

EVIDENCE on ALfA: Accelerating Learning for All
by Harvard Graduate School of Education, Chapters 8 and 10

REBUILDING

RESILIENT EDUCATION SYSTEMS AFTER THE COVID-19 PANDEMIC

Edited by Fernando **Reimers**,
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Nam **Nguyen**, and Margaret **Wang**



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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, in the state of Uttar Pradesh (UP). The chapter 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 the product of a semester-long client engagement with an FLN project being implemented in the state of UP, India. The group partnered with an NGO, Devi Sansthan, which is working with the UP government to improve FLN competencies in the district of 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.

Early Childhood Education (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 and concluded that children in developing countries, especially those from disadvantaged backgrounds, relatively benefit more from comprehensive ECE programs.

While UP is India's most populous state with a population of over 200 million, it 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 engage with 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, dropout, 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 like the aforementioned study by Andrabi et al. (2020) and echoes the aggravating factor of socioeconomic background in worsening a child's predicted learning loss.

Another survey by School Children's Online and Offline Learning (SCHOOL) echoed 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) had the most precipitous learning loss: 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 suggests that 80% of 5-18-year-old students did not receive any education during school closures (Kapoor et al., 2021). Furthermore, 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. Their model claims that 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, and their data is collected through the *Pragati* 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 results, learning content, and practice material.

8.3.2 Government—NIPUN Bharat

The most recent National Education Policy (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 illustrated by the following passage from the NEP: “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 their education is 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 classes - 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). The 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 guidelines through the NEP and NIPUN, state governments are responsible for designing, implementing, and evaluating their respective FLN programs. States receive federal grants based on their achievement of the NIPUN goal. 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 regarding its FLN policy. Specifically, the recommendations will be tailored to one district, Shamli. The close focus on a specific district will resemble a case study approach—we hope that an analysis of the status quo and subsequent 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 the FLN situation in the state between December 2019 and February 2020. Shortly after the outbreak of COVID-19, the UP government launched E-Pathshala and multiple other digital interventions for education. It was only in July 2020 that the National Education Policy (NEP) was announced. A year later, the NIPUN program came into force as well. The close connection between UP's policies and federal policy might be due 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 Sansthan, 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 note that NIPUN focused only on Grades 1-3. In that sense, there was a disconnect between the grade levels on which the two pedagogical approaches—ALFA and NIPUN—focused.

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 several 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. One did not implement the ALFA pedagogy at all, and one did 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 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, district officials resort to perverse means when stakes and pressure are high. This is also indicative of a wider culture of manipulation 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 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 myriad design, implementation, and evaluation issues that need to be addressed. Currently, the ALFA project has been scaled to 400 schools in the Shamli district with 200 schools in the intervention and the rest in control. Any policy recommendation must 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 reduced 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 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 have 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. 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 understanding whether students have sufficient FLN competency to utilize NIPUN textbooks, which should be implemented with the same regular teacher and 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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Chapter 10. Accelerating and Sustaining Student Learning Recovery after COVID in the Maldives

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Abstract Low levels of average student achievement in literacy and mathematics has been a persistent problem in the Maldives. COVID-19 further exacerbated this problem and also highlighted existing inequalities in the Maldivian schooling system. This paper analyzes the policy responses of the Ministry of Education (MoE), Maldives, to address COVID-19 related learning losses and enhance learning outcomes in literacy and math. We highlight gaps in policy implementation using primary and secondary research and recommend an evidence-based policy bundle that includes a combination of comprehensive teacher professional development, a new accelerated learning program, and reforms in student assessments. We project this will significantly enhance learning outcomes — especially for struggling learners— while also accounting for cost, equity and feasibility considerations of the MoE.

10.1 Introduction

This paper will review the school education system in the Maldives with the purpose of making recommendations to enhance student achievement in literacy and math in primary education. It will do so by building system capacity in alignment with 2 important policies being implemented by the MoE— the National Literacy and Math Strategy (NLMS), and the Remedial and Monitoring Plan (RMP). The analysis is based on primary and secondary research conducted in collaboration with

the MoE who provided access to documents, data and respondents. We utilized a combination of systematic literature review, online survey, interviews and focus group discussion to collect and analyze data.

The paper will be structured as follows: first the authors will provide context and a brief overview of the Maldivian education system, its historical inequalities and the problem of low student achievement in the Maldives that has been further aggravated by COVID-19 pandemic. The following section will give an overview of MoE's policy responses for making a sustained recovery from COVID-19 related learning losses. This section will also present findings from our primary research highlighting gaps in policy implementation at the school level. The next section will present and analyze policy alternatives to address gaps in policy implementation by helping build capacity of the system—especially of teachers—to help achieve sustained improvements in student achievement in literacy and math. Finally, based on a set of priority criterias of cost, equity and effectiveness, we recommend the MoE to implement a combination of comprehensive teacher professional development and a new accelerated learning program in a targeted manner, and reform in student assessment practices and policies. With this approach, the MoE will be able to enhance overall student achievement, reduce regional inequalities in learning outcomes and ensure the policies equitably benefit the struggling learners.

10.2 Context

10.2.1 Geography

The Republic of Maldives is an island state in the Indian Ocean which has been categorized as a Small Island Developing State (SIDS) by the United Nations due to the unique social, economic, and environmental vulnerabilities emerging from its remote geography (United Nations, n.d.). One-third of the country's population resides in the capital city of Male. The remaining population lives in 20 Administrative Islands systems called atolls (Lirar, 2017).

