care for younger siblings.

Attendance issues are another common challenge. At School 110, the teacher faces disruptions due to low student attendance, with children arriving late and disappearing for household responsibilities. This necessitates frequent repetition of concepts and impacts class continuity. At School 116, the situation is compounded by insufficient teacher numbers and a mismatch between the number of rooms and grades, leading to large class sizes and reduced instructional time. The need for additional community engagement is highlighted at School 116, where despite efforts to involve parents through School Management Committees (SMCs) and Parent-Teacher Meetings (PTMs), there is a lack of meaningful interaction and support.

School Category- High Quality Infrastructure

Among the 18 teacher observations and transcripts analysed, 7 teachers belong to school where there is a ‘presence’ of good infrastructure such as existence of 5 classrooms for teaching, a kitchen-MDM Room, an office, a boundary wall, separate washrooms for both male and female students, a functional gate, presence of board for teaching, desks, benches, and access to electricity and water.

Teachers 104, 105, 109, 115, 116, 121, and 124 all belong to schools which had sufficient infrastructure present. Among these teachers it was observed that 2 teachers were sampled under Average Score criterion (104, 116), 2 under High Score criterion (105, 121), 2 under Low Delta criterion (109, 115), and 1 Teacher- 124 was sampled under High Delta criterion. From this we can ascertain no correlation between School Infrastructure and teacher performance in Baseline-Endline. But both teachers sampled under Low Delta criterion, i.e whose performance dipped significantly from Baseline-Endline in the 10 questions on practise-pedagogy, belong to High Infrastructure Schools.

Access to School Infrastructure

While all the 7 teachers come from high infrastructure schools, we need to ascertain if they are maintaining the infrastructure and everyone has access to the said infrastructure.

The school 104’s physical infrastructure exhibits a mix of conditions. While the classrooms are well-ventilated and well-lit, with functional lights and fans, the classroom floors were observed to not be clean. However, it was also observed that the school premises were well maintained and clean, the observer also noted that waste segregation was undertaken in the school.

The school 105 maintains an overall clean environment, with recent renovations including newly painted outer school and boundary walls. The washrooms have been recently updated to feature both western and Indian toilets, and there is a handicapped washroom equipped with a ramp. Cleaning is typically conducted while students are in assembly. However, several issues affect the school’s functionality and security. Basic amenities in the classrooms are not fully operational, and the short boundary wall poses security risks. Additionally, there is a locked, broken building within the premises with no entry sign. Low internet connectivity further restricts student engagement and learning opportunities.

The washrooms in school 109 are unclean, with poor drainage leading to blocked toilets and a tap inside that has water leaking. In the classroom, a water purifier and light bulbs are installed and placed at a height accessible to students. The classroom benefits from a large window, ensuring it is well-lit and ventilated. The pillars in the classroom have paint peeling off, although the rest of the school has recently been painted.

School 115 is generally clean, with washrooms that are well-maintained and have functional taps. A hand pump is available for drinking water, and the classrooms are also kept clean.

The school 116’s physical infrastructure is generally well-maintained, featuring a clean and well-kept classroom with natural lighting from a window. The classroom has sufficient

infrastructure, including benches for students to sit on, though there are no desks provided. The seating capacity of the benches (18-27 students) is less than the total class enrollment. The school is equipped with a smart TV for visual learning, and water access is available, with functional water pumps and the kitchen that has its own water supply. The community toilet attached to the school is currently inaccessible, which poses sanitation problems. The school environment includes a green cover with plants maintained by teachers, and the overall aesthetics appear gender-balanced. Additionally, the school accounts for natural disasters, enhancing its preparedness.

School 121 features a notable amount of greenery, with well-maintained plants contributing to its overall aesthetic. The school is well-decorated, and classrooms are kept clean. However, there are issues with chipping plaster and paint, and some windows are broken. The washrooms are unclean, and irregular electricity supply, including frequent power cuts, poses a challenge. Despite these issues, there are taps available for washing hands and drinking, and the school has a reliable water supply.

The school 124 was in good overall condition, featuring a variety of trees and plants, such as peepal, rose, and Arjuna, which provide green coverage and shade around the courtyard. All classrooms had varying conditions, with only one being notably shabby. The school is equipped with well-functioning fans in all rooms and maintains a functional electrical supply.The school is also disabled-friendly, with ramps and designated washrooms for PWD students. The washrooms are well-built, equipped with taps, and properly labelled for all students. Despite these positives, the classroom was in poor condition, with unclean walls that are coming off and no desks provided for students.

A commonality among many of these schools is the presence of well-maintained or clean classrooms and washrooms. For instance, schools 104, 115, and 116 all demonstrate a commitment to cleanliness and upkeep. School 115 is noted for its clean washrooms and classrooms, and school 116 features well-kept classrooms with natural lighting. School 104, while having unclean floors in the classrooms, maintains a clean school environment overall and implements waste segregation. However, there are exceptions, such as schools 109 and 121, where washrooms are reported to be unclean.

Regarding amenities, schools like 105 and 124 show a focus on accessibility and inclusivity. School 105 has both western and Indian toilets, a handicapped washroom, and a ramp for disabled access, although it suffers from security issues and poor internet connectivity. Similarly, school 124 is disabled-friendly with ramps and designated washrooms for PWD students. In contrast, schools like 109, 116 and 121 have issues with facilities. School 109 has problems with drainage and leaking taps in the washrooms, and the classroom has peeling paint on the pillars. School 121 faces challenges with broken windows and frequent power cuts, which disrupt the learning environment. School 116 also contends with a community toilet that is currently inaccessible, which affects sanitation. Schools 105 and 124 face unique challenges with security and the condition of specific areas, like the locked, broken building in school 105 and the shabby classroom in school 124.

Among all the schools that have a higher quality of infrastructure present, school 116 appears to be the school with the most access to infrastructure and regularly upkeeps their infrastructure.

Schools 104 and 115 also show good maintenance and functionality but lack some of the advanced features and inclusivity aspects found in school 116.

HM Support and Interaction

Several HMs share a commitment to maintaining both the school environment and the quality of education. For instance, the HMs of Schools 104, 109, 116, and 124 all emphasise regular engagement with teachers, whether through classroom visits, staff meetings, or monitoring teaching practices. Community engagement is another commonality, with HMs from Schools 104, 109, and 116 actively visiting homes to address absenteeism and encourage student attendance. Additionally, the HMs of Schools 104 and 116 share a focus on infrastructure and administrative duties, demonstrating a balance between educational leadership and operational responsibilities. This is confirmed by observations as school 116 had the most access to their infrastructure, and 104 was also observed to show good maintenance and functionality.

Despite these similarities, the Headmasters differ significantly in their approach and execution of responsibilities. The HM of School 104 has a structured and proactive approach, with a focus on regular staff meetings and consistent community engagement, while the HM of School 105 struggles with irregular staff meetings and lacks a performance tracking system, primarily due to being overwhelmed by administrative tasks. The HM of School 115 stands out for their strict adherence to prescribed teaching methodologies, unlike others who focus more on a broad range of administrative duties. The HM of School 121 is heavily involved in additional non-educational administrative tasks, such as BLO duties during elections, which contrasts with the more education-focused activities of other HMs. Finally, the HM of School 124 takes a hands-on approach by directly participating in teaching and ensuring the effectiveness of the Mid-Day Meal program, highlighting a more active role in daily school operations compared to others.

The HMs of Schools 104, 109, 115, and 121 share a common approach of fostering positive, collaborative relationships with their teachers. In these schools, there is an emphasis on mutual respect and support, with HMs creating environments where open communication and cooperation are encouraged. HMs in Schools 104, 109, and 115 also engage with teachers beyond formal duties, spending time together during breaks or after school hours, which helps to build camaraderie and a friendly work atmosphere.

Despite the overall trend of positive relationships, there are notable differences in the consistency and quality of HM-teacher interactions across the schools. The HM of School 104 uses praise and positive reinforcement, actively working to motivate and support teachers, while the HM of School 105 faces challenges with irregular staff meetings and a lack of an action plan for demotivated teachers, leading to occasional conflicts and a less supportive environment for some. The HM of School 109, although maintaining a friendly and respectful relationship, focuses on structured monthly meetings, while the HM of School 121, although promoting effective communication, does not specify any additional measures for teacher motivation or professional development as seen in School 104.

Teacher Practices

Bad Teacher Practices

The observations from the classroom highlight various ineffective teaching practices across the seven teachers, with some commonalities and distinct differences.

A prevalent issue among the teachers was the inadequate use of structured teaching resources like the Teacher's Guide (TG) and the teacher diary. Teachers 109 and 116 partially used the TG, and Teachers 115 and 124 ignored TG usage completely, leading to disorganised lessons. Teachers 105 and 115 did not have the teacher diary with them on the day of observation, this reflects a lack of planning.

Classroom management was a significant problem for several teachers. Teacher 105 caused disruptions themselves by frequently leaving the classroom, worsening student distractions. Similarly, Teacher 116 disrupted class flow by exiting for administrative reasons and failed to address student-student conflicts in the classroom . Teacher 121 exhibited selective attention, focusing primarily on certain students while overlooking others. Additionally, the teacher failed to establish a routine by not marking the week or date on the blackboard, which is important for primary grade students.

The most concerning behaviour was from Teacher 105, who not only struggled with classroom management but also physically hit a student, a severe ethical violation absent in the other observations. Despite variations in the issues, all teachers apart from teacher 115 demonstrated poor practices that hindered effective teaching and learning.

Good Teacher Practices

The observations across the seven teachers reveal a blend of shared strategies and distinct methods in their effective teaching practices.

A common thread is the emphasis on active student engagement and individualised support. Teachers 104, 105, 115, and 121 consistently utilised strategies like moving around the classroom, incorporating visual aids such as posters, engaging students in activities, and using TLMs . These techniques not only maintained student interest but also ensured that learning was interactive and dynamic. Additionally, these teachers paid special attention to struggling students, offering the necessary support such as providing additional work, dedicated feedback while checking student work.

However, there were also unique approaches each teacher adopted. Teacher 104 demonstrated a structured method by categorising students according to their learning levels and planning to group them based on assessment outcomes, reflecting a proactive approach to differentiation. In contrast, Teacher 116’s focus was on making lessons relatable by using examples from the students’ own village, thereby grounding abstract concepts in familiar contexts. Teacher 121’s approach emphasised deep engagement by allowing students ample time to think and by involving them directly in the creation of TLMs. Meanwhile, Teacher 105 distinguished

themselves by beginning lessons with engaging activities, such as question-and-answer sessions, which immediately captured students' attention and encouraged participation.

It needs to be noted that no discernable good teacher practices were observable on the day of the observation in school 109.

Teacher Pedagogical Insights Validated by Classroom Observation

The observations reveal both similarities and differences in the pedagogical practices and beliefs across the seven teachers.

A shared commitment to individualised instruction and student engagement is evident among several teachers. Teachers 104, 116, 121, 115, and 124 all demonstrated practices that involve providing individual support to students. Teacher 104 emphasised tracking student levels and fostering peer collaboration, while Teacher 116 and Teacher 121 focused on grouping students and monitoring performance, aligning with their belief in differentiated instruction and levelled teaching practices. And during reading class Teacher 115 guided students and asked individual questions, and Teacher 124 provided individual support.

Several teachers also incorporated active and engaging teaching methods that aligned with their pedagogical beliefs. Teacher 116 effectively began classes with engaging activities and used voice modulation to capture attention, reflecting their belief in the importance of an engaging start to lessons. Teacher 105's practice of collecting both choral and individual responses aligns with their belief in assessing students, as observed in their classroom.

