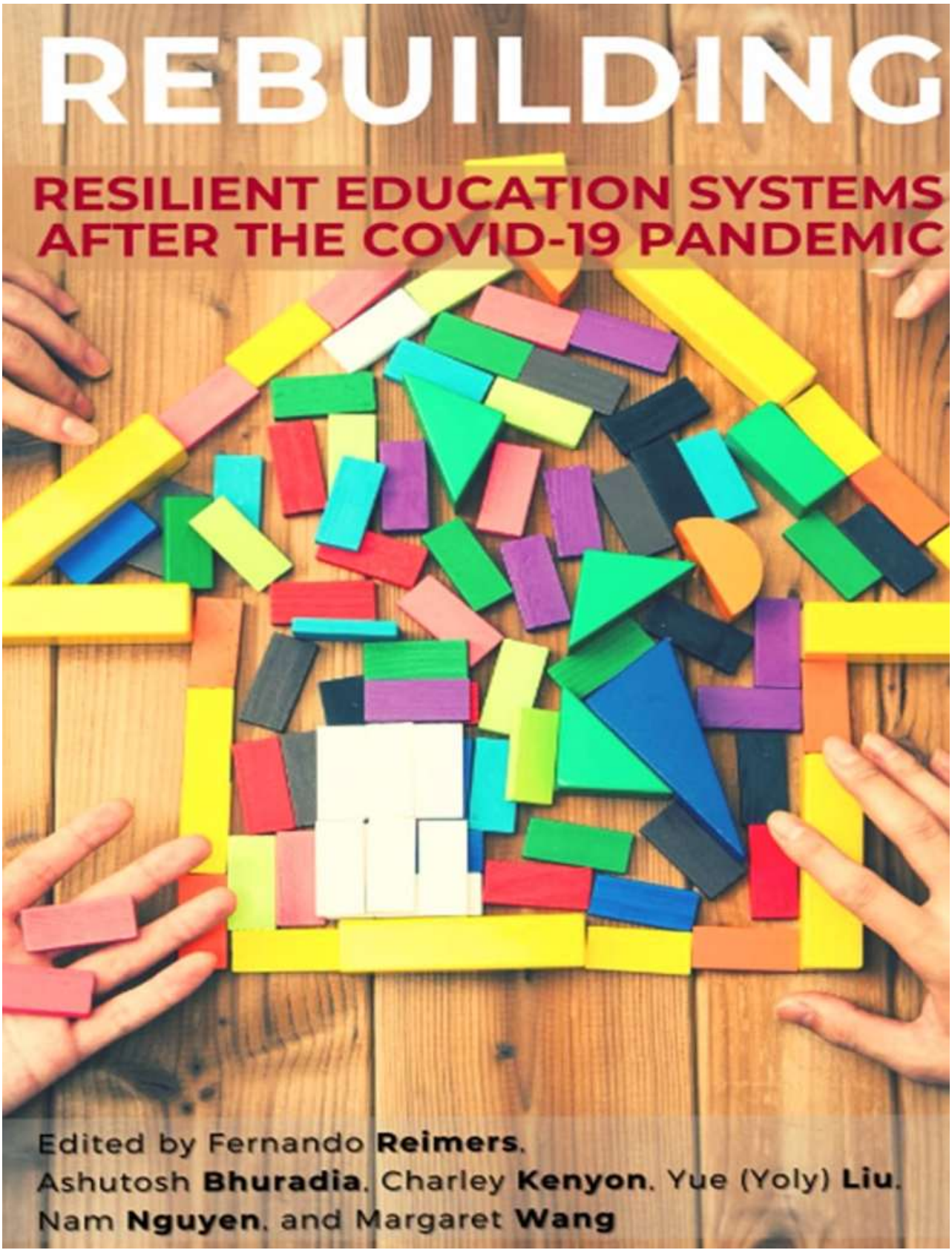
REBUILDING
RESILIENT EDUCATION SYSTEMS
AFTER THE COVID-19 PANDEMIC
Edited by Fernando Reimers,
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Chapter 8
Policy Pathways for Improving Foundational Literacy and Numeracy in Uttar Pradesh, India

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Abstract

The COVID-19 pandemic has caused severe learning loss around the world. Students in the global south have been disproportionately impacted by this unprecedented shock. This chapter provides an overview of one of India's lowest-performing districts, Shamli, Uttar Pradesh (UP), and proposes policy suggestions to support the UP government in improving Foundational Literacy and Numeracy (FLN) competencies in the region. To generate the best strategy, we considered the local context, studied relevant literature, and proposed and evaluated policy alternatives. After generating and reviewing five potential policy options, we recommend the UP government (1) incorporate the promising ALFA pedagogy developed by the non-profit Dignity, Education, Vision International (DEVI) for the first 6 weeks to quickly establish a strong FLN foundation; (2) after the ALFA program, shift to the curriculum guided by the National Initiative for Proficiency in Reading with Understanding and Numeracy (NIPUN Bharat). We believe that these improvements can facilitate effective student learning, enhance key stakeholders' collaboration, and pave the way for accelerated recovery.