10.2.2 Overview of the Maldivian School Education System

The majority of schools in the Maldives are government schools (213 out of 300+ schools). The remaining schooling system consists of private schools, and community schools—run by not-for-profit organizations or island councils. In 2021, 87,000 students were enrolled in Maldivian schools, of which 87% were enrolled in government schools, 8% in private schools, and the remaining 5% in community schools. English is the medium of instruction for all subjects, except Islamic studies and Dhivehi- the first language of students (MoE, Maldives, 2021).

Table 1: Schooling structure in the Maldives

Foundations	Lower & Upper Kindergarten
Primary	Key Stage 1 - KS1 (Grades 1-3)
	Key Stage 2 - KS2 (Grades 4-6)
Lower Secondary	Key Stage 3 (Grades 7-8)
	Key Stage 4 (Grades 9-10)
Higher Secondary	Key Stage 5 (Grades 11-12)

10.2.3 Historical inequalities in Maldivian school education

State intervention in education began after Maldives became a British protectorate in 1887, prior to which education was provided through a traditional, informal system of religious schooling that was primarily controlled by private players (Lirar, 2017; Yamada et.al, 2015). In the early 1900s, a small number of English medium schools were established in Malé, following the British curriculum. Students in the atolls, however, did not have access to this education and continued to learn in the informal schools offering religion-focused curriculum.

After gaining independence in 1965, a series of reforms were enacted to establish a strong free public education system in the country, leading to

the establishment of the first government school in an atoll in 1978. As students in the atolls gained access to formal schooling, school enrollment rates in the country saw a rapid increase, from a mere 15% in 1978 to near universal primary net enrollment by 1995 (Yamada et al., 2015). Progressive reforms to the curriculum were introduced periodically to align Maldivian education with the requirements of a rapidly globalizing society (Lirar, 2017).

Despite these reforms and successes in improving school enrollment, quality of education continues to be a concern in the Maldives. The historical divide between Malé and the atolls in education provision continues to manifest itself in the form of regional disparity in school performance, with students in the atolls recording lower achievement than their counterparts in Malé (UNICEF, n.d.).

10.2.4 The Urgent Problem of Low Student Achievement in Primary Education

Student achievement in literacy and math has been a problem in the Maldives even before COVID-19. The National Assessments of Learning Outcomes (NALO) conducted by the Ministry of Education (MoE) in 2017 revealed that the average scores of students in grade 4 for English, mathematics, and Dhivehi ranged between 50-60% (QAD, MoE, Maldives, 2017). Approximately 19% of students in grade 4 failed to achieve the minimum passing score (40%) in Dhivehi. For English and mathematics, the figures stood at 27% and 20% respectively (MoE, Maldives, 2017). Regional disparity in learning outcomes was also evident in the assessment results, with atolls like Laamu, Raa, Alifu, Dhalu, Faafu, and Noonu performing well below the capital region of Greater Malé (QAD, MoE, Maldives, 2017).

Low student achievement in primary education can have severe long-term consequences for the country. Children with learning gaps in early grades find it increasingly difficult to achieve grade-level learning outcomes as they progress to higher grades, which prevents them from acquiring technical and higher-order skills needed to participate in demanding labor markets (Belafi et al., 2021, The World Bank et al., 2022). Learning gaps in children can hinder a nation's ability to develop a productive labor force that can achieve and sustain inclusive economic growth. In the Maldives, this is a major concern given it is facing a scarcity of qualified and skilled

national labor force and depends extensively on expatriate workers (Asian Development Bank, 2015).

Learning losses from the prolonged school closures due to COVID-19 has aggravated the situation. The Learning Loss Report (2021) found that nearly one-fourth of grade 4 children are unable to meet even the lowest benchmarks in literacy and math. Moreover, the report found that the learning losses were much more severe in the atolls as compared to Male — further aggravating regional inequalities in student achievement. Hence, addressing student achievement in primary education is one of the foremost priorities of the MoE.

10.3 Education Policy Response to COVID-19

In March 2020, the MoE responded to COVID-19 pandemic with school closures leading to a shift to online teaching and learning. An Education Response Plan was adopted in May 2020 with detailed strategies for online learning. As the schools reopened in a phased manner towards the end of 2020 and early 2021, the Remediation and Monitoring Plan (meant to be implemented from 2021 to 2023) and National Literacy and Math Strategy (meant to be implemented from 2022 to 2027) were adopted to address the learning gaps in literacy and mathematics that were already wide and now have been exacerbated by school closures.