However, differences were observed in how these methodologies were applied. Teacher 104's focus on tracking student levels and assigning tasks contrasts with Teacher 116's uses the help of an additional teacher for additional support to weaker students. Teacher 121, in particular, extended their practices to include the use of everyday items and local dialect in lessons, a unique approach not observed in other teachers. In contrast, Teacher 124 demonstrated flexibility by adapting to the absence of grade 3 students and implementing multi-grade teaching strategies, a practice not specifically noted in the other observations.

In summary, while there are commonalities in the commitment to individualised instruction and the use of engaging teaching methods, each teacher also displayed unique approaches that reflected their specific beliefs and teaching contexts.

Dissonance observed between teachers pedagogical insights and practise

The observations across the seven teachers highlight various contradictions between their stated pedagogical beliefs and actual classroom practices, with both similarities and differences emerging among them.

A common issue among several teachers was the lack of adherence to the Teacher's Guide (TG), despite its acknowledged importance. Teachers 104, 105, 109, 115, and 124 all expressed the value of using the TG for structured lesson planning and guiding instruction, yet none of them utilised it during their observed lessons. This inconsistency suggests a disconnect

between their recognition of the TG's benefits and their actual classroom practices. Similarly, teachers 121, 109, and 115 emphasised the importance of differentiated instruction and focused attention on students' varying learning levels, but in practice, these principles were not consistently applied as they predominantly focused on the more active or responsive students, neglecting those who were less engaged or struggling.

Another shared contradiction was the failure to implement engaging and interactive teaching strategies that the teachers themselves valued. Teachers 116, 109, and 124 all highlighted the importance of using Teaching Learning Materials (TLMs), incorporating activity-based learning, and employing methods like the Gradual Release of Responsibility (GRR) to foster student understanding. However, these strategies were notably absent during observations. Teacher 116 discussed using a variety of tools and methods such as Form 3 strips and flashcards, yet no active TLM usage was observed during instruction time.

Differences among the teachers were also evident. Teacher 104, while acknowledging the importance of teaching decoding separately from reading, failed to separate these activities during instruction, blending them in a way that contradicted their stated beliefs. In contrast, Teacher 116 faced practical limitations, such as time constraints, which hindered the consistent application of independent practice, even though they recognized its importance.

Overall, while the teachers shared common challenges in aligning their practices with their pedagogical insights on TG and TLM usage, the specific nature of these contradictions varied, reflecting different areas of focus and the unique constraints each teacher faced.

Teacher Barriers and Enablers

Barriers at the School and Community Level

The observations across the schools reveal significant barriers faced by the teachers and headmasters from the community and their school level administrative challenges.

A prominent similarity is the challenge of inadequate resources and infrastructure. All schools had missing workbooks, as the new workbooks for the academic year hadn’t been provided by the government yet. School 105’s HM expressed notable frustration with bureaucratic inefficiencies and the lack of administrative support at the school further exasperates systemic challenges.

The local community poses significant challenges to 3 schools among the high infra schools. At School 116, theft and damage to materials by community members, along with a lack of community leadership support, disrupt the educational environment. Teacher 105’s school also contends with vandalism that requires repairs at HM’s personal expense. These issues highlight a broader concern regarding communities’ value of education. At school 116 gender-based discrimination present in the community impacts female students’ education negatively as they often stay back at home for chores.

Distinct challenges include School 121’s issues with network problems and lack of access to internet TLM. Additionally, School 109’s multigrade classroom setup complicates instruction.

Overall, while resource shortages such as lack of workbooks and administrative inefficiencies are common concerns, each school faces unique obstacles related to community support or specific operational issues.

Parental Barriers to School and Teaching

Various barriers to teaching and school functioning were present in all the schools due to lack of parental involvement and support . At Schools 116 and 105, many families are unable to afford educational supplies, and there is minimal interaction between parents and the teacher. This is despite both schools' efforts through School Management Committees (SMCs) and Parent-Teacher Meetings (PTMs). The inactive SMC reflects broader disinterest from both local leaders and parents, who prioritise their livelihoods over educational engagement.

In School 121, parents often do not attend PTMs, and despite efforts like home visits and phone calls from teachers, there is minimal investment in their children's education.

School 109 faces a distinct challenge due to the community's manual labourer background and prevalent gambling habits, which detract from the focus on education. Parents show minimal interest and sometimes actively discourage academic pursuits, presenting a different form of disengagement compared to other schools.

School 115 reported additional issues with parental attitudes, particularly among backward castes, who are of the belief that teachers prioritise their own interests over student needs. Private schools are often preferred by parents, and absenteeism hasn’t reduced despite regular home visits by teachers.

In summary, all schools face issues with parental involvement and support, the specific nature of these challenges varies, from financial constraints and disinterest to broader socio-cultural attitudes affecting educational engagement.

Student related and Absenteeism barriers to School and Teaching

The major student level barrier cited by all 7 schools is Student Absenteeism. This pervasive issue disrupts educational progress and hampers the achievement of NIPUN goals. The external factors that influence Absenteeism were primarily cited to be agrarian and parental reasons. In School 116, absenteeism is driven by external factors like election and harvest seasons, leading teachers to spend time engaging with parents and the community, which detracts from instruction. School 121 also struggles with high absenteeism, particularly during harvesting and wedding seasons. This inconsistency in attendance demotivates teachers, who find it challenging to maintain student motivation and complete lessons. And School 124 also deals with absenteeism, particularly in March due to fieldwork and family events. Although average attendance is relatively stable, the irregular presence of students impacts the achievement of NIPUN targets.

School 105 faces absenteeism challenges with only 50-55% of students attending regularly. This inconsistency requires teachers to re-explain concepts to students who miss classes, slowing down overall progress. School 115 similarly reports only 43% of students attending

regularly. This inconsistency, coupled with involvement in daily activities like harvesting, limits student readiness and frustrates teachers.

At School 109, absenteeism is further exacerbated by the multigrade classroom setup, where irregular students are never able to catch up to others. The school reports that students attend only 15-20 days a month, far below the minimum requirement, leading to frustration among teachers who feel powerless to address the issue.

In contrast to these shared challenges, School 115 faces difficulties with student disciplinary issues. The lack of fear of consequences among students contributes to a lack of classroom discipline. This issue is somewhat unique to School 115 and adds another layer of complexity to the challenge of maintaining regular student attendance.

In summary, while absenteeism is a common issue across all schools, the specific factors contributing to it are primarily tied to agriculture and family. This indicates that to combat absenteeism and other student issues community intervention is necessary.

Teacher Specific Barrier

The observations across the seven schools reveal several common challenges faced by teachers, alongside some notable differences in their experiences. A recurring issue is the overwhelming nature of the Teacher's Guide (TG), which most teachers find rigid, time-consuming, and poorly aligned with the varying needs and learning levels of their students. This challenge is compounded by inadequate preparation time, as seen in School 115, where teachers received the TG just days before the academic session began.

Teachers also struggle with the administrative burden and non-teaching duties that detract from their focus on instruction, a problem highlighted in Schools 104 and 109. Additionally, the shortage of teachers and classrooms is a widespread concern, leading to the necessity of managing multi-grade classrooms, as seen in Schools 116 and 105. A lack of motivation and a sense of limited authority are particularly evident in School 105, where teachers feel undervalued and constrained by a lack of autonomy.

There are specific barriers too, such as the gender-specific challenge of managing both school and household work faced by female teachers, called out by teacher 121. And teacher 121 often has to personally call students from home adding to their administrative tasks.Overall, the similarities revolve around the structural and administrative burdens, while differences emerge in the personal and contextual challenges unique to each school.

School Category- Average Quality Infrastructure

Among the 18 teacher observations and transcripts analysed, 6 teachers belong to school where there is a ‘presence’ of average infrastructure such as existence of 5 classrooms for teaching, a kitchen-MDM Room, an office, a boundary wall, separate washrooms for both male and female students, a functional gate, presence of board for teaching, desks, benches, and access to electricity and water.

Teachers 106, 107, 111, 114, 118, and 123 all belong to schools which had average infrastructure present. Among these teachers it was observed that 3 teachers were sampled under High Delta criterion (106, 107, 123), 2 under Low Score criterion (114, 118), and 1 Teacher- 111 was sampled under Average Score criterion. From this we can ascertain no correlation between School Infrastructure and teacher performance in Baseline-Endline. But it is observed that 3/6 High Delta teachers and 2/3 Low Score teachers belong to Average Infrastructure schools.

Access to School Infrastructure

While all the 6 teachers come from average infrastructure schools, we need to ascertain if they are maintaining the infrastructure and everyone has access to the said infrastructure.

School 106’s physical infrastructure reveals a mix of conditions. While drinking water taps are present and functional, and the school boasts plenty of open space, other areas need attention. Grade 3 students and others sit on mats in the verandah, where the fan is non-functional during summer, making the environment uncomfortable. The school has MLC for the primary section, but limited space forces Grades 1-2 and 4-5 into two rooms, while Grade 3 remains in the verandah. A broken portable board is used for teaching. Maintenance efforts are visible, with a hand pump being fixed and walls being cleaned and painted.

School 107's physical infrastructure and cleanliness present several concerns. The washrooms appeared unused and unclean, with their gates locked. The school overall was untidy in appearance and garbage was littered around everywhere. The hand pump within the premises, used for drinking water, dispensed salty, undrinkable water. There was no electricity during the visit, and although the school had solar panels, only one fan, powered by solar energy, was operational and directed towards FIs, not students. Classrooms lacked electric bulbs, and the room itself appeared unclean, with cobwebs in all rooms. Additionally, the plaster was coming off the lower walls of the kitchen and the outside wall of a closed, old classroom, which remained unused. No dustbins were noticeable on the premises, adding to the overall neglect.

The school 111 exhibits a mix of functional infrastructure and areas needing improvement. While classrooms have functional lights and fans, and essential amenities like a hand pump, separate washrooms for boys and girls, and a washbasin are available, other aspects are lacking. There is construction ongoing of a new room, but students sit on mats due to the absence of benches. The entrance area and walls are broken, and overall cleanliness is poor, this exacerbated by poor internet connectivity, which creates additional challenges.

114 school's infrastructure shows signs of upkeep and areas needing attention. Classrooms are cleaned, and the boundary wall is well-maintained. Maintenance work is actively taking place in the school. However, the water taps in the toilets are not functional, indicating a gap in the school's facilities.

The school 118 features a large campus with two to three sets of buildings. The school gate and boundary wall are of the same height, but this has allowed students to jump over the wall to enter the premises. The school has trees which provide shade in the courtyard. The hand pump located in the courtyard needs repair. The washroom for PWD students is in a dilapidated condition with no water arrangement, highlighting serious infrastructure issues. Additionally, there is no electric bulb in the room, and the fan is non-functional, further impacting the learning environment.

School 123 faces significant challenges due to inadequate upkeep of infrastructure. Problems arise from the lack of electricity and refrigeration. The only one square-shaped classroom, although equipped with basic amenities, lacks a functioning light bulb. While facilities like a kitchen, a functional hand pump, and a ramp for disabled students are available, recent renovations have resulted in faulty washrooms and disrupted cleanliness and maintenance. An unused classroom space, attributed to poor construction, adds to the issues. The campus, featuring various trees and plants, suffers from a crumbling boundary wall that allows village animals to enter and damage the grounds. Currently, one classroom is used for teaching, another for storing furniture during ongoing construction, and a third classroom accommodates all grades with three teachers due to maintenance issues.