8.1 Introduction and Methodology

This paper is a product of a semester-long client engagement with a FLN project being implemented in the state of UP, India. The group partnered with an NGO, Devi Sanasthan, which is working with the UP

government to improve FLN competencies in a district, Shamli.

Considering COVID-19 school disruptions and an already-weak education system, the UP government must institute policy interventions to improve learning outcomes quickly and effectively. One district, Shamli, has been marked as one of the national lowest-performing districts. The sub-optimal FLN standards in the district need to be urgently remedied considering the pivotal role of FLN in children's development.

The paper is divided into three main sections. The first section is a broad literature review of the significance of FLN in a child's educational journey, the impact of COVID-19 on FLN losses, and the key actors/policies in UP's context. The second section details client engagement which involves a program evaluation of the Phase I pilot project and policy recommendations to the UP government to improve FLN levels in Shamli. The third section presents the conclusion.

The team extensively relied on primary and secondary research. The latter involves a thorough literature review while the former involves interviews with a wide range of stakeholders: the DG Education of UP, Vijay Karan Anand, the district education head (SRG), Rahul Mishra, teacher trainers from Devi, the program designer for Devi, Dr. Sunita Gandhi, and multiple Academic Resource Persons (ARPs) from the district. Quantitative and qualitative surveys administered to teachers by Devi were also used along with student progress data.

8.2 Literature Review

8.2.1 The Significance of Foundational Literacy and Numeracy

Foundational literacy and numeracy (FLN)—the ability to read and write, and to perform basic operations with numbers—is essential for future schooling and lifelong learning (Department of School Education, 2021). Robust FLN skills enable children to master higher-order knowledge, access a wider range of disciplines, decrease the likelihood of drop-out, obtain better labor market outcomes, enjoy greater personal well-being, and benefit society (Evans, D. K. & Hares, S., 2021).

Heckman (2006) highlighted the power of early childhood intervention on later achievements using extensive international evidence. He suggested that the logic for early childhood intervention to be the most effective is that (1) early learning confers value on acquired skills so that the motivation to learn is stronger, and (2) obtaining greater cognitive, social, and emotional competencies during early childhood makes learning at later ages more efficient and easier to continue.

ECE plays an even bigger role for children in the global south. Rao et al. (2017) studied 106 interventions in 30 developing countries between 1992 and 2012, concluding that children in developing countries, especially those from disadvantaged backgrounds, relatively benefit more from comprehensive ECE programs.

UP, India's most populous state with a population of over 200 million while also ranked the lowest in almost all indicators of socioeconomic development by the Indian Union, faces significant challenges in post-COVID recovery and pursuing the universal acquisition of FLN (UNICEF, n.d.; Hazarika & Viren, 2013).

8.2.2 The Impact of COVID-19 on FLN

While COVID-19 impacts all age groups, it is vital to acknowledge that certain age groups are more vulnerable in their learning journeys. To that end, younger students who are engaging in FLN are at a highly precarious stage and require consistent, clear, and strong instruction to sustain and build their FLN skills (Alban Conto et al., 2021).

UNICEF foregrounds how the immense learning poverty in FLN, especially in developing contexts like India, was deeply exacerbated by the pandemic (Alban Conto et al., 2021). The learning losses were most extreme in societies where education was halted due to school closures, which was unfortunately the case across all low-income social groups in India (rural, migrant, and peri-urban communities). Out-of-school students are estimated to perform 11-43% lower in FLN skills than in-school students. Another data from Punjab, Pakistan indicates a number as high as 54% which is also quite relevant and applicable to India considering Punjab province borders India.

Other studies have looked at school closures in the context of disasters and calamities to estimate learning losses. Andrabi et al. (2020) estimated that the 3.5-month school closures due to the 2005 earthquake in Pakistan led to students losing 1.5 grades worth of learning. Similarly, school closures during the Ebola outbreak in West Africa increased incidences of student absenteeism, dropping-out, and exam failures. The evidence from past disasters all points toward the adverse effects of school closures on student learning and proficiency (Yao et al., 2021).

Specific to India, a field-based study by the Azim Premji University (2021) extensively documented FLN skill losses in 1137 public schools across 5 states in India. Their results are quite sobering. For example, in terms of language or literacy skills, 92% of children across the sample had lost one language ability. In terms of numeracy skills, 82% of children from all classes (on average) had lost mathematical skills. The study goes on to discuss the limitations of online learning in bridging and arresting these learning losses in FLN due to multiple socio-economic reasons specific to low-income communities in India.

Similarly, Singh et al. (2022) also studied COVID's impact on learning loss. The researchers use a household panel survey to test 19000 primary school children (aged 5-7) from rural Tamil Nadu in India for learning proficiency. By that time (December 2021), schools have been closed for almost a year and a half. Comparing the results to an identical survey in 2019 reveals highly adverse learning deficits: students lose out on 0.7 standard deviations in math and 0.34 standard deviations in English. The researchers posited that learning losses were equivalent to 12-24 months of schooling. This result is similar to the aforementioned study by Andrabi et al. (2020) and echoes the accentuating factor of socio-economic background in worsening a child's predicted learning loss.