Timeline of Policy Responses to COVID-19

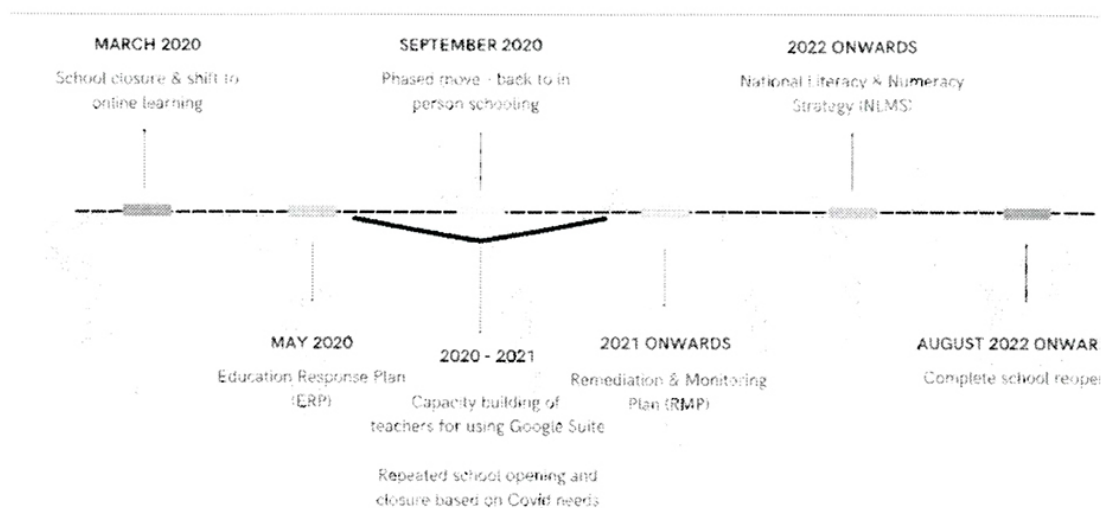


Figure 1: Timeline of Education Policy Responses to COVID-19

10.3.1 Education Response Plan (2020)

The Education Response Plan was adopted by the MoE soon after school closures in March 2020. The Plan focused on mitigating the impact of school closures on the learning and well-being of all school stakeholders, with special attention on the most vulnerable and at-risk children (MoE, Maldives, 2020). Remote learning was conducted through television programming (Telikilaas) and online classes through Google suite — for which MoE also implemented a teacher capacity building program (UNICEF, 2021). Schools were reopened in a phased manner from September 2020 onwards while factoring in local COVID-19 conditions. The MoE condensed the curriculum, reduced daily school hours, and shortened the school week (UNICEF, 2021). The MoE also directed schools to make student assessments low-stake and feedback oriented rather than using them for summative grading (UNICEF, 2021). MoE also provided all schools free subscription to a Learning Management System software for managing student assignments and recording attendance (UNICEF, 2021).

As seen globally, the sudden systemic shift to using technology affected the quality of teaching-learning in the Maldives. Nizam & Saeed (2021)

noted that students were likely to be less engaged in online classes as compared to face-to-face instruction due to unfamiliarity with the medium as well as lack of teacher proficiency in using digital tools during instruction. Many teachers found it challenging to swiftly build technology skills in a short time. In a study on the effectiveness of teacher training for use of technology in Maldives, Fikuree et al. (2021) found that while nearly all surveyed teachers felt that training sessions were practically relevant, 51.2 % of teachers had less than one week of preparation to shift to online instruction. This shift disproportionately affected the learning of children with Specialized Educational Needs and economic disadvantages (UNICEF, 2021).

10.3.2 Remediation and Monitoring Plan (RMP)- 2021-2023

The RMP was launched in 2021 to address the learning losses and gaps caused by COVID-19 pandemic (UNESCO, 2020). The plan aimed to take measures to improve the literacy and numeracy skills (Dhivehi, English, and Mathematics) of students in preschool and elementary school (Maldives National Institute for Education et al., 2021). To achieve this goal, the remediation plan aimed to prioritize important content to remediate learning losses in literacy and numeracy, rearrange school timetables to accommodate remediation, prepare proficiency-focused lesson plans, and create proficiency-focused pre- and post-assessment worksheets (Maldives National Institute of Education et al., 2021). The RMP includes a rigorous monitoring and evaluation framework to enable ongoing data collection on implementation. While the RMP was launched in 2021, its systematic implementation began in the current academic year from August 2022 onwards (MoE, personal communication, 2 October 2022). Hence, evidence of its effectiveness was not available for analysis.

10.3.3 National Literacy and Mathematics Strategy (NLMS)- 2022-2027

The NLMS was adopted in 2022 as a roadmap for making a sustained recovery, over a five-year period, from learning losses, beyond the remediation measures. The Strategy offers a concrete action plan on the goal of achieving strong foundations in Literacy (Dhivehi and English) and Numeracy for all school children as highlighted in Maldives' National Curriculum Framework. It aims to achieve this by encouraging the

promotion of inquiry-based learning, problem solving, reasoning and application of skills to new learning among children in schools (National Institute of Education, Maldives, 2022). It is interesting to note that the NLMS 2022-27 strongly resonated with a professional perspective to educational change and school as a learning organization (Reimers, 2020). The Strategy highlights the professional capacities necessary to implement the goals of Literacy and Numeracy, identifies the gaps in the human resources and recommends professional development interventions to address these gaps (Reimers, 2020). The NLMS, like the RMP, has been implemented since August 2022. Hence, we did not have existing evidence for analyzing the effectiveness of the policy.

10.3.4 Gaps in Implementation of RMP and NLMS

Given the scarcity of empirical evidence on the implementation and effectiveness of MoE's policies on enhancing literacy and math outcomes, we collaborated with the MoE to conduct primary research on this issue. We collected data from teachers, leading teachers and school principals using a combination of online google form survey and focus group discussions (FGDs) on the current implementation of RMP and NLMS in schools. The online survey was conducted first, and data collected was used to build the points of discussion for the FGDs. One FGD was done only with teachers, and one was done with leading teachers and principals representing different regions of the Maldives. All data collection was prefaced and supplemented with discussions with members of the MoE, National Institute of Education (NIE), and an Indian NGO DEVI Sansthan (DEVI). We chose to use a google survey to collect quantitative data as this is a platform the teachers are already comfortable with.