Many of the schools demonstrate varying levels of maintenance and cleanliness, with some notable similarities and differences. Schools 106 and 111 show a mix of functional infrastructure and areas needing improvement. School 106 has working drinking water taps and ongoing maintenance, but faces issues like broken fans and cramped classrooms. Similarly, School 111 has functional lights and fans, but suffers from poor cleanliness and ongoing construction. School 107 stands out with significant cleanliness problems and dysfunctional facilities, including unclean washrooms and an unusable hand pump. In contrast, School 114 maintains clean classrooms and an overall well-kept environment, though the non-functional water taps in the toilets indicate some maintenance gaps. School 118 has a large campus and functional hand pumps, but struggles with a dilapidated washroom for PWD students and non-functional fans. School 123 faces severe infrastructure issues, including poor cleanliness and ongoing construction challenges, with only basic amenities available and frequent issues like a crumbling boundary wall.

Overall, Schools 114 and 118 exhibit better maintenance and functionality compared to the more problematic conditions seen in Schools 107 and 123.

HM Support and Interaction

The Headmasters (HMs) across Schools 106, 107, 111, 114, 118, and 123 share several similarities in their approach to school management and leadership. All the HMs balance a dual role, managing both administrative and teaching responsibilities. They are actively involved in teaching, particularly in upper primary classes, while also overseeing school operations, teacher

performance, and ensuring a conducive learning environment. Regular communication and collaboration with teachers are common practices among these HMs, with most of them holding meetings to discuss classroom issues, plan for upcoming weeks, and provide feedback and support to teachers. The HMs also engage in community or parental involvement, with School 111's HM actively raising awareness among parents about the importance of education and conducting household surveys. Similarly, the HM at School 123 regularly conducts PTMs to involve parents in their children's education.

Despite these shared practices, there are distinct differences in how these HMs navigate their roles and the additional responsibilities they manage. The HM at School 107 emphasises creating a supportive atmosphere and dedicates time daily to communicate individually with each teacher, which contrasts with the less frequent communication styles observed in other schools. The HM of School 114, apart from their teaching and managerial duties, is heavily involved in school maintenance, overseeing construction, repairs, and managing Mid-Day Meal (MDM) logistics.

Teacher Practices

Bad Teacher Practices

In examining the teaching practices across Schools 106, 111, 114, 118, and 123, several similarities teaching approaches emerge. One common issue is the lack of effective classroom monitoring and individualised attention to students. In School 106, the teacher was distracted by phone use and interactions with other teachers, leading to inadequate supervision of students during writing tasks. Similarly, the teacher in School 123 did not provide feedback or individualised attention, especially to backbenchers who were not adequately engaged. School 114 also exhibited a lack of structured feedback, with the teacher merely marking errors in students' notebooks without offering constructive guidance.

Another shared concern is the inappropriate use of discipline and negative reinforcement in some classrooms. The use of physical punishment was observed in both Schools 111 and 118, where teachers used sticks to control students, a practice that is both harmful and counterproductive to fostering a positive learning environment. While the teacher in School 111 used a stick to intimidate students, the teacher in School 118 went further by shouting and hitting students when they struggled to answer questions. This reliance on negative reinforcement contrasts sharply with effective, positive classroom management strategies and reflects a concerning approach to discipline.

Despite these shared challenges, there are notable differences in the teaching practices across these schools.In School 114, the teacher’s main problem was a lack of preparation and the absence of structured lesson plans, which led to haphazard teaching. In contrast, the teacher in School 118 was preoccupied with external tasks, such as hand pump maintenance, detracting from their ability to manage the classroom effectively. Moreover, while Schools 106 and 123 both lacked the use of Teacher Guides (TG) or Teaching Learning Materials (TLM), School 118 made an attempt to relate lessons to real-life examples, although this effort was undermined by the teacher’s negative reinforcement methods mentioned earlier.

Good practices

The observations from Schools 106, 107, 111, 114, 118, and 123 highlight various teaching practices, with several similarities and differences among the teachers. A common thread across Schools 106, 107, and 123 is the emphasis on student engagement and individual attention. In School 106, the teacher utilised visual and audio cues, such as diagrams and storytelling, to engage students and make lessons more concrete. Similarly, in School 107, the teacher ensured that every student participated by allowing them to draw their favourite objects and answer questions. School 123 also focused on inclusive participation, using story posters as visual aids and random calling to involve all students in the learning process.

Positive reinforcement and a supportive classroom environment are other commonalities observed in Schools 106, 107, 114, and 123.In School 114, the teacher employed positive reinforcement by appreciating students' efforts and encouraging peer applause, thus fostering a supportive environment. School 123 also exhibited this trait by providing immediate feedback and tailored tasks for students struggling with reading.

Organisational skills and the use of planning tools were noted in Schools 106, 107, and 123. The teacher in School 107 used a diary for lesson planning and classroom management, showing an organised approach to teaching. This was mirrored in School 123, where the teacher also maintained a teacher diary, indicating reflection and adherence to planned instruction. School 106, while not explicitly mentioning a diary, demonstrated forward planning by assigning decoding-related homework and providing additional support to students struggling with reading, reflecting an organised approach to addressing student needs.

Despite these shared practices, there are notable differences among the teachers. In School 111, the teacher's focus was specifically on weaker students, with an emphasis on providing guidance in writing, which was distinct from the broader engagement strategies seen in other schools. School 118 showed efforts to align with the Teacher's Guide (TG) and relate lessons to students' surroundings, but this was overshadowed by challenges in classroom management and maintaining focus. Additionally, while most schools used visual and audio aids, School 114 uniquely connected academic lessons, such as counting, to real-world contexts, helping students relate their learning to everyday life.

Teacher Pedagogical Insights Validated by Classroom Observation

The teaching practices observed in Schools 106, 107, 111, and 123 reflect a shared commitment to structured, student-centred instruction, but also reveal distinct approaches that align with each teacher's specific strategies and goals. A notable similarity among the teachers from Schools 106, 111, and 123 is the structured use of Teacher Guides (TG) and lesson planning to align their teaching with curriculum requirements and student needs. In School 106, the teacher followed a sequential approach to language instruction, using audio-visual aids and practical examples, and assessing student understanding through a combination of collective and individual responses. This systematic approach was mirrored in School 111, where the teacher emphasised the use of TGs for both literacy and numeracy, and was observed planning lessons in alignment with the TG and providing feedback to students during class activities.

Similarly, the teacher in School 123 adhered closely to the TG, planning lessons around student levels and dedicating time for revision and support for weaker students.

Another commonality is the emphasis on individual feedback and differentiated instruction observed in Schools 106, 111, and 123. In School 106, the teacher actively involved students in learning through decoding homework and verbal encouragement, focusing on individual progress. School 111 exhibited a similar approach, with the teacher providing individual feedback during board activities and moving around the class to offer guidance. This attention to individual student needs was also evident in School 123, where the teacher used individual responses to gauge understanding and employed positive reinforcement and independent practice, reflecting a differentiated approach to cater to varying student levels.

Furthermore, the use of TLMs varied among the teachers. While School 111 and School 123 teachers effectively incorporated TLMs into their literacy and numeracy lessons, using matchsticks and other aids to connect learning with practical examples, the teacher in School 106 used audio-visual aids and practical examples like the Read Along app to support language learning.

Dissonance observed between teachers pedagogical insights and practise

The classroom observations in Schools 106, 111, 114, 118, and 123 reveal several similarities in the contradictions between teachers' stated practices and their actual classroom implementations, as well as some distinct differences in how these contradictions manifest. A common thread across Schools 106, 114, 118, and 123 is the discrepancy between the teachers' advocacy for structured use of teaching resources like Teaching Learning Materials (TLM) and the Teacher's Guide (TG), and their actual usage during instruction. In School 106, while the teacher acknowledged the value of mathematics kits and teaching aids, these tools were not consistently utilised in a way that allowed students ample practice time. Similarly, in School 114, the teacher recognized the importance of TLMs and the TG but did not effectively incorporate these resources into the lesson, resulting in a lack of engagement with the students. School 118 showed a comparable pattern, where the teacher highlighted the benefits of using the TG and engaging students in activities, but during the observation, the teacher was preoccupied with non-teaching tasks, leaving students disengaged. School 123 also reflected this inconsistency; despite the teacher's claims of using familiar objects and structured instructional sequences like "I Do, We Do, You Do," these strategies were not observed in practice.

Additionally, a shared contradiction in the teachers' approach was evident in the inconsistency between their stated classroom management techniques and the observed behaviours. In School 111, the teacher emphasised the importance of treating students politely, yet was seen threatening them with a stick, which contradicted the principles of positive reinforcement and supportive classroom management. This discrepancy mirrors the situation in School 123, where the teacher claimed to engage with students before class and move around the classroom to guide them, but these practices were not observed. Similarly, in School 106, the teacher expressed a commitment to levelled teaching and personalised instruction but did not fully implement these methods, as students were not consistently grouped by performance levels.

Teacher Barriers and Enablers

Barriers at the School and Community Level

The barriers observed in Schools 106, 107, 111, 114, 118, and 123 reveal both commonalities and distinct differences in the challenges faced by the teachers and school environments. A notable similarity among these schools is the widespread issue of inadequate infrastructure and resource availability, which significantly impacts the learning environment. For instance, School 106 and School 123 operate with multi-grade classroom setups due to space constraints, which complicates the teaching process and dilutes the attention each student receives. Similarly, School 111 also struggles with insufficient classroom space, resulting in Grades 4 and 5 being taught in a lobby rather than a designated classroom. School 107 faces a lack of basic amenities, such as clean water and proper sanitation, coupled with infrastructure issues like unclean washrooms and scattered garbage, which create an unwelcoming and unhygienic learning environment. School 118 also deals with inadequate staffing, highlighting the broader challenge of resource constraints that many of these schools share.

However, differences also exist in the specific nature and impact of these barriers. For instance, School 123 faces logistical difficulties related to its remote location, which complicates access to resources and effective management of programs like the Mid-Day Meal (MDM). The frequent inspections and criticisms from officials further demotivate teachers, adding another layer of complexity to the school's challenges.

Parental Barriers to School and Teaching

Another shared barrier among these schools is the lack of community and parental support, which severely affects student attendance and engagement. Both Schools 114 and 118 highlight the lack of parental involvement as a critical issue, with teachers noting that parents often prioritise immediate economic needs over their children's education. In School 114, the teacher’s efforts to visit students' homes to encourage attendance underscore the difficulties in engaging parents who do not prioritise education. Similarly, in School 118, the teacher frequently has to personally call students to attend school, but parental apathy often results in low attendance. These challenges are exacerbated by broader social issues, as seen in School 107, where the village environment is marked by violence, factionalism, and substance abuse, further hindering community support for the school.

Student related and Absenteeism barriers to School and Teaching

The schools and teachers in Schools 106, 107, 111, 114, 118, and 123 face several common barriers that hinder effective teaching and learning. A significant shared challenge among these schools is student absenteeism, which severely disrupts the continuity of learning and impacts the achievement of educational goals such as those set by the NIPUN initiative. For example, in School 106, absenteeism is primarily due to family commitments, like visits to grandparents or attending family events, causing students to fall behind. Similarly, School 118 deals with irregular student attendance, which has forced the merging of grades 1 through 3, complicating instructional efforts. In School 111, despite efforts to increase engagement through monthly

Parent-Teacher Meetings (PTMs) and home visits, teachers face resistance from parents, some of whom threaten to file complaints, further complicating efforts to improve attendance. This lack of parental cooperation and involvement in Schools 111 and 114 adds an additional layer of challenge for teachers trying to maintain consistent student attendance.

Teacher Specific Barrier-

Another prevalent issue is the overwhelming workload faced by teachers due to multitasking and handling multiple responsibilities beyond their primary teaching duties. In Schools 107 and 118, teachers face long commutes, which contribute to fatigue and reduce the time and energy available for lesson preparation and independent student practice. Teachers in Schools 114 and 118 are managing multi-grade classrooms, which require them to juggle diverse educational needs within the same instructional period. This setup often leads to difficulties in time management and insufficient focus on individual student needs. In addition, teachers in Schools 107 and 123 also face the burden of administrative tasks and additional responsibilities such as procurement management during school hours, further straining their capacity to deliver effective lessons.