Another survey by School Children's Online and Offline Learning (SCHOOL) endorsed the startling reductions in FLN abilities across 13 Indian states. Of children in classes 3-5, 42% of rural students and 35% of urban students were unable to read even one word in a simple sentence (*Locked Out*, 2021). While the study did not directly document learning regression, it found that 78% of urban parents felt their children from classes 1-5 had declined in their ability to read and write. Lastly, the rural

and urban illiteracy rates were so high after one year of school closures that they were 10 percentage points higher compared to the 2011 census (*Locked Out*, 2021). Dalits and Adivasis (lower-caste and indigenous tribespeople) are the most frightful group: few could even read letters, let alone a whole word or sentence.

To understand the immense learning losses, we propose several key contributing factors. Firstly, schools across India were closed for almost 18 months. With most schools lacking technical and financial resources for digital education, learning almost completely stopped. Of 20% of Indian students who received online education, only half of them attended online sessions due to issues of digital access (only 24% of Indian households have internet access). Moreover, more than 36% of Indian schools operate without electricity (Modi & Postaria, 2020). The digital divide is massive across rural and urban regions, public and private schools, girls and boys, and rich and poor families. Insufficient access to online education is validated by a survey that 80% of 5-18-year-old students did not receive any education during school closures (Kapoor et al., 2021). Further, Indian teachers were ill-trained and inexperienced in online education as they went through a steep learning curve with digital tools with little or no mentorship (Rawal, 2021). Lastly, FLN losses are being fueled by the rising number of children no longer in schools (Ankit, 2020).

8.3 Relevant Actors and Policies

8.3.1 DEVI—ALFA

Dignity, Education, Vision International (DEVI) is a non-profit raising literacy rates in India through the "Global Dream" project. Its pedagogical toolkit,

Accelerated Learning for All (ALFA), helps children quickly gain FLN competencies. The pedagogical approach works as follows: students start with known words in the form of pictures, identify the sounds, and work backward to the letters. All of these happen in 90 instructional days to take a student from illiteracy to grade 3 level. (*DEVI Annual Report*, 2020). Owing to its success in UP, DEVI is appointed to collaborate with the Ministry of India in implementing the ALFA pedagogy in India's lowest-performing districts, targeting 700 schools in Sambalpur, Odisha, and 500 schools in Shamli, UP. The scale of the policy intervention is sizable with a total of 175,000 students and 6000 teachers (Personal Correspondence). These districts are expected by state and federal governments to improve by March 2023 on the National Achievement Survey.

The pilot project uses a distinct teaching toolkit that has specifically designed numeracy and literacy textbooks. Teachers are engaged in group feedback sessions every two weeks using RCT, collected through Pragiti App. The application provides instant reports to teachers and principals as well as district education officials. Apart from in-school learning, the program also provides digital learning to students through the Literacy Now App which has pre-and post-test, learning content and practice material.

8.3.2 Government—NIPUN Bharat

The most recent National Education Policy (NEP) 2020 is a turning point for education in India. The detrimental impact of the COVID-19 pandemic on learning losses has alerted the nation—the NEP 2020 raised achieving universal acquisition of FLN to "the highest priority for the education system" as an "immediate national mission" (Department of School Education, 2021). The focus on

FLN by the federal government is so high that it explicitly states, "the rest of the policy will be largely irrelevant for such a large portion of our students if this most basic learning (reading, writing, and arithmetic at the foundational level) is not first achieved" (NEP, 2020).

Students between 3 to 8 years old are in the foundational years and overseen by the Ministry of Education. A major medium-term goal of the reform is to ensure that by 2026-27, all children in India acquire FLN skills by Grade 3 (Gupta, 2022). Older students who have not attained the foundational skills will be given appropriate support to acquire the necessary competencies. The emphasis on Grade 3 is because this class is conceptualized as the inflection point by which children are expected to "learn to read" so that they can transition into the "read to learn" phase (Department of School Education, 2021).

The immense federal emphasis on FLN in the NEP 2020 led to concerted advocacy efforts to have a more robust framework for the realization of universal FLN. These efforts enabled the launch of the National Initiative for Reading with Understanding and Numeracy (NIPUN) in 2021. NIPUN provides the main learning goals (*Lakshyas*) for each grade level: Balvatika (preparatory class - 3–5-year-old children), first grade, second grade, and third grade. It mandates that state governments take steps to ensure that every child below the age of 5 attends Balvatika (preparatory classes) that offer play-based pedagogy and develop them on dimensions like FLN (Gupta, 2022).