As of December 14th, 2022, we received a total of 575 responses from teachers of foundation stage, KS1, and KS2, leading teachers and principals via Google Form. The survey contains three sections, including (1) personal information (designation, teaching subjects, teaching stage, and school location); (2) Remedial teaching questions focus on whether the classroom/school used remedial instruction, in what manner, and whether the Remedial and Monitoring Plan was followed; and (3) Literacy and Numeracy teaching questions focus on lesson plan creation, small group activities, and support needs. Our primary line of enquiry in the google survey was to check whether the salient features of both, RMP and NLMS, policies were being implemented, if yes to what extent, and which

areas did teachers, and leading teachers need support in. While the survey was filled by teachers, leading teachers, principals, and relief teachers, in our analysis we have only used data from teachers and leading teachers, as they are the core implementers of the policy. Some of our findings from the primary research are given below.

10.3.4.1 Significant gaps in implementation remedial learning among schools

Our primary research highlighted several gaps in the implementation of remedial learning as envisioned by MoE's policy recommendations. The RMP lists several steps for assessing students and monitoring their progress. Some respondents in the leading teacher and principal FGD reported that they are not aware of the formats they are required to fill as part of the monitoring process. Our online survey also showed that 70% of the teacher respondents have not submitted any RPPM form. Regarding assessments, more than 55% teacher respondents reported that they have been unable to conduct a single student assessment in the current academic year. In fact, nearly 80% of the respondents reported having not attended any training. We also observed from the survey data that the proportion of teachers in the atolls who are implementing remedial learning in alignment with the RMP recommendations is significantly lower than the proportion of teachers from Male region. This data highlights the existing asymmetric awareness and implementation of the MoE's policy on remedial learning across schools.

10.3.4.2 Teachers need support to implement literacy and math activities per NLMS guidelines.

While 78.4% teacher respondents in our online survey said they felt equipped to support students at grade level, most of the respondents also expressed need for support in each salient feature listed in the NLMS. For example, 70-80% surveyed teachers in Key Stages 1 and 2 expressed the need for support in helping children develop reading comprehension skills whereas 65-80% teachers said they need support for conducting guided math activities. The survey data also highlighted that almost an equal proportion of teachers in both Male and atolls expressed these requirements. Additionally, some teachers also reported the need for teacher guides and supplementary materials based on the condensed curriculum for conducting remedial teaching in our FGD.

10.3.4.3 Limited availability of in-classroom support for teachers:

According to the NLMS, leading teachers have to support teachers to improve their practice of teaching by doing consistent classroom observations (National Institute of Education, Maldives, 2022). Our online survey shows that only ~ 20% teachers reported having received at least 1 classroom observation in the current academic year. Additionally, our focus group discussions also highlighted that coaching support for teachers is very limited in the small atoll schools where leading teachers are fewer in numbers and burdened with multiple responsibilities.

10.4 Analysis of Policy Alternatives

Taking into consideration the findings of our primary research, and the policy guidelines as per NLMS, there is an opportunity to significantly improve the capacity of stakeholders in the Maldivian education system to enhance student achievement in literacy and math. As the implementation of the NLMS is at a nascent stage, the MoE needs to develop evidence-based programs that can address the dual objectives of speedy learning recovery and sustainable growth in student achievement. In this section, we provide some policy alternatives for MoE's consideration that we analyze based on some important criteria.

10.4.1 The Seven Criteria

To design and analyze our policy alternatives, we consulted the MoE and identified seven important criteria. These include effectiveness, swiftness of achieving outcomes, equity (learner and regional) and feasibility (administrative and teacher). We have defined the criteria below, provided rationale for including them, and also defined a rubric for each criterion on a scale of 'High', 'Medium' and 'Low' on which we rate each alternative.

Table 2: Criteria for Analysis of the Policy Alternatives

Criteria for evaluation of policy alternatives	Rationale for selecting criteria	Policy Alternative Ranking Rubric		
		High	Medium	Low
1. Cost New Fixed Costs (physical/digital infrastructure, new curriculum, etc) and Variable Costs (salaries, teacher professional development activities, software subscriptions, etc) incurred by MoE	Budgetary constraints and economic slowdown post-COVID demand careful spending	New and high fixed/variable costs incurred	New but moderate fixed/variable costs incurred	Limited to no new fixed/variable costs incurred
2: Effectiveness Overall average of improvement of learning outcomes in literacy and math for all students.	Low average levels of student achievement in literacy and math as per NALO 2017 and Learning Loss Report	Significant gains in learning outcomes expected on average	Moderate gains in learning outcomes expected on average	Little to no gains in learning outcomes expected on average
3: Swiftness of Achieving Outcomes Time-period in which learning gains in literacy and math learning outcomes are expected	Learning losses; quick gains required to meet NLMS's 5 year targets	Learning gains expected within one semester.	Learning gains expected within two semesters (one academic year).	Learning gains expected in more than two semesters (more than one academic year).

4: Learner Equity How equitably are struggling learners expected to achieve literacy and math learning outcomes	Large proportion of children are struggling learners with nearly one-fourth of grade 4 children below minimum benchmarks in literacy and math as per NALO 2017 and Learning Loss Report	Large learning gains expected in struggling learners	Moderate learning gains expected in struggling learners	Little to no learning gains expected in struggling learners
5: Regional Equity How equitably are small under-resourced schools in remote atolls expected to achieve literacy and math learning outcomes	Small and under-resourced schools in atolls have lower student performance as compared to the ones in Malé	Large learning gains expected in students in atolls	Moderate learning gains expected in students in atolls	Little to no learning gains expected in students in atolls
6: Administrative Feasibility Alignment to the existing educational administrative structure and its capacity.	Alignment to administrative structure and capacities at the national, regional, and school levels required to ensure buy-in from all stakeholders for smooth implementation	Significant alignment with current administrative structures with no structural changes required	Moderate alignment with current administrative structures with some structural changes required	Little to no alignment with current administrative structures with major structural changes required.