Differences in the challenges across these schools also highlight the unique contexts within which each operates. For instance, School 107 deals with the challenge of continuity in grade-specific teaching, with the teacher frequently shifting between grades, complicating instructional planning. In contrast, School 114 specifically struggles with the complexity of the Teaching Guide (TG) and it's tracker, which the teacher finds difficult to navigate, resulting in inadequate class preparation and a lack of understanding of the TG.

Health issues also present a distinct barrier for some teachers. For instance, the teacher at School 123 has health problems that hinder daily lesson planning and classroom preparation, affecting the overall delivery of education.

School Category- Low Quality Infrastructure

Among the 18 teacher observations and transcripts analysed, 5 teachers belong to school where there is a ‘presence’ of good infrastructure such as existence of 5 classrooms for teaching, a kitchen-MDM Room, an office, a boundary wall, separate washrooms for both male and female students, a functional gate, presence of board for teaching, desks, benches, and access to electricity and water.
Teachers 108, 110, 112, 113, and 120 all belong to schools which had poor infrastructure. Among these teachers it was observed that 2 teachers were sampled under Average Score criterion (110, 120), 2 under High Delta criterion (112, 113), and 1 Teacher- 108 was sampled under Low Score criterion. From this we can ascertain no correlation between School Infrastructure and teacher performance in Baseline-Endline.

Access to School Infrastructure

While all the 5 teachers come from poor infrastructure schools, we need to ascertain if they are maintaining the infrastructure and everyone has access to the said infrastructure.

School 108’s infrastructure shows a mixed picture. While the campus houses both primary and upper primary students and offers functional basic amenities, there are significant gaps. The primary section lacks toilet facilities, whereas the upper primary has separate toilets. The toilets though lack maintenance. Classrooms are dirty and poorly maintained, with broken desks and inadequate cleaning. The multi-grade setup, with Grades 3, 4, and 5 together in one class and Grades 1 and 2 in the verandah, contributes to an unstructured and uncomfortable learning environment.

The school 110’s infrastructure presents a blend of progress and challenges. The bathrooms are in poor condition, and issues like open defecation by staff and students highlight significant hygiene concerns. While the construction of new toilets are a positive development, leftover construction materials, such as cement and sand, clutter the grounds and impact cleanliness. The classroom also suffers from a lack of basic furnishings; there are no benches or desks, so students sit on mats, and the room remains somewhat dirty despite cleaning. Although two fans are installed, the absence of an electric bulb is concerning. New taps and a motor for drinking water, powered by both electricity and solar energy, are being set up. But the storage of construction materials in the classroom and overall cleanliness issues need addressing.

School 112’s infrastructure features some positive aspects but also areas in need of improvement. Amenities like fans and windows are in place to ensure ventilation, which is beneficial. However, the lack of desks means students sit on mats, and the floors were observed to be dirty. The school operates with only three rooms in total—two for classrooms and one for the Headmaster—which limits space and contributes to the MLC challenges faced.

Currently, two rooms are under construction, funded by the HCL Foundation.

The school 113 utilises verandah space for teaching due to limited indoor facilities. With only two rooms available, the well-maintained building is a positive aspect, but the lack of benches in

the classroom presents a challenge. The classroom is used for MLC classes, which impact student learning.

The classrooms in school 120 were observed not cleaned. The absence of benches in classrooms means students sit on mattresses, which affects learning. The MLC setup has resulted in a situation where classes are not allocated among teachers, and this leads to a lack of seating regulations and an unstructured environment. The school has basic resources such as one fan, one tube light, one table, five chairs, and two blackboards. The non-functional taps and an incomplete boundary wall—leaving the backside of the school open to adjacent village houses—highlight significant infrastructural shortcomings.

Schools 108, 110, 112, 113, and 120 each exhibit a range of infrastructure and cleanliness issues, reflecting both shared challenges and unique conditions. A common theme across these schools is the struggle with cleanliness and maintenance. School 108, for example, shows significant problems with dirty classrooms and poorly maintained facilities, including broken desks. Similarly, School 110 deals with hygiene concerns, such as unclean bathrooms and clutter from leftover construction materials. School 112, while featuring some positive aspects like ventilation, also suffers from dirty floors and a lack of desks. School 120 faces issues with unclean classrooms and non-functional taps, further compounding the challenge of an unstructured learning environment due to the absence of proper seating and a partially incomplete boundary wall.

In terms of infrastructure, several schools share a deficiency in adequate classroom furnishings. Schools 108, 110, 112, and 120 lack proper benches and desks, forcing students to sit on mats or mattresses, which disrupts their learning experience. Schools 113 and 120 both have limited classroom space and facilities, and School 113 utilises verandah space for teaching due to space constraints. Meanwhile, School 120's challenges include a lack of basic resources like functional taps and a proper boundary wall, highlighting its infrastructural shortcomings.

Overall, while these schools show some progress in terms of basic amenities, significant gaps in cleanliness, furnishings, and overall infrastructure persist, impacting the learning environment and student experience across the board.

HM Support and Interaction

Of the 5 schools categorised as low infrastructure schools, the HM was not present in 3 - 108, 113, 120. In 108, the HM was on election training duty, in 113, the HM was on leave and in 120, the HM was on medical leave.

A common thread across the HMs present in schools 110 and 112 is the maintaining of cordial, friendly relationships with their staff. However, the HM in school 112 takes a more structured approach by organising regular weekly staff meetings, while the HM in school 110 adopts a more ad-hoc method of meeting with their teachers. Both HMs support their teachers, with the HM in 110 saying that the staff in the school sits together to solve any problems that arise and the HM in 112 saying that they motivate their teachers by filtering out any negative comments made by the parents or community.

Both HMs also have some mechanism for evaluating teacher performance. The HM from 110 collects student feedback in order to inform/ improve teaching practice. The HM in 112 maintains a register to track student practice.

The HM in 110 makes no mention of the value of or challenges pertaining to school infrastructure while the HM in 112 describes the dilapidated condition of the school when they first joined and how they faced difficulties in securing funds to improve the school infrastructure, and at times, used their own money.

Teacher Practices

Bad Teacher Practices

In examining the teaching practices observed 108, 110, 112, 113, and 120, there are several commonalities and notable differences. A common trend is the lack of adherence to structured teaching materials and guidance. For instance, teachers at Schools 113 and 120 do not strictly follow the Teacher's Guide (TG) indicating a broader issue of inconsistency in teaching standards.

Unmotivated and disengaged teaching practices are also a significant problem, especially at School 108, where the teacher exhibited low motivation, a lack of engagement, and negative interactions with students, such as hitting and expressing frustration. This contrasts with other schools where the primary issues were more about instructional methods than disciplinary actions. School 112's challenge with unclear instructions on use of Teaching Learning Materials (TLM) highlights a gap in effective instructional delivery, similar to School 108's lack of feedback and guidance during classroom activities. Despite these common themes of inadequate guidance and lack of structured teaching, the level of teacher involvement varies significantly; for example, School 108's teacher frequently left students unsupervised, while other schools maintained teacher presence albeit with limited engagement. Overall, the schools display a range of deficiencies in teaching practices, mainly revolving around poor adherence to guides, unstructured teaching, and low teacher motivation, though the severity and specific nature of these issues vary.

Good practices

The observations of good teaching practices across the five schools highlight several common trends and differences that contribute to effective learning environments. A prevalent trend is the emphasis on personalised and contextually relevant teaching. In Schools 112 and 110, teachers made deliberate efforts to connect lessons to the students' contexts and communities, making learning more relatable and meaningful.

Individualised attention is another key feature, with teachers at School 112 providing one-on-one guidance to address specific student needs, while School 110's teacher adapts lesson plans and groupings based on student feedback and performance levels, effectively supporting both high performers and struggling students.

Flexibility and adaptability in teaching methods also stand out, particularly at Schools 113 and 110, where teachers prepare in advance, adjust their approaches based on student needs, and maintain tools like diaries to track progress. While these schools share commonalities in individualised support and contextual teaching, their approaches vary in implementation: School 113 focuses on clear instructions and meticulous preparation, whereas School 110 excels in dynamically adjusting to real-time feedback.

Teacher Pedagogical Insights Validated by Classroom Observation

In examining the validated teaching practices observed in schools 108, 110, 112, 113, and 120, several trends emerge. A prevalent trend is the emphasis on independent practice, seen in Schools 110, 120, 108, and 112, where teachers provide students with dedicated time for reading and practice. School 110 stands out for its structured approach, utilising the Teacher's Guide and focusing on decoding and individual attention. School 120 fosters comprehension through discussion and retelling, while School 108 emphasises direct assistance by moving around the classroom. School 112 also values independent practice but begins lessons with thematic discussions and uses a mix of individual and collective responses for assessment.

Schools 113 and 106 exhibit notable differences in their use of instructional methods and materials. School 113 employs Teaching Learning Materials (TLMs) and differentiated grouping, aligning with its focus on varied instructional strategies and assessment techniques. School 106 follows a structured sequence enhanced by technology and practical examples. This school's use of structured plans and audio-visual aids highlights a more systematic approach compared to the more varied methods observed in other schools.

Overall, while the emphasis on independent practice and student engagement is common, the specific methods, use of technology, and instructional strategies show a range of approaches, reflecting differing priorities and techniques in teaching.

Dissonance observed between teachers pedagogical insights and practise

The observations across the five schools reveal common trends of discrepancies between teachers' stated practices and their actual implementation, alongside notable differences in how these inconsistencies manifest. A common trend across all schools is the gap between teachers' claims—such as the use of specific instructional strategies, adherence to planning, and provision of feedback—and their observed practices. For example, in schools 112, 113, 110, and 120, teachers emphasised the importance of planning and using materials like the Teacher's Guide (TG) or Teaching Learning Materials (TLMs), yet failed to follow through during lessons.

A recurring issue is the lack of personalised feedback, as observed in schools 112 and 108, where teachers did not engage students individually despite claiming to do so. Additionally, there is a shared pattern of poor lesson preparation, with teachers in schools 113 and 120 preparing last minute or not showing evidence of planning.

However, differences arise in the specifics; for instance, the absence of individual guidance in school 112 contrasts with the lack of engagement with struggling students in school 108.

Meanwhile, school 110 highlights a unique issue with the absence of independent practice guidance and the teacher's physical absence during critical instructional moments. These findings underscore a broader challenge of aligning stated educational philosophies with classroom realities, suggesting a need for improved teacher training and accountability measures.

Teacher Barriers and Enablers

Barriers at the School and Community Level

In School 112, several significant challenges affect the functioning and effectiveness of the school. One major issue is the absence of a Shiksha Mitra, which increases the workload of the Headmaster (HM), who is already burdened with non-teaching responsibilities such as preparing documents, attending, and conducting meetings. This extensive administrative load detracts from their ability to manage the school effectively and devote sufficient time to teaching. Additionally, the school faces a shortage of staff, which limits the time available for teaching and contributes to the unavailability of workbooks, further complicating instructional efforts.

In school 112 Community engagement presents further obstacles. The School encounters difficulties with unsupportive community members. Infrastructure challenges also impede the school's operation. Despite improvements funded by composite grants and personal contributions, the school remains constrained by a lack of space. Multigrade classrooms have become necessary, with Grades 3-5 being taught together in the limited available space, which includes only three rooms: two for classrooms and one for the HM.