The NEP-2020 recommended the development of a 3-month play-based school preparation module for all Grade 1 Students before their formal classes start (NEP, 2021). Subsequently, the National Council for Education Research and Training (NCERT) developed such a

module that can be adapted by states according to their needs. The activity-based module is hoped to reinforce pre-literacy, pre-numeracy, cognitive and social skills.

The National Council for Education Research and Training (NCERT) has also developed teacher training modules through its professional development project: NISHTHA (National Initiative for School Heads' and Teachers' Holistic Advancement). Training modules contain FLN-specific pedagogical content to integrate in-class peer learning and voluntary parental involvement (NIPUN Bharat, 2021). Teachers are also provided with contextualization resources to make learning culturally relevant.

To integrate digital learning, another NCERT initiative, Digital Infrastructure for Knowledge Sharing (DIKSHA), provides online learning videos, worksheets, interactive assessment tools, reading material, and read-along material (NIPUN Bharat, 2021). DIKSHA is also considered an alternative to provide digital teacher training materials including instructional training videos, learning materials, and activity banks.

The holistic progress cards (HPCs) are piloted across India too. Surprisingly, the Central Board of Secondary Education (CBSE) has developed the prototype for Grades 1-3. It will be linked to every student's DigiLocker which is the government's digitization service. Lastly, another program launched under the NIPUN Bharat scheme is CHAHAK—Children Having Happiness in Ambience and Acquiring Knowledge (*'CHAHAK'*, 2022). The program tries to foster parental engagement by students showcasing their FLN learnings through roleplays, skits, poems, and mental math quizzes in front of their parents.

While the federal government has provided the NEP and the NIPUN guidelines, the state government is responsible for designing, implementing, and evaluating their respective FLN programs. States receive federal grants for their achievement of the NIPUN goal. The states have to look at their yearly National Achievement Surveys to identify lagging districts and design policies accordingly on a micro level. They are free to form their own technical committees and teams and include civil society actors as they see fit (NIPUN Bharat, 2021).

8.4 Client Engagement

8.4.1 Policy Context

The rest of this paper provides context and recommendations to the UP government with regard to its FLN policy. Specifically, it will be tailored to one district, Shamli. The close focus on a specific district will resemble a case study approach—it is hoped that an analysis of the status quo and recommendations would provide key lessons and insights for the state's broader policies.

Across its 75 districts and 822 development blocks, UP has one of the world's largest education systems with approximately 250,000 schools. Just with respect to primary or basic education (Grades 1-5), it has 110,000 schools with 12 million children being catered to by 3.7 teachers (Central Square Foundation, 2021). Unfortunately, before the pandemic, only 55% of students in grade 3 were able to read short texts with comprehension and 51% of students in grade 3 had the skills and knowledge for three-digit addition or subtraction to solve daily life problems (NAS, 2017). In 2021, the literacy numbers marginally increased to 60% while those for three-digit addition/subtraction decreased

to 50% (NAS, 2021). The massive system faces a significant challenge in improving its learning objectives.

For its mission towards universal FLN, the UP government has been proactive in the past few years**.** Its focus on FLN preceded the NEP-2020 when it launched Mission Prerna in December 2019. A diagnostic study was carried out on FLN situation in the state between December 2019 and February 2020. Shortly after the outbreak of COVID-19, the UP government launched E-Pathshala, multiple digital interventions for education. It was only in July 2020 that the National Education Policy was announced. A year later, the NIPUN program came into force as well. The close connection between UP and federal policy credits to the ruling party BJP's sovereignty over the federal government and UP (Government official, personal communication, 2022).

Mission Prerna is UP's strategy towards the realization of NEP and NIPUN goals. The systemwide reform involves block and district-level officials for accountability and governance, especially Academic Resource Persons (ARPs). ARPs conduct monthly visits to each school to monitor what is being taught and in what manner and play a supervisory role for each block (Central Square Foundation, 2021).

8.4.2 Shamli and Program Evaluation

Within the vast expanse of the UP education system, our focus was on one district: Shamli. With its 1431 schools and 7452 students, Shamli was classified as one of India's 10 lowest-performing districts (NAS, 2021). The goal is to fast-track Shamli's FLN levels to remove it from the bottom 10 lists by March of 2023 when the next NAS would be conducted. This goal prompted the UP government to turn to alternative approaches to hasten

Shamli's progress. An international NGO, Devi Sanasthan, paired up with the UP government to pilot the implementation of its innovative pedagogy, ALFA (Accelerated Learning for All), in Shamli's schools. In its first phase, 20 schools were given state permission to work with Devi. While the state has now scaled the ALFA project to around 400 schools, the program evaluation will be concerned with Phase 1 only with insights and recommendations put forward for Phase 2.

With 10 treatment and 10 control schools, the Devi team first trained public officials, Academic Resource Persons (ARPs), in data collection and baseline surveying. They then conducted baseline surveys of the primary school children (Grades 3-5) from the schools in April 2022. Following this, 10 schools were randomly assigned to the treatment group and ten to the control group. The former had 420 students while the latter had 547 students (DEVI, Personal Interviews, 2022).