7: Feasibility for Teachers Alignment with existing teacher capacity, practices, beliefs, and needs.	Critical for achieving buy-in from teachers for smooth integration of policy vision into classroom practice	Significant alignment with existing teacher capacity, practices, and beliefs; will face little to no resistance.	Moderate alignment with existing teacher capacity, practices, and beliefs; requires moderate capacity building; may face moderate resistance	Little to no alignment with existing teacher capacity, practices, and beliefs; requires high capacity building; expected to face high resistance
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10.4.2 Possible Policy Alternatives

To construct the policy alternatives, we surveyed international literature on effective policies and programs that have addressed low learning levels in primary education. We especially looked at papers that evaluate interventions around teacher capacity building on assessment, pedagogy, and teaching learning materials. As literature on SIDS is very limited, we drew from evidence on other low and middle income country contexts and used that literature to construct alternatives while considering the current context, administrative structure, and policy environment of alternatives. Below, we present four policy alternatives, and rate them on the criteria listed in the previous section.

10.4.2.1 Alternative 1: Incremental Change to Status Quo through Provision of Teacher Guides and Teaching-learning Materials (TLM)

It is recommended that all KS1 and KS2 teachers are provided with teacher guides and TLM for their students based on the condensed curriculum prioritizing core concepts in literacy and math. Given the limited time teachers have to meet the dual expectation of addressing learning losses and bringing children to grade level learning, it is important

that there is a clear common understanding of core competencies that teachers need to focus on. Teacher guides with structured lesson plans will support teachers to focus their efforts on classroom implementation rather than preparation. It will also address teachers' need for greater support in conducting math and literacy activities as highlighted in our teacher survey.

There is evidence to support this policy alternative. In their randomized controlled trial to test effectiveness of the Kenya Primary Math and Reading Initiative, Piper et al. (2018) found that adding the component of contextual teaching-learning material (TLM) to professional development of teachers led to medium improvements in learning outcomes of students in English, Kiswahili, and mathematics. The same study found that providing teacher guides along with professional development and TLM led to dramatic impact on learning outcomes of students across all three subjects (Piper et al., 2018).

In the context of Maldives, every atoll, due to its isolation from other islands, has over time developed its own unique way of life that is reflected in the dialect of Dhivehi spoken, traditions, and customs. For instance, crafts such as lacquer work art in Thulhaadhoo and Baa atoll, and mat weaving in Gadhoo atoll are unique to these communities (Lirar, 2017). It is critical that these cultural aspects of life and cultural resources of learners are reflected in the TLM used in the classrooms (Paris, 2012). The TLM can take the form of workbooks containing stories and exercises that focus on learning objectives to be achieved at each grade level. Students can be provided with workbooks as per their grade level, which can be then used in addition to the school textbooks for literacy and numeracy learning.

Table 3: Rating of Alternative 1 on the Seven Criteria

Criteria	Rating (High/Medium/Low)
Cost	High: High direct costs involved in creation of teacher guides and TLM
Effectiveness	Medium: Provision of teacher guides and TLMs if not accompanied by capacity building will lead to little to moderate improvements in teacher instruction and learning outcomes.
Swiftiness of Achieving Outcomes	Medium: One academic year needed to implement condensed curriculum
Learner equity	Medium: Introducing TLM without strengthening teacher capacity to address needs of struggling learners will yield moderate improvements
Regional Equity	Medium: Introducing context appropriate TLM without strengthening teacher capacity to implement in class will yield moderate improvements
Administrative Feasibility	Medium: Creation of teacher guides and TLM is human resource intensive and may require capacity building of the NIE
Teacher Feasibility	Medium: Teachers are generally receptive towards additional guidelines in the form of teacher guides. Some pushback can be anticipated on TLM from teachers as they can view these as additional material to be covered

10.4.2.2 Alternative 2: Comprehensive Teacher Professional Development (TPD)

It is recommended that the MoE develop a comprehensive teacher capacity building strategy that includes training, coaching, and instructional materials to enhance teaching pedagogy in literacy and math. The NLMS (2022) highlighted the frequent need to train new teachers due to high staff turnover. It also recommends the creation of self-paced courses for training purposes. Despite steps taken by the government in recent years to improve teacher capacity, teaching quality continues to pose a serious challenge in enhancing student learning outcomes. Given that teacher-student interactions are at the core of the teaching-learning process, it is imperative that teachers are trained to improve literacy and numeracy outcomes in a manner that is cognizant of the diverse needs of teachers across Malé and the atolls.

There is strong causal evidence to support the positive impact of teacher capacity building, including training, coaching, and instructional materials that aim to enhance pedagogy, on student learning outcomes. A meta-analysis of 77 randomized controlled trials conducted by (McEwan, 2015) reveals that teacher training and instructional materials have among the largest effect sizes (0.12 and 0.08 respectively) on student learning in primary schools in developing countries. Conn's (2014) meta-analysis of 12 types of educational interventions in Sub-Saharan Africa suggests that interventions that altered teacher pedagogy and classroom instruction had an effect size of approximately 0.30 standard deviations higher than all other types of interventions combined such as teacher incentives, provision of school supplies, among others. Conn's study also suggests that pedagogical programs that are sustained and incorporate in-school teacher coaching are particularly effective, as evidenced by programs such as READ in rural South Africa and Read to Learn in Kenya (Conn, 2014).