Parental Barriers to School and Teaching

A recurring barrier is the challenge of parental engagement, which is influenced by geographical location and socio-economic factors. In School 112, uncooperative parents present a significant obstacle, as their involvement is often limited to collecting Direct Benefit Transfer (DBT) benefits rather than engaging in their children’s learning. Similarly, School 108 identifies proximity to urban areas as a critical factor, noting that schools closer to the city benefit from higher parental involvement and awareness, whereas rural schools struggle with lower engagement due to parents' lack of education and awareness. This contrast highlights a divide between urban and rural school environments, where urban proximity fosters better parental support, while rural schools face barriers due to less educated and less involved parents. These observations underscore the need for targeted strategies to enhance parental engagement, particularly in rural and less supportive contexts, to bridge the gap in educational involvement.

Student related and Absenteeism barriers to School and Teaching

Teachers in 2 schools cite student absenteeism as a hindrance to teaching. At school 110, student absenteeism and punctuality issues are prevalent, with the teacher having to send students to call others from the village. The teacher also has to repeat concepts for the students that are irregular. At school 113 too, student absenteeism is cited as hampering the lesson.

Teacher Specific Barrier

A common trend across teachers observed is the feeling of the TG being too rigid and restrictive - with teachers in schools 112, 108, 110 saying that the TG limits their freedom to teach and that it might be too rigid. Teachers also face challenges in navigating the TG, as in school 113, and also find it difficult to implement the structure in a multigrade classroom, as in school 120. Certain concepts in the TG are also professed to be difficult for students to understand, by the teacher in school 120, which leads them to having to revert to traditional methods of teaching.

Externalities also affect teachers in their teaching. A long commute to school also poses a challenge for teachers, as in school 113, where the teacher's commute is over two hours daily. Absence of the head-teacher further added to their difficulties. For the teacher in school 112, poor internet connectivity at the school leads them to working to complete online tasks at home, which increases their workload, taking time away from their teaching, and hampering their ability to help struggling students,

Chapter 4: Discussion

Teacher Behaviour Change: Intervention Usage and Retention

Qualitative data from the Observation-Interview exercise reflects poor usage and retention of our treatment arms. Of the 18 teachers observed and interviewed only 10 teachers mentioned either of the treatment arms during the interview. But when further probed about our intervention Teacher 114 mentioned “they were good and helpful” but failed to elaborate how they were good or helpful. Teacher 115 said they used our MPV videos but when probed further said “ [they] don’t remember it” and teacher 121 denied being part of any teacher group for MPV Videos. Retention of the intervention was observed more in Chatbot where teachers such as teacher 105 mentioned “ as soon as I come to the school … open the phone directly, and look at the guide [chatbot]” and teacher 110 mentioned how the chatbot helped them on days they couldn’t refer to the Teacher Guide as they “saw it in the chat box [chatbot], and was able to know what was to be done that day”. Among the two districts considered for the intervention, teacher retention of intervention was observed to be higher in Sitapur than Hardoi. From Hardoi only one teacher, Teacher 120, remembered our intervention. Such low retention may indicate a lack of buy-in from the teacher cohorts, a fact also reflected in the initial teacher protests the intervention faced in Hardoi. Overall, the retention of both interventions was quite low. However, among the teachers who did use the intervention and retained it, several key ideas emerge on what they found useful.

The user-centricity of an intervention was one key point, which may then contribute to its retention. The chatbot intervention was generally seen as user-centric, with 5 out of 9 of teachers finding it helpful in their daily teaching tasks. Teachers appreciated how the chatbot simplified access to lesson plans and “main points are given in it". Teacher 101 mentioned how the chatbot made things easy as “looking at the digital form [TG] takes a lot of time". Further, teacher 107 expressed the ease of sharing lesson plans with other teachers and how “if we [they] are on duty and a teacher goes to class, and I [they] send that chatbot to him [them] on whatsApp, then if nothing... If he [they] is not able to see Sandarshika, then by comparing the previous work with Karyapustika, he [they] can move ahead easily.”

Additionally 1 out of 9 of teachers gave mixed feedback, noting that while the chatbot was helpful, it could be improved by adding more specific details. For instance, they mentioned that “... micro-teaching, a detailed plan is [should be] made, in that, it should be briefly mentioned, for example, if I [they] have to teach *k, kha, g*…so that our [their] time is not wasted…”. One teacher also highlighted that the chatbot needed improvements, such as including specific page numbers and concise instructions, to better align with their teaching requirements. Overall, the evidence suggests that the chatbot was well-received and met the needs of teachers who used it, making their work easier and more efficient. The feedback indicates that the chatbot was largely user-centric, with room for minor adjustments to make it even better for all users.

On the other hand, based on the data collected, the MPV intervention shows slightly limited user centricity in its design. However, out of 9 teachers surveyed, 6 were not specifically probed on the user-centricity aspect, which limits the scope and reliability of the feedback available for evaluating the intervention’s effectiveness. Among these 3 teachers, 2 expressed satisfaction

with the videos, finding them beneficial for classroom application with teacher 111 explaining, "...I saw all the videos, I liked them, and I worked on them in the class…," and noted that "...my [their] weak students in the last class became good…". However, teacher 104 provided a mixed response, acknowledging the value of the videos while also highlighting areas for improvement. They suggested that "...the content of the video should be more comprehensive…" and recommended creating additional materials like stories or poems for younger grades, indicating that the current format might not fully address the diverse needs of all students and teachers.

This feedback underscores the necessity for a more user-centred approach and suggests that while the MPVs have demonstrated some value, their design could benefit from further customization. However, the limited number of directly probed responses (3 out of 9) means that the conclusions drawn are based on insufficient data, highlighting the need for more comprehensive feedback to accurately assess and address the research question regarding the user centricity of the intervention.

Another common theme was the teachers' desire for flexibility. Some found the TG helpful, appreciating the clear instructions on what to teach and how. For these teachers, the chatbot likely served as a convenient extension of the TG, reinforcing their teaching approach. However, others felt the TG was too rigid, not allowing them to adapt lessons to their students' needs. One teacher noted, "If I have to follow the guide exactly, it restricts my ability to teach effectively."

There were also concerns about the detail provided by the TG on the chatbot. Teacher 109 felt that the summaries were too brief and lacked the depth needed, further questioning that "...there is no detail in it. What will I get to know by reading it?..."

While user centricity was observed more in Chatbot, the IDI's presented a more nuanced picture of the factors affecting intervention usage. One such factor was teachers lacking sufficient resources to access the interventions. Among the nine Chatbot teachers interviewed, 4 out of 9 reported different resource related constraints which affected their ability to use the chatbot effectively. Teacher 105 mentioned that the chatbot's timing was an issue, as "...when the chatbot was introduced, the timing used to be at 09:01 after which it was closed...", making it hard to use at the start of the school day. Teacher 106 highlighted connectivity problems, saying, "...sometimes it is in the network zone and sometimes it's not, and that also becomes an issue…", showing how unreliable internet access, especially in rural areas, impacted their ability to use the chatbot consistently.

Financial and technological barriers also emerged, with teacher 118 using a basic phone instead of a smartphone, explaining, "...sometimes the phone is recharged, and sometimes not. If it's not recharged, I [they] can't see the messages...". Additionally, there were concerns about the digital divide, as teacher 120 noted that many in rural areas, including *Shikshak Mitras*, either do not have smartphones or are not comfortable using them. It is also important to note that 5 out of 9 of the teachers were not specifically asked about resource challenges, so their input on this issue is missing.

Overall, the data suggests that user-centricity of intervention, and the peripheral technology needed to access the intervention plays an important role in its usage, and thereby retention. This highlights the need for more inclusive strategies that address the resource disparities between teachers (such as between rural and urban areas) to ensure that all can effectively use

such interventions. Based on the data collected, there is insufficient evidence to determine if MPV teachers lack sufficient resources to implement the intervention. Out of 9 teachers, 8 were not probed on this aspect. Only 1 teacher reported experiencing time constraints that limited their full engagement with the videos. This single response suggests some resource challenges but is not enough to draw broad conclusions. More comprehensive data is needed to accurately assess resource constraints impacting the intervention's implementation.

A hypothesis for the low usage and retention of our interventions could be due to the modality of the delivery of these interventions. From our IDI's we observed multiple instances of teachers prioritising government instruction irrespective of their personal beliefs and opinions. Teacher 104 opined that "...if the government has designed something with their experts, it should be respected and implemented…", displaying a sense of compliance to and trust in the system. Compliance to the system was observed to be primarily from a lens of avoiding penalization rather than from an informed perspective. When talking about filling the teacher diary everyday, teacher 110 said that they fill it every day as it is "departmental instruction", otherwise they would "...fill it weekly as well…". Another such instance was observed with teacher 116 who fills teacher diaries everyday and was seen "...to be on alert from senior officials…". While all 18 teachers in their interviews did not state instances of compliance, it was observed that teachers are more likely to follow government or systematic instruction as all teachers mentioned using TG to be an important aspect. Teacher 105 specifically stated that they refer to the TG as it is "...the government's plan and this is the way one is supposed to teach…". While usage of TG in the classroom is not universally practised there is both recognition and retention of government initiatives. This presents a dichotomy for future teacher behaviour interventions, while interventions enforced with the help of government systems will ensure better engagement and retention of interventional practices, the crux of behavioural change might be compromised due to teacher attitudes.

Through our qualitative study we observe a higher user centricity in Chatbot, but engagement data on Chatbot is more skewed towards literacy than numeracy. Chatbot users primarily used the intervention for the breakup of Hindi lesson plans.

Out of the 9 teachers, 7 used the chatbot. Yet, when it came to using the TG specifically, only three teachers were seen using it for literacy and just two for numeracy. Interestingly, 6 teachers were still teaching numeracy in their classrooms, but most did so without consistently using the TG or chatbot for guidance. This suggests that when teachers do not engage with the TG, they might also be less likely to rely on the chatbot, indicating a possible correlation between the two.

Furthermore, external factors like ongoing remedial programs and the timing of new materials also played a role. For some teachers, these factors disrupted the regular use of the TG, and as a result, the chatbot was not used at all.

Given these general drawbacks, it's difficult to pinpoint why numeracy, in particular, saw less use of the TG and chatbot. The feedback highlights broader concerns about the practicality, flexibility, and accessibility of these tools, but doesn't directly explain the lower engagement with numeracy content. This suggests that while there are barriers to using the TG and chatbot, these are not uniquely tied to numeracy, making it challenging to draw a direct line from the data to the specific research question.

In conclusion, the data does not clearly answer why numeracy was used less on the chatbot compared to literacy. The issues raised are general and affect the overall adoption of the TG and chatbot, without specifically addressing subject-specific challenges. This points to a need for further exploration into numeracy-specific needs.

Exploring Relations between Teacher Guides, Structured Pedagogical Practices, and Teacher Behaviour Change Interventions

From the qualitative observations, we can state that there is some relation between usage of Teacher Guide and adoption of structured pedagogical practices in the classroom. However no relationship was observed between teachers remembering using our intervention and adoption of structured pedagogical practices in the classroom.

Out of the 18 teachers, only 4 teachers (105, 106, 111, 121) were observed using the Teacher Guide in both literacy and numeracy classes, and of the 4 teachers only one (121) was from Hardoi. Two other teachers (112, 110) were observed using the TG only in literacy class. Among the 4 teachers 3 teachers were observed using more than half of the structured pedagogical practices in both literacy and numeracy lessons. This included collecting individual responses, following GRR in numeracy lessons, providing practice work, providing constructive feedback to students, and following OLD-Decoding-Reading lessons in literacy lessons. The other teacher among the 4 (105) was observed using structured pedagogical practices in literacy classes, but in the numeracy lesson they omitted the “I do” and “We do” parts from the GRR[3] Model. They focused on “You do” and provided adequate practice time and collected individual responses from students by making them solve problems, overall mostly displaying a structured pedagogical practice in their classroom. The two teachers observed using the TG in the literacy classes demonstrated practising structured pedagogical practices in their literacy classes, but failed to follow GRR and individual student practice activities in their numeracy class. The only contrariety observed between usage of TG and practised structured pedagogy in classes was teacher 104. Sampled under the low score category, the teacher did not use the TG to aid their teaching but followed the recommended structured pedagogical practices from it. From the anecdotal evidence we can state that teachers using the TG in their classrooms are able to deliver structured pedagogical practices in their instruction. Transitively one can hypothesise that TG usage in the classroom results in better teaching practices for students and influences their learning outcomes. However, limited evidence is available on that from this study.