Devi proceeded to provide teacher training to 50 teachers (Grade 3 and 5 both) and 9 school heads from the former group. The training workshop, conducted in June 2022, was one-day and involved role-playing and peer learning. The feedback form revealed that teachers gave an average of 7.8 out of 10 for their satisfaction with the training (DEVI, Teacher Training Feedback Survey, 2022). Similarly, in response to how much the training would lead to changes in teaching style, teachers gave an average 7.6 rating. Qualitatively, teachers appreciated the activity-based nature of the session, but some were quite resistant and apprehensive of external actors coming into their domain (DEVI, Teacher Training Feedback Survey, 2022). This is a recurring theme since NGOs' intervention with new pedagogical approaches usually unsettles teachers.

Towards the end of June 2022, the implementation of ALFA started. The NGO and the district education head SRG officially visited, mentored, and collected feedback from teachers and school heads (DEVI, Personal Interviews, 2022). The program targeted 10 treatment schools for around 6.5 weeks (45 days). The end-of-program assessments based on the National Achievement Survey questions and NIPUN competencies showed moderate to high learning gains in the intervention schools in FLN both for Grades 3 and 5. It is important to remember, NIPUN is only for Classes 1-3. In that sense, there was a little disconnect between the grade levels focused on by the two pedagogical approaches.

According to the data we received from DEVI, we notice a few key trends. Firstly, across all four groups, children in intervention groups scored higher than those in control groups. Secondly, numeracy scores, despite the intervention, remained below 50%. Thirdly, the scores across the control groups are extremely concerning as they barely hit the 40% mark. Furthermore, according to the raw data, there was a substantial spread in the test scores across schools in each group with the intervention schools having scores in the 35-60% test score range. While the results show that ALFA was successful in improving FLN competencies in a short period of time, there are lots of complicating factors.

8.4.3 Implementation Issues

Firstly, the program's implementation was beset with coordination and stakeholder misalignment issues. There was limited teacher buy-in with two schools in the intervention group not implementing the ALFA pedagogy at all, and one doing so half-heartedly (DEVI, Personal Interviews, 2022). This was not just due to

teacher resistance to external actors but also because of an incoherent system. While the program's implementation was to start at the beginning of July, there were logistical delays which led the program to start in mid-August. When schools received government textbooks for the year, they started ignoring ALFA in favor of government textbooks (DEVI, Personal Interviews, 2022). This led to the DG Education for UP ordering that the 10 intervention schools are exempted from government textbooks and should be implementing ALFA. However, within 3-4 weeks of implementation, as soon as the NIPUN workbooks arrived, the teachers again started to ignore ALFA. This was also because of the immense pressure put on them by the district officials, Academic Resource Persons, who in their supervisory capacity urged teachers to prioritize the newly UP government-published and distributed NIPUN books (DEVI, Personal Interviews, 2022). The pressure to complete NIPUN learning objectives led schools to fear the possibility of them being left behind and out compared to the other schools in the district that were going ahead with NIPUN (District Education Head (SRG), Personal Interviews, 2022).

It was just not the system's incoherence and fuzzy signals that led to confusing scenarios for teachers**.** Anonymous feedback from 242 teachers revealed that teachers were highly overworked. They had to do non-school activities, election duties, and survey visits, which interfered with their teaching activities. Two-thirds of teachers deemed conducting election surveys as their biggest issue (DEVI, Teacher Issues Survey, 2022). Teachers also complained about the low student attendance rates as well as the high teaching burden on them. The NEP recommends a pupil-to-teacher (PTR) ratio of 30:1 for socio-economically marginalized areas, it recommends 25:1 (NEP, 2020). In an online, anonymous survey of 172

teachers from the program schools, 42% of teachers reported having a class size above 30 while 17% had class sizes above 50 students (DEVI, Teacher survey, 2022).

DEVI's teacher survey visits to three schools in Shamli illustrate how student attendance was significantly low, and, in some cases, a significant number of teachers were not present. For PS Malakpur, one teacher had to deal with the load of 4 teachers which led to a PTR of 160. The in-field PTR was somewhat moderated by the high number of student absences. However, two issues are quite clear. Student attendance is low and with or without teacher absences, the in-field, as well as on-paper PTR, is high. This leads to issues in student learning.

Apart from being overburdened, teachers also did not welcome excessive or varying Professional Development. They had to go through different types of teacher training. For implementing ALFA, they were trained by Devi's staff. For normal government functioning, they went through their standard training and for NIPUN purposes, they were trained by another NGO, Pratham. Qualitative feedback from teachers revealed how training exercises impede their teaching time and such varying pedagogical training can get confusing as well (DEVI, Teacher Issues Survey, 2022).