As our primary research also indicated, there is asymmetric distribution of information among teachers on policy guidelines related to assessment, pedagogical practices, and remedial learning around literacy and math teaching. Also, coaching support to teachers from Leading Teachers is very limited in the small schools in the atolls. To remedy the situation, the Ministry of Education can revise the current centralized model of School-based Teacher Professional Development (SBPD) to a sustained model of professional development comprising -

- a. *Self-paced Training Course* - The MoE can offer self-paced training

through an online course and make completion mandatory by all literacy and math teachers and lead teachers in KS1 and KS2. As per NLMS' vision, the course objective should be to enhance pedagogical and assessment practices of teachers by building their capacity in promoting inquiry based learning, problem solving, reasoning, and application of skills to new learning among children. The course content can focus on the five dimensions of effective pedagogy as highlighted by the National Curriculum Framework. These include creating a positive learning environment, connecting prior learning to new learning, fostering reflective practice, making learning meaningful, and recognizing individual differences. The course design should place special emphasis on training teachers to meet the needs of struggling learners and conducting remedial learning. The asynchronous learning can be combined with quarterly online sessions where teachers can share their success and learnings from classroom implementation. Teacher Resource Centers in Malé and the atolls can be given the responsibility to design customized workshops aligned to the context and needs of schools in their jurisdiction. Incentives for teachers like competitions, peer sharing opportunities, and public features can be integrated to encourage higher teacher engagement.

- b. *Teacher Coaching* - Considering the importance of coaching in enhancing the effectiveness of professional development programs (Conn, 2014), it is recommended that each school appoints a lead teacher as Literacy and Numeracy Coordinator. The coordinator's primary task would be to observe classrooms and offer on-site support to teachers in incorporating the new pedagogical techniques into the teaching-learning process. Lead teachers appointed as coordinators will continue to teach one class as per the current requirement listed in the National Literacy and Mathematics Strategy. However, administrative responsibilities of the coordinators will be adjusted to accommodate the responsibilities of coaching.

Table 4: Rating of Alternative 2 on the Seven Criteria

Criteria	Ratings (High/Medium/Low)
Cost	High: Direct costs of creating and implementing self-paced course; High direct costs of creating supplementary instructional material
Effectiveness	High: Sustained professional development with coaching and instructional material evidenced to improve student learning outcomes significantly
Swiftness of Achieving Outcomes	Medium: Implementation time of at least one academic year needed to achieve outcomes
Learning Equity	High: Specific emphasis on supporting struggling learners in the training course and coaching; Instructional material provided to students at their grade level
Regional Equity	Medium: Context-specific training workshops and coaching evidenced to improve learning outcomes; Online training may not be seamless in remote atolls with poor internet connectivity
Administrative Feasibility	Medium: High alignment with existing curricular framework and pedagogical focus; Creation of training courses and TLM is human resource intensive and may require capacity building of the NIE
Teacher Feasibility	Medium: Some pushback from teachers expected around mandatory training, coaching, and use of TLM

10.4.2.3 Alternative 3: Continuous Assessments and Monitoring of Students' Progress (CAMSP)

It is recommended that the MoE strengthen its capacity to periodically monitor the progress being made in learning recovery post-COVID and in achievement of grade level outcomes. The World Bank et.al (2022) emphasizes that diagnostic and formative assessments are “critical to implement recovery strategies like targeted instruction” and help monitor the effectiveness of learning recovery programs. Similarly, the NLMS also states the importance of monitoring and evaluating the effectiveness of remediation being provided to address learning losses post COVID. The NLMS also emphasizes that schools “use formative assessments to identify and understand the learning gaps and track the progress of all children” (National Institute of Education, Maldives, 2022). Hence, a robust system to assess and monitor student learning outcomes is critical to achieve the goals of the NLMS in Maldives. It is recommended that MoE focus on the two following aspects:

- a. *Prioritize assessment in FLN* - All English, Divehi and Math teachers of KS1 and KS2 can be provided standardized diagnostic classroom assessments to check for existing gaps in FLN skills of students. As many children are still expected to be below grade level, these assessments should test children’s knowledge and skills from at least one grade level below as well. According to the data collected in our online google survey, only 65% teachers reported having conducted any diare-assessment (Refer Appendices 3 & 4). The QAD and NIE can collaborate to create a standardized FLN test. This diagnostic test should be ideally administered in the beginning and end of each semester of the academic year.
- b. *Monitoring student progress on MEMIS* - It is recommended that the MoE integrate the option of periodically monitoring diagnostic and formative student assessment data in the MEMIS. Presently, teachers are only required to upload the end of semester exam scores on MEMIS (MoE, personal communication, 13 December 2022). This data is then used to inform the annual School Improvement Plan (Ministry of Education, 2017). However, given the urgent need to address learning gaps, it is recommended that assessment data, especially on FLN, be monitored real-time. This can be done by training teachers on using technology enabled assessment platforms. For example, Tangerine, an open source app, has been effective in conducting formative assessments and visually representing student

progress in reading and math (RTI International, n.d.). This software was also used in the Kenya Primary Math and Reading Initiative to support administrators and teacher coaches in conducting monitoring activities (Strigel et.al, 2015). The MoE can explore integrating such open-source softwares with the existing MEMIS system.