The classroom observations indicated only a small percentage of our sample using TG in their classrooms, and in the IDIs all teachers vocalised their issues using the TG. Across all teacher sampling categories and districts, the commonality observed was that the reason for lack of adherence to TG was all externalised. Teachers face systemic barriers in TG availability. The new academic year 2024-25 was already a month in during the time of the qualitative exercise and teachers still did not have physical copies of the TG and Student Workbooks. Teachers only had access to the electronic copy of the new TG, and during our qualitative exercise we observed a few teachers like 118 and 123 who stated that they do not possess smartphones, which limits teacher access to TG and results in lack of structured pedagogical practices in classrooms.

[3] Gradual Release of Responsibility

All teachers cite student and parental barriers as the major reason for non adherence to TG. Absenteeism among students was quoted to be the primary reason for not using TG, and this was observed in the classroom of teacher 124 where no class 3 students were present and no instruction could take place. A similar instance occurred with teacher 120 who had to combine grades as “students' strength was less… [and] [they] cannot teach all students according to TG”. In the IDI’s all teachers stressed multiple times that absenteeism inhibits them from adhering to the TG.

Teachers also cited issues with student learning levels as a hindrance to use TG. Teachers are of the opinion that the TG does not account for ground realities of student learning levels. Teacher 109 mentioned that they “...taught according to the Sandarshika for a few days, but my [their] students were lagging…”, and teachers 110 and 124 echoed the same sentiment in their interviews. Teacher 110 feels that if “...we do it [teach] completely according to Sandarshika, then the students may have difficulty in understanding it…” and Teacher 124 observed that “...students failed to grasp the concepts when taught in accordance with the lesson plan…”. Teachers 115 and 116 pointed out that the TG is linear and doesn’t account for students not completely understanding or retaining previous lessons. 115 opined that if students Grade 3 “...don’t know addition and subtraction… how will I [they] teach them multiplication?...” - pointing out a major drawback of TG as it doesn’t account for learning losses from the previous academic year.

Teachers also cited domestic/household issues as reasons for not adhering to the TG, and they mentioned that they don’t have the time to look at the TG and prepare. This is a behavioural barrier as teachers 111 and 121 mentioned facing domestic/household issues but also provided counter practices they use to help them adhere to TG. Teacher 111 mentioned that they “...always keep the Sandarshika with me [them]...” and make it a point to fill the Teacher Diary the previous night so that they retain TG information. And teacher 121 expressed that “...at home I [they] feel that I [they] get very little time for this [Referring TG], [and] even if I want to see it, there is very little time…” but they “...usually stay back for 15-20 minutes…” to refer to the TG and fill their Teacher Diary.

From this we can infer that while there are external challenges that teachers face in using TG for classroom instruction, there are also teachers who have found ways to circumvent the issues and tried to find solutions possible within their limitations. An important observation here is that both teachers 111 and 121 were in the top percentile for both Baseline and Endline, and this posits a question - Is behavioural change determined by a teacher’s pre-existing knowledge and practice levels?

From our interviews we have adequate anecdotal evidence to confirm that the MPV intervention arm was not effective in easing uptake of the TG or in reducing cognitive overload of teachers. Teachers 104 and 112, both of whom recalled our intervention and were able to recall specific videos, found the TG limiting and restrictive. 6 out of the 9 MPV teachers expressed difficulty with TG and the difficulty ranged across different themes. Teacher 113 found “...navigating the TG for daily references was challenging…”, and Teacher 115 lamented on the “...the cognitive demands placed on teachers to understand and implement the TG…”. Even teacher 121, who was observed using the TG and conducting all structured pedagogical practices in their classroom felt constrained by the “...lack of flexibility in the teaching guide (TG)...”. This

indicates that while teachers found the practices shared via MPV videos to be helpful, the intervention was unable to work on the crux of the intervention which was to increase program takeup and decrease cognitive overload of teachers.

Among the 9 chatbot teachers only 1 teacher, teacher 109 mentioned facing issues with the TG and it was also from a student practice perspective. They feel that the "...comprehensive nature [of TG] makes it challenging to cover everything within the limited time available, particularly when students require more time for independent practice". However, 8 out of the 9 chatbot teachers not mentioning any specific challenge with the TG is not an indication that the chatbot intervention was able to reduce cognitive and uptake barriers with the TG. Most chatbot teachers were observed neither using the TG nor following structured pedagogical practices. This could indicate that barriers related to TG still exist among chatbot teachers as well even though they were not vocalised.

Exploring relationship between Teacher Knowledge and Teacher Practise

An important aspect of the qualitative tool was the ethnographic interview with teachers. Using teacher opinions/ insights from the ethnographic interview, we were able to match teacher knowledge with their classroom practices, and were able to identify any dissonance between teacher knowledge and practice.

The first overarching observation that one sees when analysing all teacher transcripts and observations is that teachers possess adequate knowledge on good teaching practices. All teachers recognised the importance of collecting individual responses from students, collecting responses from the entire class effectively, providing individual practice work for students, and correcting student work and giving them feedback. Teachers also mentioned the importance of conducting Oral Language Development (OLD) in the beginning of the lesson, and stressed on the importance of decoding in literacy classes. All teachers recognised the importance of teaching numeracy through the Gradual Release of Responsibility (GRR) model, and most teachers stressed on conducting We do- You do for longer durations. From the IDI exercise we can state that teachers do possess the vocabulary for effective teaching practices.

However the classroom observations show a different picture. All teachers sampled under low score, low delta, and average score categories displayed massive dissonance between teacher knowledge and practice. All 9 teachers sampled under the category failed to demonstrate their pedagogical knowledge in practices, with teachers 109, 110, and 114 showing the highest deviance. There were 20+ observations where the 3 teachers' practices were contrary to the teachers' pedagogical insights during their interviews. This is a cause for concern, and may indicate a need for behavioural interventions. Teachers possess pedagogical knowledge but face difficulties in enforcing them in their classroom, and while the external factors such as studental and parental barriers cannot be influenced, there is a need to further investigate other interventions through which teacher behavioural change can be influenced.

The only teachers who's pedagogical insights were confirmed in their classroom practices were teachers 106, 107, and 111. All of these teachers retained and recollected our intervention. However, since not all teachers who retained our intervention displayed effective classroom

practices as per their pedagogical knowledge, no inference can be drawn between our intervention and teacher practice.

Chapter 5: Conclusion

The comparative evaluation of educational interventions in Hardoi and Sitapur unveils significant differences in retention and engagement.Sitapur emerges as a notable example of effective intervention retention, with several teachers actively engaging with the Chatbot. This tool has proven to be a valuable asset in their daily routines, providing an alternative resource when the Teacher Guide (TG) was not accessible. Teachers in Sitapur reported that the Chatbot simplified their tasks and facilitated better lesson planning, reflecting its user-centric design and effectiveness. On the other hand, Hardoi's experience highlights a stark contrast, with only one teacher recalling the intervention. This limited retention can be attributed to the initial resistance from teachers in Hardoi, which likely impeded their acceptance of the intervention.

The difference in engagement could also be possible because of disparity in retention rates between the Chatbot and the MPV .The Chatbot was generally well-received, with five out of nine teachers finding it particularly helpful for accessing lesson plans and simplifying daily tasks. Despite some suggestions for enhancement, such as including specific page numbers, the overall feedback was positive. In contrast, the MPV intervention struggled to achieve similar levels of engagement. While a few teachers found the MPV videos beneficial, the general response was less enthusiastic. Feedback revealed that the MPV materials did not fully address the diverse needs of teachers, indicating a need for more comprehensive and adaptable resources.

The aim was also to find a correlation between intervention retention and the consistent application of structured pedagogy but this connection remains weak. Another reason for low acceptance and adoption of intervention could be the compliance-driven approach to government interventions. Teachers often engage with these tools primarily to meet regulatory requirements rather than out of genuine interest or commitment to improvement. This is evident in the mechanical use of the Teacher Guide (TG) and adherence to government directives, such as daily diary entries. For instance, Teacher 104 emphasised the importance of adhering to government-designed systems, while Teachers 110 and 116 cited the completion of the diary as a matter of compliance. This superficial engagement suggests that while systemic enforcement can drive initial adoption, it may not foster meaningful behavioural change or deep engagement with the interventions.

If we dive deeper into the analysis of TG usage, it reveals a clear discrepancy between literacy and numeracy classes, with more teachers using the TG in their literacy classes than numeracy. Among the 18 teachers observed, only four consistently used the TG in both subjects, with only one teacher from Hardoi among them. Of these four, three demonstrated structured pedagogical practices in both literacy and numeracy, while one teacher omitted elements of the GRR model in numeracy.

External barriers significantly impact the effectiveness of teaching interventions. Issues such as the lack of physical copies of the TG and Student Workbooks, limited access to electronic resources, and systemic challenges like student absenteeism contribute to the difficulties faced by teachers. The linear approach of the TG, which does not address gaps in prior learning, also poses a challenge. Despite these obstacles, some teachers have managed to adapt their

practices and integrate TG usage into their routines. However, the broader infrastructural and logistical challenges remain substantial.

The data also highlights a range of infrastructural, logistical, and operational issues across schools. Inadequate facilities, including poor classroom conditions, lack of essential learning materials, and space constraints leading to multi-grade classrooms, complicate the teaching and learning environment. Limited community support and low parental involvement further exacerbate these issues, with absenteeism and economic pressures frequently disrupting student attendance and engagement. Teachers face heavy workloads, including administrative duties and managing multigrade classrooms, which impacts their ability to focus on effective teaching.

While some schools benefit from better infrastructure and local support, such as School 115, many struggle with delays in receiving updated resources and implementing the TG effectively. These challenges underscore the need for systemic improvements and targeted interventions to address infrastructural deficiencies, enhance resource availability, and improve community engagement.

Overall,the findings indicate that the Chatbot intervention was more effectively retained and utilised. The Teacher Guide (TG) demonstrated better integration in literacy classes compared to numeracy, with varied adherence to structured teaching practices. The overall low engagement and usage of interventions across schools suggests that compliance-driven usage often overshadows genuine pedagogical improvement. Additionally, there is a notable disconnect between teachers' understanding of effective practices and their actual classroom implementation, underscoring the need for more impactful and practical support mechanisms.

Appendix

Appendix 1 : Outcomes collected as part of observation-interview tool

(Note: Colour Yellow denotes corresponding data to be collected via observations, blue for interviews)

Outcomes	*Validation*	*Barriers*	*Enablers*	*Anecdotes*
Teacher Knowledge	1. Teachers use a literacy lesson plan with the 4-block approach. 2. Teachers teach letter sound identification and letter symbol recognition. 3. Teachers use the 'I do-We do-You do' structure for numeracy. (Target behaviours in non leading questions i.e how are students responses help them in teaching)	(Specific focus on diagnostic study barriers that can be checked for and checking for any other barriers that may emerge) (Check for expected barriers via non leading question i.e while trying to implement micro practices is there anything that poses a problem)	(Diagnostic study motivations that can be checked for) (Check for motivations via non leading questions)	(Thick description of classroom practices) (Ask for anecdotes surrounding teaching practices to validate further) (Use of vignettes and stories for triangulation)
Teacher Motivation	1. Teachers ask questions to individual students and provide time to get responses. 2. Teachers respond to student answers and push their thinking 3. Teachers provide support during everyday student practice. 4.Teachers			

	conduct weekly assessments and remediation using the lesson plans.			
Teacher Practices	1. Teachers ask questions to all students and provide time to get responses. 2. Teachers give students practise time effectively everyday. 3. Teachers teach segmenting words into sounds of letters and blending letter sounds into words. 4. Teachers conduct an effective 'I do' activity. 5. Teachers conduct an effective 'We do' activity.			