In terms of assessments, there were perverse interests at play. At the time of conducting baselines, the official Academic Resource Persons did not fairly and accurately examine students. Their baseline numbers were unusually high: Grade 3 averaged 72% on the NAS-based multiple-choice questionnaire, compared to the district average of 26% in NAS 2017. However, a surprise test conducted by Devi staff the next day indicated that actual learning levels were much lower (44%) (DEVI, Personal Interviews, 2022). Thus, it is clear that district officials

resort to perverse means when stakes and pressure are high. This is also indicative of a wider culture of cheating which was observed even in ALFA testing where teachers were also complicit in helping children out during exams. In that sense, the program's assessment was riddled with such challenges. The use of third-party examiners was then done with local education diploma students used but logistical and technical issues persisted with some individuals finding the schools far too remote to visit (Teacher Trainers, Personal Interviews, 2022).

Perhaps most glaringly, the biggest issue with such a pilot project is the impossibility of having a completely accurate and valid impact assessment. With limited buy-in from schools, teachers, and officials (ARPs), patchy ALFA implementation in intervention schools, and pressure from up above, the time devoted to ALFA lessons in classes was limited and varied (Teacher Trainers, Personal Interviews, 2022). From a survey of 29 teachers from the intervention school, it was clear that a significant number were devoting just 1 period a day to ALFA (DEVI, Teacher Instructional Time Survey, 2022). This time is too limited to cover both literacy and numeracy which led teachers to prioritize one over the other or to do both in one period. Thus, it was not just that two entire schools from the intervention group did not teach ALFA but also from the other 8 intervention schools, some teachers did it half-heartedly. Such pedagogical inconsistencies raise serious problems regarding the true effectiveness of the program.

Despite these issues, from qualitative exercises, it was clear that teachers who were motivated and on board with the process benefited from ALFA. For example, teachers appreciated the energetic and participatory nature of the pedagogy while others were impressed by the quick learning gains with students learning to read newspaper

excerpts within weeks. In a quantitative survey of teachers regarding their perceptions of the program's success in its potential impact on the upcoming NAS, 41% of teachers thought 'more progress' and 17% of teachers believed 'much more progress' would be seen in the NAS (DEVI, Teacher Progress Feedback Survey, 2022).

In a final survey, results showed that 63% of the teachers taught through ALFA pedagogy for 31-40 days, 32% of the teachers for just 21-30 instructional days (average of 30 days), and 5% did not teach it at all. Despite these issues, within this timeframe, 84% of the children who completed the ALFA books become capable of reading their own textbooks, 16% to some extent (DEVI, Teacher Instructional Time Survey, 2022). Previously, their extremely poor learning standards meant they could not read and understand their textbooks.

Ultimately, the effect size of the project was 0.23 for Grade 3 students and 0.89 for Grade 5 students (literacy and numeracy both) (DEVI, Program Results, 2022). Generally, effect sizes depict how practically significant the differences between the two groups (treatment and control) are and how meaningful they are in the real world. While effect sizes of 0.2 are considered small, an effect size of 0.89 is extremely large. In that sense, the results suggest there is significant value in pursuing the ALFA model in other schools if implemented in a coherent, structured, and coordinated manner.

Before moving on to policy recommendations, there is one key piece of evidence that strongly suggests that disruptive pedagogy works. A little after the mid-way stage, 4 schools in the treatment group were visited to measure the oral reading fluency (ORF) of children. A short passage was used to see how many words were read in a minute.

Students in the treatment/intervention groups had much higher ORF levels across all grade levels than those in the control/reference group. For Grades 4-5, 50% of the intervention group students were able to read the passage at >90 words per minute (WPM) compared to 20% of reference group students. For Grade 3, over 50% of the reference group school students were functionally illiterate (WPM <10), whereas all of the intervention group students were able to read the passage. The data from these schools in Shamli shows that the literacy differences and gains are quite clear with ALFA.

8.5 Shamli and Policy Recommendations

The previous section led to multiple key insights. Phase 1 of the program clearly had lots of design, implementation, and evaluation issues that need to be addressed. Currently, the ALFA project has been scaled to 400 schools in Shamli district with 200 schools in intervention and the rest in treatment. Any policy recommendation has to center around the following key insights from the previous sub-section:

- Competing instructional practices:
    - There must be no overlap between NIPUN and ALFA teaching.
- Stakeholder Misalignment:
    - The state government should have accountability mechanisms to ensure compliance at the district level.
    - Teachers and ARPs must wholeheartedly subscribe to the process and project.
    - A project management unit with district officials, state representatives, teachers, and the NGO is to be set up.
- Overburdened teachers:

    - Non-education activities need to be cut down for teachers (election duties etc.). Teacher transfers and hiring to reduce pupil-to-teacher ratios.
- Ineffective Assessments:
    - Interventions need to be standardized across the treatment group. No overlapping interventions within the treatment group. Impartial and accurate third-party assessments for data analysis purposes.

It is only in the context of corrective mechanisms across these four themes that any policy alternative can yield maximum results. At the heart of the four proposed policy alternatives, discussed below, these four themes need to be salient.