Table 5: Rating of Alternative 3 on the Seven Criteria

Criteria	Rubric (High/Medium/Low)
Cost	Medium: Creating new papers on FLN; High direct costs of training teachers on real-time assessment software and development costs of integrating to MEMIS
Effectiveness	Medium: Diagnostic and Formative assessments (D & FA) will identify learning gaps for the entire class; This will enable teachers to align instruction to overall learning needs; Teachers may find it difficult to differentiate if there is high variedness in learner requirements
Swiftness of Achieving Outcomes	Medium: Integrating real-time assessment software and training teachers will require 2 semesters
Learning Equity	Medium: D & FA will identify learning gaps for each child; This will enable teachers to provide targeted instruction to struggling learners to serve their specific needs; Teachers will need to be equipped with tools to provide targeted support
Regional Equity	Medium: D & FA will identify learning gaps among schools in remote atolls; This will enable teachers from all regions to work on their students' requirements; Teachers in remote Atolls may not have bandwidth to access the real-time assessment software

Administrative Feasibility	Medium: Administrative structure will remain the same for implementing assessments; Capacity building needed in QAD & NIE to monitor and analyze real-time data; Coordination between QAD, NIE & TRCs to share reports & do capacity building
Teacher Feasibility	Low: Increase in tasks and accountability for teachers; Teachers will have to upload data of diagnostic assessments on MEMIS, in addition to the pre-existing data entry requirements.; Teachers will be held accountable for student progress from LTs, TRCs, NIE. Hence, they may resist this measure.

10.4.2.4 Alternative 4: Accelerating Learning for All (ALfA) program

The MoE has partnered with DEVI Sansthan, a not-for-profit NGO, to implement the ALfA program in the government schools (MoE, personal communication, 2 October 2022). The program aims to enhance the Foundational Literacy and Numeracy (FLN) skills among children and help them achieve grade level learning outcomes in language and math. An introductory online session was conducted for math and English teachers from Key Stages 1 and 2 in September 2022 (MoE, personal communication, 2 October 2022). Currently, discussion is ongoing on the implementation of the program in grades 1-3 (KS1) in 2023 (MoE, personal communication, 11 December 2022).

- a. *TLMs and Formative Assessments* - The ALfA program has significant alignment to the evidence-based Structured Pedagogy Framework in aspects related to teaching learning materials (TLMs) and formative assessments.³ Evidence indicates that “well designed, detailed teaching materials (topic guides, lesson plans, assessment tools) lead to an increase in teacher agency, creativity and the ability to respond to their students and children” (Chakera et. al. 2020, pp.15). This aligns with ALfA’s learning sessions which are structured around modules in its books (called toolkits) that are linked to a specific FLN outcome (Gandhi et.al. , 2022). Modules include detailed instructions

and prompts for teachers that they use to guide learning paired learning activities. Each module also includes structured formative assessment activities that teachers can facilitate and observe (Gandhi et.al., 2022). These low-stake assessments provide immediate feedback to teachers for aligning their instruction to student learning needs. These assessments are also linked with improved learning outcomes with “the largest gains being realized by low achievers”(Chakera et. al. 2020, pp.17).

- b. *Effectiveness* - A recent implementation of the ALfA program in government schools in India combined expert-led training and teacher coaching along with providing the ALfA TLMs. (DEVI Sansthan, personal communication, 13 December 2022). The intervention led to significant gains in FLN skills of grades 3 and 5 children (DEVI Sansthan, n.d.). After approximately 40 instructional days of program implementation, an internal evaluation of the program showed gains in consolidated language (Hindi) and math scores on average were higher in the treatment group as compared to the control group. The effect sizes were 0.23 and 0.89 for grades 3 and 5 respectively (DEVI Sansthan, n.d.)⁴.

Table 6: Rating of Alternative 4 on the Seven Criteria

Criteria	Rating (High/Medium/Low)
Cost	Medium: Online refresher training before implementation; Printing of materials for teachers and students; Assessments - printing and implementation.
Effectiveness	High: Significant gains in LOs expected
Swiftness of Achieving Outcomes	High: Gains in LOs expected within a semester (approx. 90 instructional days)
Learning Equity	High: Pedagogy is targeted to support struggling learners rapidly fill learning gaps and improve learning level
Regional Equity	Medium: Teachers in small and remote Atoll schools may not have the capacity and skills to implement a new pedagogy
Administrative Feasibility	Low: Burden on NIE to additionally monitor and support program implementation.; May require additional NGO staff to support teachers creating a parallel monitoring structure
Teacher Feasibility	Medium: The idea of learning acceleration and swift improvement aligns with teacher needs & beliefs; Teachers will need to significantly alter their teaching practices for literacy & math.

10.4.3 Analysis of Policy Alternatives and Tradeoffs

In consultation with the MoE, we have prioritized cost, effectiveness and equity (both learner and regional) in our analysis and recommendation.

Table 7: Policy Analysis Matrix

Cost	Effectiveness	Swiftne ss in Achieve ment of Outco me	Learner Equity	Region al Equity	Admini strative Feasibil ity	Teache r Feasibil ity
Alternative 1: Incremental change to the Status Quo through Provision of Teacher Guides and and Student Workbooks						
High	Medium	Medium	Medium	Medium	Medium	Medium
Alternative 2: Comprehensive Teacher Professional Development to Enhance Pedagogy						
High	High	Medium	High	Medium	Medium	Medium
Alternative 3: Continuous Assessment & Monitoring of Students' Progress						
Medium	Medium	Medium	Medium	Medium	Medium	Low
Alternative 4: Accelerated Learning for All Program (ALfA)						
Medium	High	High	High	Medium	Low	Medium

In terms of effectiveness, the alternatives have been assessed based on their ability to improve average student learning outcomes in English, Dhivehi, and mathematics. Alternatives 2 and 4 dominate over the others in effectiveness due to significant improvements in student learning outcomes expected from strengthened teacher capacity building and coaching. Alternatives 1 and 3 in isolation are unlikely to equip teachers with the know-how to improve student learning outcomes to which both alternatives are predicted to yield moderate improvements in learning outcomes at best.