Appendix 2: Qualitative Tool

Outline

- Introduction
- Rapport building with HM
- Demographic Data
- School Climate Observation
- Classroom Observation
    - Literacy
    - Numeracy
    - Student-work Check
- School Leader Interview
- Teacher Interview

Qualitative Observation Tool - Teacher Behaviour Study

Interviewers introduce the study and research objectives of the study

Hello, thank you so much for joining us today. My name is _____, and I am joining you from the Central Square Foundation and Centre for Social and Behaviour Change.
I am going to read you some information about the study.
[read out the consent and get signed consent from the participant]
We are engaging with you to try and understand more about your experiences and daily lives, especially around your role as a teacher. We will spend the day in your classroom. Please feel free to do what you would do on a normal day. Towards the end of the day we will speak to you for an hour or so.
We assure you that there will be full confidentiality regarding your and your school's identity. We will not share any information regarding your identity and your school when presenting this data from this study.

The interviewer asks for written consent from the stakeholder to participate in the study.
(Move forward if the stakeholder gives consent. If not, stop the interview)

Shall we begin our conversation, Ma'am/Sir?

A. Demographic Data and Rapport Building

District:
Block:

Name	Age	Grades Taught	Qualification	Gender

Student Attendance:
Enrollment:

How long have you been working as a teacher?	
How long have you been in this school?	
What grades do you teach in your present school?	
Have you always taught the same grades? If not, what grades did you manage?	
How long does it take to commute to school everyday?	

B. School Observation Manual

School Climate Observation

To be observed throughout the day (inside and outside the classroom) and filled out in the end .

1. What does the school building and area look like?

Take notes on maintenance (repair and cleanliness), displays on walls (goals, student work, rules). Check if artwork is learning oriented or decorative, note down artwork geared towards learning objectives and what does it focus on.

2. How is the assembly conducted?

Take notes on who are the people present, activities conducted and who is conducting them, what is said , how are the students treated/managed. Check for exclusion along gender and social categories.

3. If there is a student-teacher or student-student conflict, how is it handled?
Take notes on who mediates, and how, and what is the outcome. How is the teacher managing the conflict - are they aggressive/non-aggressive, are they making it better or worse (escalation)?

4. If parents are present, how is the interaction between parents and school staff?
Take notes on what is the content of the interaction, what is the tone, is there a visible power dynamic. Is there a difference in attitudes between different parents?

5. How is the school staff/teachers responding to your presence?
Take notes on the teachers noticing you, talking to you, focussing more on students around you.

C. Classroom Observation

To be observed throughout the day and filled out in the end.

1. What is the layout of the classroom?

Take notes on how the students are seated, lighting, displays (learning-oriented, non-learning-oriented), cleanliness.

2.. What is the teacher doing to manage the classroom?

Take notes with live illustrated examples on rules setting, appreciation/punishment, teacher-student interactions, teacher's motivation - energetic/demotivated/distracted - with examples. Check for exclusion - gender, social category etc.

3. How are the students interacting amongst themselves?

Take notes on grouping, frequency and content of interactions. Check for exclusion - gender, social category etc.

4. If the teacher is not teaching, what are they doing?

Take notes on non-teaching activities inside and outside the classroom, what is the teacher doing and what are the students doing.

C1. Literacy Observation

Responses to be filled after marking the checklist.

1. The teacher is using the teacher guide.	Yes	No
How is the teacher using the teacher guide? How often and for how long is it being used?		
2. The teacher mentions the week/day of the lesson plan being referred to.	Week ____	Day ____
Which parts of the guide and lesson plan are they focussing on? Which parts are being missed?		
3. Teacher is conducting Oral Language Development (period 1).	Yes	No
4. Teacher is conducting Oral Language Development as per the lesson plan (period 1).	Yes	No
5. Teacher uses a picture/ poem/ story/ topic to engage students in conversations.	Yes	No
6. Students share their thoughts or examples/observations from their everyday life.	Yes	No
How much time was spent on teacher talk vs student talk? What kind of questions (closed or open-ended) did they ask? How many and which students got a chance to answer?		
7. Teacher is conducting Decoding exercises (period 2).	Yes	No
8. Teacher is conducting Decoding exercises as per the lesson plan (period 2).	Yes	No
9. Teacher is modelling a decoding exercise. Pick one.	- Varn/matra identification - Blending - Segmenting - Writing - Difficult words' meaning and usage - None	
10. Students are practising a decoding exercise. Pick one.	- Varn/matra identification - Blending - Segmenting - Writing - Difficult words' meaning and practice - None	
What were the instructions for practice and were they clear? Are they students engaged or		

distracted? Check student work - Are students following the exercise correctly? What is the teacher doing when the students are doing practice work?		
11. Teacher is conducting reading exercises (period 3).	Yes	No
12. Teacher is conducting reading exercises as per the lesson plan (period 3).	Yes	No
13. Students read independently.	Yes	No
How much time was spent on teacher reading vs student independent reading? Are they students engaged or distracted? What is the teacher doing when the students are doing reading work?		
14. Teacher gives practice work in the workbook/notebook.	Yes	No
15. Teacher moves around the classroom to observe the work.	Yes	No
16. Teacher gives constructive feedback.	Yes	No
17. Students independently practise in the workbook/notebook.	Yes	No
What is the teacher doing when the students are practising? How much time did the students get to practise independently? Check student work - are students following the exercise correctly? How many students are given feedback? What is the feedback shared - note examples? Does the teacher focus on particular students only?		
18. Students are able to explain how they came up with an answer.	Yes	No
19. The teacher asks random individual students to answer.	Yes	No
20. All students get an opportunity to think of the answer.	Yes	No
21. The teacher takes responses from the whole class effectively.	Yes	No
22. All students get an opportunity to answer the question.	Yes	No
Across the periods do how many and which students get a chance to answer? Do students answer out of turn or in chorus? How does the teacher respond to that? What does the teacher do when someone gets an answer right/wrong?		

C2. Numeracy Observation

To be filled after marking the checklist.

1. The teacher is using the teacher guide.	Yes	No
How is the teacher using the teacher guide? How often and for how long is it being used?		
2. The teacher mentions the week/day of the lesson plan being referred to.	Week ____	Day ____
Which parts of the guide and lesson plan are they focussing on? Which parts are being missed?		
3. Teacher is conducting I Do.	Yes	No
4. Teacher is conducting I Do as per the lesson plan.	Yes	No
5. Teacher introduces the concept with the help of the activity.	Yes	No
6. Students share real life examples related to the new concept.	Yes	No
Is the teacher using the appropriate TLM, how (explain activity)? Did the teacher ask questions? What kind of questions did they ask? How many and which students got a chance to answer?		
7. Teacher is conducting We Do.	Yes	No
8. Teacher is conducting We Do exercises as per the lesson plan.	Yes	No
9. Teacher guides/encourages students in completing the activity.	Yes	No
10. Students are able to complete the activity individually/in groups with the help of the teacher.	Yes	No
What are the instructions? Are the instructions clear? Do the students have access to the TLM, which? How many and which students are engaged/distracted? What is the teacher doing when the students are doing the activity?		
11. Teacher is conducting You Do.	Yes	No

12. Teacher is conducting You Do as per the lesson plan.	Yes	No
13. Teacher gives practice work in the workbook/notebook.	Yes	No
15. Teacher moves around the classroom to observe the work.	Yes	No
16. Teacher gives constructive feedback.	Yes	No
17. Students independently practise in the workbook/notebook.	Yes	No
What is the teacher doing when the students are practising? How much time did the students get to practise independently? Check student work - are students following the exercise correctly? How many students are given feedback? What is the feedback shared - note examples? Does the teacher focus on particular students only?		
18. Students are able to explain how they came up with an answer.	Yes	No
19. The teacher asks random individual students to answer.	Yes	No
20. All students get an opportunity to think of the answer.	Yes	No
21. The teacher takes responses from the whole class effectively.	Yes	No
22. All students get an opportunity to answer the question.	Yes	No
Across the periods do how many and which students get a chance to answer? Do students answer out of turn or in chorus? How does the teacher respond to that? What does the teacher do when someone gets an answer right/wrong?		

C3. Student Work Check

With the consent of the teacher (and the student) do the following (for 3-5 students).

1. Check notebooks - Are they filled? Are they corrected? Is the correction correct? What is the feedback given? *Does the previous work align with work done today?*

2. Check workbooks, if available - Are they filled? Corrected?

3. Check the teacher's diary - Till when is it updated? Did they do what is written in the teacher's diary?

D. School Leader Interview
Introduce yourself to the School Leader and request them for a conversation during non class hours such as lunchtime.
1. Can you tell us a little about your school and community? Are there any specific challenges that your school faces?
2. How do you think your role is different from a teacher? Can you please mention the key differences?
3. How much time do the mid-day meal logistics take? How is it organised/arranged?
4. How is your relationship with other teachers in the school? How often do you interact with each teacher?
5. What do you think of the NIPUN goals? Will your school be able to achieve them? What will need to happen for that?
6. How are your teachers performing wrt these goals? How do you track them?
7. What do you do if a teacher (or their class) is falling behind or feeling demotivated?
8. What do you think about the new teacher guides and student workbooks for FLN grades? Are they helpful? How?

E. Teacher Interview
Teacher Check-In
Check in with the teacher during
1. What was your plan for today, can you walk us through it?
2. How do you think the day went?
3. Is this what an average day looks like? How much did today deviate from your average day?
Video cued and Vignette based interview

In this section of the interview, the RA must show the videos shared or read out the story and follow it up with a discussion. Along with the main questions there are a few prompts to help facilitate the discussion.

1. Video/NV 1 - TG Use

Muskaan is a teacher in Gorakhpur who teaches a Grade 3 class. She travels two hours from the city to get to her school. Once she reaches school, before the start of the class everyday, she looks at the teacher guide for 2-3 minutes.

- What can you say about the teacher?
- What do you think she looks at that time? Why? Is that effective? What would you suggest?
- What is the classroom prep needed by an average teacher?
- Do you think your peers/other teachers in the neighbouring schools use the guides regularly? If not, what do you think could be the reasons for limited uptake?
- What are some of the common challenges teachers in your circle face while using the guides?
- Based on Observation
    - I saw you were referring to the teacher guide - Why? Which day/week, sections did you refer to? How did you adjust it to your class? How do you usually use it?
    - I saw that you did not refer to the teacher guide in the classroom - why?
        - Teacher says they do not use - Is it not useful? How do you usually use it?
        - Teacher says used it before the class - Which day/week, sections did you refer to for today? How do you usually use it?
- How much does the TG support you versus restrict you? Why/how?
- If teachers from UP are asked to re-design the guide for implementing it in schools in other states, would you recommend any modifications?
  (What aspects of the guide would you change?
  What aspects of the guide do you feel are redundant and should be removed?
  What additional material/support can be provided to the teachers for improving the usability of teacher guides?)
- Based on Intervention
    - Are there any resources or support structures that have made the use of TG easier?
    - Did the chatbot you were introduced to help in improving the usability of the teacher guide in any way? How/why? To be asked if teacher observed was part of the chatbot treatment

2. Vignette - Balanced Literacy

Samir is a teacher in Aligarh teaching Hindi to grade 2 students. Only 50% of his class is on track to be NIPUN by the end of the year. In his literacy lessons, he usually gets one hour to teach because of other non-teaching work and students coming late. In his one hour, he reads the lesson out loud, the students repeat after him, he discusses the question answers by asking students to share their thoughts, he then asks them to write difficult words in their notebooks.