To address the issue of FLN learning loss in Shamli, in the context of Phase II of the project, we explore four policy alternatives, building on the existing setup of actors in the state, and we compare them against the status quo. The recommendations mainly revolve around the different permutations of collaborations between NIPUN Bharat and ALFA. We include ALFA in these recommendations since an MOU between the UP Government and Devi is already in place and Phase II of the project is just about to start. Furthermore, with the organization already part of the district's education system, there are positive relationships that can be built upon.

The first option would be to continue the status quo: operate both NIPUN Bharat and ALFA at the same time. The second alternative would involve implementing ALFA only for the first month and a half (6 school weeks), while the rest of the academic year operates using

NIPUN Bharat's instructional content and practice; the third would be operating the full year using NIPUN while operating ALFA within summer remedial camps only; and lastly, the fourth option would be to solely focus on ALFA's pedagogy to meet NIPUN goals, specifically, this would mean using the ALFA's instructional content and practice.

We evaluate all the policy options across three broad criteria: technical correctness, political supportability, and administrative feasibility. We then rate each policy as low, med-low, med, med-high, and high, with scores from 1 to 5 (the lowest is 1). We assigned scores according to evidence from the literature, engagement with the client, and survey analysis. Technical correctness in this context means the ability of the pedagogical and organizational setup to deliver on remedying FLN learning losses in terms of depth (learning improvement) and breadth (student coverage); political supportability means to what degree stakeholders in the system would stand behind the policy recommendation, specifically: teachers, bureaucrats, NGOs, parents and/or students; and administrative feasibility means whether the state and NGO have the resources, financial and/or human capital, to carry out the recommendation in a cost-effective manner.

Policy	Technical Correctness		Political Supportability	Administrative Feasibility		Total
	Improved Learning Outcomes	Student coverage*	Stakeholder buy-in	Cost-effectiveness	Overall Cost**	
Status quo (with overlap)	2 Low-Med	4 Med-High	2 Low-Med	2 Low-Med	3 Med	12
NIPUN + ALFA Summer only	3 Med	2 Low-Med	2 Low-Med	2 Low-Med	2 Low-Med	11
ALFA only	3 Med	4 Med-High	1 Low	3 Med	3 Med	15
NIPUN only	3 Med	4 Med-High	5 High	3 Med	3 Med	18
NIPUN + ALFA 1st 6 weeks only	5 High	4 Med-High	4 Med-High	4 Med-High	3 Med	20

** Lower scores for overall cost mean high resource utilization
* Student coverage remains constant apart from the summer camp option where fewer children would attend due to high opportunity cost

8.5.1 Status Quo:

As it stands now in Shamli, NIPUN is being deployed district-wide, while ALFA is to be implemented in half the schools as part of Phase II. Phase I showed that ALFA can deliver significant improvement in learning outcomes (subject to issues in data quality). However, if Phase II resembled just a scaled-up version of Phase I, it would also lack stakeholders' buy-in. Teachers and district officials would prioritize one learning pedagogy over others and there would be a lack of consistency in teaching practices. It is clear from studies that incoherent, overlapping, and different pedagogies lead to suboptimal outcomes (Grice, 2019). Hence, scoring "Low-Med" in improving learning outcomes and a "Low-Med" on stakeholder buy-in.

We conceptualize cost-effectiveness as a function of overall cost and improved learning outcomes. More gains

for lower resources lead to high-cost effectiveness. In that sense, owing to sub-optimal learning gains from the status quo, cost-effectiveness is "Low-Med" for this policy option.

8.5.2 NIPUN + ALFA (Summer Remedial Camp)

In this option, NIPUN is the main pedagogy during the school year, while ALFA is used during the summer holidays only. Literature shows the positive effects of summer interventions. For instance, in UP, a 10-day summer camp coupled with short and intense "learning bursts" during school hours (40 days total) led to significant benefits to students' learning (Banerjee et al., 2016). A study in the US found that children randomly assigned to a summer camp had an intent-to-treat effect of 0.6 standard deviations in reading fluency (Zvoch & Stevens, 2012). However, our discussions with stakeholders, especially teachers, revealed that a potential summer remedial camp would be resisted by already overworked teachers and students. Given the aforementioned evidence, we score the option of summer camps in learning outcomes as "Med" and stakeholder buy-in as "Low-Med". The breadth of coverage would be relatively lowest amongst all options, "Low-Med", since students would be unlikely to show up in summer due to their jobs such as harvesting.

We believe that overall resources needed for this option would be higher, with a rating of "Low-Med", than others due to extra utilities and active teaching duties during the summers. Either way, it would be more challenging relative to other options; this in turn leads to a "Low-Med" rating of cost-effectiveness with learning outcomes also sub-par already.