- What do you think about this practice? What is the teacher doing right and what are they doing wrong?
- Why do you think Samir's students are struggling to attain learning outcomes?
- What adjustments can he make to his instruction?
- Do you think in this situation the prescribed OLD/Decoding/Reading format would make a difference? Why (not)?
- How do you prefer to teach literacy given the needs of your students?
- Which parts of OLD/Decoding/Reading work well in your classroom and which parts do not? How have you adapted the format to your class?
- Based on Observation
    - I saw that you did not conduct (insert OLD/Decoding/Reading based on breakdowns observed during observation, if any) today. Why? Is there some part of it that is not useful/ challenging? How do you decide which sections to do on a particular day?
- Based on Intervention
    - Are there any resources that help you with literacy instruction?
    - Did you find the Shikshak Saathi videos on literacy helpful? Why (not)? Which ones?

3. Video 2 - GRR: We do

- What do you notice? How is he following GRR here - which part?
  What must have he done before this? What should he do after this?
- What are some adjustments he has made? Why do you think he did that?
- Are there any parts with scope for improvement?
- Are there any resources he can use to learn about GRR?
- How do you prefer to teach numeracy given the needs of your students/classroom?
- Which parts of GRR work well in your classroom and which parts do not? How have you adapted the format to your class?
- Based on Observation
  - I saw that you did not conduct (insert I do/We do/You do based on breakdowns observed during observation, if any) today. Why? Is there some part of it that is not useful/ challenging?
    (How do you decide which sections to do on a particular day?)
- Based on Intervention
  - Are there any resources that help you with numeracy instruction?
  - Did you find the Shikshak Saathi videos on numeracy helpful? Why (not)? Which ones?

4. Video 3 - Student Response

- What do you notice?
- Here the students are responding together. Why do you think that is?
- What could the teacher have done differently according to you?
- We see in a lot of classes, teachers take choral responses - why do you think teachers do that?
- Based on Observation
    - I saw that you used choral responses in class today. Do you think they are helpful? Why/Why not?
      (When are they helpful, when not? Do you face issues with taking student responses in your class?)
    - I saw that you took individual responses/used student boards. Why? Where/How were you introduced to these strategies?
- Based on Intervention
    - Are there any resources that help you with student responses?
    - What did you think about the Shikshak Saathi videos on student responses?

5. Video 4 - Student Practice

- What do you notice?
- Here we see the teacher is moving in the class and giving feedback to students in groups and individually - why is she doing that? What might stop teachers from doing so?
- What more could the teacher have done to support students?
  (The teacher is not using the workbook for practice - why do you think that is? Is it a problem?)
- We see in a lot of classes teachers are not giving independent practice work to students - why do you think that might be?
  (Is it different for literacy and numeracy?)
- Based on Observation
  - I saw that you gave independent practice time to students. Are there days when you are not able to give independent practice, what are the reasons?
  - I saw that you did not give independent practice time to your students today (insert in Literacy/ in Numeracy/ both Literacy and Numeracy here as applicable). Why is that?
    (Ask if the teacher did not give independent practice time during the observation.)

- I saw that you gave independent practice only in one subject <lit/numeracy>. Why is that?

- Based on Intervention
  - Are there any resources on student practice that you found helpful?
  - Did any of the Shikshak Saathi videos help you in implementing student practice ? How so?

Note:

If the Sampled Teacher is not teaching any class (that is, if they are a head teacher), then as a matter of protocol while interviewing the teacher teaching Grade 3, check for pedagogical exchange between them via questions:

To the teacher teaching:

1. *Does the School Leader exchange TLMs and other resources with you to help teach your class?*
2. *Does the School Leader share teaching related content and best practices with you?*
3. *Does the School Leader provide mentorship and guidance to you for the Multi-Level Classroom you teach to?*

To the sampled teacher/HM:

4. *Do you exchange TLMs and other resources with the teacher to help teach your class?*
5. *Do you share teaching related content and best practices with the teacher?*
6. *What kind of guidance do you provide to the teacher teaching your class?*

Notes:

Appendix 3 : Theme details

Themes	*Definition*	*Can be positive/ negative*
School Climate- Physical	Observations made in relation to the school's physical structure- such as boundary wall, gate, and classrooms.	Yes
School Climate- HR	Observations made in relation to Human Resources of the school such as presence of school leader, adequate teachers and support staff, conducting assembly.	Yes
Access to electricity, water and sanitation	Observations made in relation to access of electricity, water and sanitation throughout the school, such as lights and fans in classrooms, running water in washrooms, separate washrooms for male and female students.	Yes
Access to learning infrastructure	Observations made in relation to infrastructure that aids in learning, such as classrooms for each grade, presence of black boards, benches and desks, possession of textbooks and workbooks.	Yes
School Challenges- MDM	Instances where Mid Day Meal has been cited as a challenge that inhibits overall school functioning.	No
School Challenges- Community	Instances where community and community actions were stated as a barrier to school functioning/ infrastructure.	No
School Challenges- Infrastructure	Instances where infrastructure has been mentioned/ observed as a barrier to school functioning, such as less classrooms.	No
School Challenges- Multigrade class	Instances where Multigrade classes were observed/ cited as barriers in school.	No
School Challenges- Administrative	Instances of administrative challenges such as inadequate number of teachers, election planning were mentioned as barriers at the school level.	No
School Challenges- Parental Barrier	Instances where lack of parental support has resulted as a barrier at the school level.	No
School Challenges- Student Absenteeism	Instances where constant absenteeism has presented as a barrier to the school to achieve school goals like NIPUN.	No

Classroom Climate- Student Teacher Interaction	Observations of interactions between students and teachers.	Yes
Classroom Climate- Student Teacher Guidance	Observations of instances where the teacher is providing guidance to the student, providing feedback is also considered.	Yes
Classroom Climate- Student Teacher Appreciation	Observations of instances where the student appreciated/ encouraged the students, even peer encouragement is considered.	Yes
Classroom Climate- Student interested in content	Observations of students displaying interest in teaching content and actively engaging/ participating in the class with responses.	Yes
Classroom Climate- Student Student Interaction	Observations of interactions between students, check for gender and social category bias.	Yes
Classroom Climate- Teacher Teacher Interaction	Observations of interactions between teachers, check for gender and social category bias.	Yes
Classroom Climate- Teacher Punctuality	Observations of teacher punctuality.	Yes
Teacher Challenge- Gender	Observations/ Instances of teachers mentioning their gender to be a barrier/ challenge in everyday teaching.	No
Teacher Challenge- Additional Responsibilities	Instances of the teacher mentioning non teaching work such as election duty, calling parents for enrollment, census duty as barriers for teaching.	No
Good Teacher Practices	Observations of teacher practices in accordance with TG such as levelled teaching, conducting the lesson with an activity, asking random individual questions.	No
Bad Teacher Practices	Observations of teacher practises not in accordance with TG, and general bad teaching practises like using physical intimidation.	No
Open Ended Questions	Observations where the teacher asked open ended questions- questions where there is no correct answer like, What food can you buy at a mela?	No
Close Ended Questions	Observations where the teacher asked close ended questions- questions where there is a correct answer like, What colour are leaves?	No
Collecting Choral Responses	Observations where the teacher asked a question and collected the response from the entire class.	No

Collecting Individual Responses	Observations where the teacher asked a question to one particular student and asked them for their response.	No
OLD	Observations of teacher conducting OLD part of literacy lesson	No
Decoding	Observations of teacher conducting Decoding part of literacy lesson	No
Literacy Reading	Observations of teacher conducting Reading part of literacy lesson	No
Literacy Writing	Observations of teacher giving writing work/ writing exercises during literacy class.	No
Use of TG	Instances where the teacher was observed using/ referring to TG during class hours.	No
Use of TLM	Instances where the teacher was observed using TLM during instruction time.	No
Independent Practise Time	Instances of teacher giving students time to do individual practice/ work in both literacy and numeracy class. Instances like giving problems to solve, asking to read a story by themselves.	No
Notebooks/ Workbooks Checked	Instances of teacher checking notebooks after independent practice time, and correcting mistakes made by students.	No
I do	Observations of teacher conducting I Do as part of GRR in numeracy Class.	No
You do	Observations of teacher conducting You Do as part of GRR in numeracy Class.	No
We do	Observations of teacher conducting We Do as part of GRR in numeracy Class.	No
Teacher Challenges	Instances of teachers mentioning personal challenges they face in their everyday life.	No
Student Barrier	Instances of students being a barrier to a teacher's teaching ability- coming in late, frequent absenteeism.	No
Community Barrier	Instances of community being a barrier to a teacher's teaching ability- destruction of blackboards, vandalising classrooms	No
Parental Barrier	Instances of parents being a barrier to a teacher's teaching ability- verbally abusing teachers, not sending their wards to school even after calling them.	No

Student Enabler	Instances of students being motivators for teachers.	No
Community Enabler	Instances of community and community members being motivators for teachers.	No
Parental Enabler	Instances of parents being motivators for teachers.	No
TG/ TLM Appreciation by Teachers	Instances of TG or TLM being appreciated by Teachers.	No
MPV Videos Usage	Instances where teachers mention MPV Videos shared as an additional resource.	No
Chatbot Usage	Instances where teachers mention Chatbot as an additional resource.	No
MPV Appreciation by Teacher	Instances where the teacher mentions MPV Videos being helpful in their teaching.	No
Chatbot Appreciation by Teacher	Instances where the teacher mentions Chatbot being helpful in their teaching- understanding TG better.	No
TG Issues	Issues with TG's practical usage mentioned by teachers.	No
TG Recommendations/ Suggestions	Teachers suggesting changes for TG and their recommendations for the same.	No
Teacher Barrier: TG is restricting/ Lack of ownership	Instances where teachers mention TG to be a barrier- primarily as a restricting factor, hard to understand, and lack of ownership with TG.	No
HM Responsibilities- Administrative	Instances where HM mentions their administrative duties.	No
HM Responsibilities- MDM	Instances where HM mentions their duties during MDM.	No
HM Responsibilities- Additional Responsibilities	Instances where HM mentions their duties additional to their duties such as election duty, data work.	No
HM Responsibility- Teaching	Instances where HM mentions their teaching role and teaching activities.	No
HM Responsibility- Teacher Guidance/ Mentorship	Instances where HM mentions their mentorship activities, and describes how they support and guide their teachers.	No
HM Responsibility- Teacher Evaluation	Instances where HM mentions activities they undertake to check student levels and conduct classroom observations.	No

HM Teacher Relationship/ Interaction	Instances mentioned by HM and observations of interaction between HM and Teachers.	Yes
Good HM Practise	Instances and observations of good HM Practises- meeting with teachers frequently to discuss student performance, providing mentorship to teachers.	No
Bad HM Practise	Instances and observations of bad HM practices.	No
MDM Administration	Details of Mid Day Meal administration in school as mentioned by HM	No
MDM Challenges	Challenges faced during Mid Day Meals and administration of MDM as mentioned by HM.	No
HM Opinion	Opinions shared by HM.	No
Teacher Opinion	Opinions shared by teachers which can not be corroborated with classroom observation.	No
Teacher Observation	Observations shared by teachers which can not be corroborated with classroom observation.	No
TG & TLM Appreciation by HM	Instances of HMs appreciating TG and TLM.	No
Validation	Opinions and observations shared by teachers which was corroborated with observation	Yes
Contradiction	Opinions and observations shared by teachers which was opposite to what was observed during classes.	Yes