8.5.3 Only ALFA

This option means that essentially ALFA will be the main pedagogy but under the NIPUN umbrella and goals. This option makes little sense on multiple criteria. Firstly, there would be absolutely zero, if any, stakeholder-buy in, thus the "Low" rating since an NGO cannot completely replace a federal and state-level education program (NIPUN). Secondly, millions of dollars of donor money were spent by the UP government to develop literacy and numeracy books with key technology partners. Thus, these books need to be employed in schools. Thirdly, teachers were recently trained by Pratham, another NGO, on behalf of the UP government for the NIPUN program and those investments would also be wasted. Fourthly, ALFA is a short-term program and not designed for a full school year. The pilot program, Phase I, was also built around just two months and not the whole year. Thus, while this option might lead to unexpectedly high learning gains, it is quite politically and administratively infeasible.

8.5.4 Only NIPUN

The last policy option involves completely scrapping ALFA and devoting all investments and energies toward implementing the UP-Government's NIPUN program. It would be much easier to align all stakeholders on a singular vision and initiative, one put forward by the state government. This would inevitably lead to relatively higher stakeholder buy-in leading to a "High" rating for political feasibility.

The key issue here is student learning gains. The NIPUN textbooks, developed by the UP government's technical partners, have just been implemented. There is no data to suggest their efficacy within classrooms due to the early

stages of the program. Teachers have been trained by a reputable NGO for the program and there seems to be no pedagogical overlap involved as well in this option. However, the NIPUN books are quite lengthy and offer little autonomy to teachers to experiment. Its teacher-led classroom design and emphasis on tracking are unfortunate. In that sense, it is difficult to speculate and predict learning gains from the approach leading to a "Medium" rating. Lastly, with demonstrated results from Phase I, it would be unfortunate to completely scrap ALFA considering its value-addition potential for the district.

8.5.5 NIPUN + ALFA (First 6 weeks only)

In this option, ALFA will be administered only in the first month and a half of the school year. This will serve two larger purposes. It will avoid overlap with NIPUN which is necessary for a coherent learning and teaching experience. There is high value in this option since surveys from Phase I revealed how children at their grade level were unable to read or understand their textbooks properly. A primer ALFA course would allow for a strong building block for children to move onto the NIPUN textbooks for their grade levels. In addition, by providing structure and coherence to teachers and students as well as reducing the burden on teachers, the learning gains would be "High".

Importantly, with state authorization and district officials subscribing to ALFA, there would be more stakeholder alignment. These factors coupled with a lesser burden on teachers, stakeholder's buy-in is scored "Med-High". Given the high learning gains associated with the option, we expect the policy alternative to having a favorable cost-effective outcome of "Med-High". Considering all

these factors, we believe this to be the most potent and rewarding option for Shamli.

8.5.6 Theory of Change for Proposed Recommendation

We recommend the NIPUN + 6-week ALFA option. We envisage the theory of change to take place as follows. The State Government rolls out the directive to stakeholders with strict instructions for compliance. This should lead State, district officials, ARPs, and teachers to subscribe to the policy and buy in. DEVI, then, conducts teacher training across all intervention schools, which leads to teachers understanding the ALFA pedagogy and its learning potential. Throughout, teacher training feedback surveys are administered, and concerns are addressed in future iterations so that they feel involved in their professional development.

After that, DEVI and the state government provide Teaching Learning Materials (TLM) timely with NIPUN books coming promptly as soon as ALFA ends; this way, teachers have adequate resources for teaching students, addressing a major concern of theirs. Teachers start by implementing ALFA for the first six weeks of the calendar year. Children's FLN competencies start improving, with bi-weekly qualitative & quantitative student assessment and feedback, in addition to the teacher feedback surveys conducted. This should lead to student progress being regularly monitored, and teacher concerns and ideas being addressed for continuous improvement. But to foster results integrity, State and district officials will conduct random visits for monitoring and compliance purposes, making sure teachers and other officials stay true to ALFA.

By the end of the first six weeks, third-party evaluation of ALFA must be conducted and the program transitions into NIPUN textbooks/instruction. This accurate impact assessment helps in evaluating ALFA's success and students have sufficient FLN competency to utilize NIPUN textbooks, which should be implemented with the same regular teacher & student feedback and assessment surveys, state monitoring visits, and third-party assessment. In this rigorous setup with an active program flow, errors are quickly identified and rectified, and regular evaluations help to monitor student progress in a data-driven manner, leading to enhanced FLN learning outcomes for the children of UP.

8.6 Conclusion

This paper has given a broad overview of the state of FLN in India, specifically UP, in the context of COVID-19 and its aftermath. In the spirit of "Build Back Better", policymakers must leverage all possible resources to recover FLN losses and propel student learning forward. This paper recommends the UP government improve learning standards in Shamli, one of India's 10 lowest-performing districts, through the adoption of a blended model. This recommendation is based on an intensive program evaluation conducted throughout the semester as part of the client engagement project. The insights revealed from qualitative and quantitative research show there is a deep need to carry out corrective mechanisms across four broad thematic areas: competing instructional practices, overburdened teachers, misaligned stakeholders, and ineffective assessments. Once corrected for these issues, the government should utilize the ALFA pedagogy as a short, primer FLN course before introducing NIPUN textbooks to children.

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