Disparity in learning outcomes in the Maldives is most clearly observable in the Malé- atoll divide as well as performance of struggling learners in national learning assessments. We have therefore used the lenses of regional equity and learner equity to assess the alternatives on their equity focus. Alternatives 2 and 4 dominate over the others in achieving learner equity due to their explicit focus on the needs of struggling children. In terms of regional equity, all alternatives have been ranked medium due to logistical challenges that emerge from the geographical remoteness of the atolls, as well as scarcity of human resources.

A third consideration for the MoE after effectiveness and equity is the cost of implementation. Alternatives 1 and 2 have high financial costs associated which makes these alternatives potentially unfavorable for the MoE. However, predicted effectiveness of alternative 1 is lower than alternative 2 due to its lack of explicit focus on teacher capacity building for effective use of TLM and teacher guides. Therefore, alternative 1 can be eliminated given its high costs and relatively lower effectiveness. While alternative 2 has high associated direct costs, it can be argued that the projected benefits of improvement in student achievement outweigh the additional investment costs made by the MoE.

Analyzing the trade-offs between the alternatives, it can be concluded that alternatives 2 and 4 are likely to yield the most improvement in student learning outcomes in an equitable manner. Alternative 3, while ranking medium in most criteria except feasibility for teachers, may not be ruled out completely as it has the potential to enhance the effectiveness of alternatives 2 and 4 by creating a strong data-driven culture for educational policy design in the Maldives.

10.5 Final Recommendation

Based on the analysis of the four policy alternatives across the identified criteria, and the rejection of alternative 1 (Teacher guides and student workbooks), we recommend that a combination of alternatives 2, 3, and 4 be implemented in the following manner:

10.5.1 Recommendation 1: Implement Alternatives 2 in 75% schools and implement Alternative 4 in remaining 25% schools

As discussed in the analysis, both Alternative 2 (Comprehensive TPD) and Alternative 4 (ALfA) score high on the criteria of ‘effectiveness’ and ‘learner equity,’ both of which are central to the goals of the MoE (NLMS, 2022). It is recommended that schools be randomly allocated into two groups— 75% schools will benefit from TPD and 25% will benefit from ALfA. There are three factors for recommending this design:

- a. *Cost:* Implementing TPD in all schools would incur very ‘high’ costs as shown in the policy analysis matrix. Implementing TPD in only 75% schools will help save costs that can be invested in implementing a ‘Moderate’ cost ALfA in the remaining 25% schools. In this way, all schools will benefit from an intervention that scores high on ‘effectiveness’ and ‘learner equity’ while reducing overall costs for the MoE.
- b. *Focus:* Implementing TPD and ALfA in separate schools will ensure that teachers do not get over-burdened with professional development activities. Both Alternatives require teachers to participate in training and coaching activities that can lead to teacher burnout. There is also a possibility that teachers may get contradicting advice on which pedagogies to implement in class. In either case, it is recommended that the accountability of teachers be more on the learning outcomes rather than the type of pedagogy they use.
- c. *Experimentation:* The implementation model will enable the MoE to evaluate the successes and learnings from both Alternatives to inform their long-term teacher capacity building strategy. The NLMS has prioritized the creation of a “three year professional development plan for Dhivehi, English and Mathematics teachers on subject content, pedagogy and formative assessments” (NLMS, 2022, p.18). The implementation of the two interventions will provide rich

information of what works in the Maldives context and will inform the creation of a long-term PD plan. Also, as ALfA is being implemented in the Maldives context for the first time, it is recommended that the initial implementation be done on a smaller scale to gather feedback. This will help further improve and contextualize ALfA before further scaling up.

10.5.2 Recommendation 2: Implement Alternative 3 in 100% schools.

Identifying gaps in student learning and bridging them in a timely manner is critical for achieving grade level learning outcomes. Addressing FLN gaps is especially important at this time given the post-COVID learning losses and because accumulation of learner gaps further makes it difficult to achieve grade level outcomes. Hence, it is recommended that MoE monitors FLN diagnostic assessments of all schools in real time.

In conjunction with alternatives TPD and ALfA, the effectiveness of CAMSP can become very high. For example, teacher coaches can have access to real-time assessment data and modify teacher support based on competencies where learning gaps are larger. While CAMSP scores low on ‘teacher feasibility’ because of increased work burden in conducting assessments and uploading data—however—it also offers teachers the opportunity to demonstrate their efforts and progress in reducing the learning gaps.

10.6 Limitations

Given the scarcity of evidence on effectiveness of the 2 policies (NLMS and RMP), our primary research focused on understanding the current status of implementation by collecting data from teachers, leading teachers and principals. While our online survey provides an overview of gaps in implementation of the 2 policies, further research is recommended to investigate the reasons behind weak implementation in schools. While our FGDs investigated these reasons with a very small sample purposely drawn from different regions and school types, more research is recommended using a broader sample incorporating greater diversity. For our online survey, while our teacher respondents included people across different regions, Key Stages and subjects, we did not follow a sampling strategy for the online survey—that was circulated among school teachers through Whatsapp groups by the MoE. This may have led to ‘selection

bias' where teachers who took the survey may possibly have systematic differences from those who did not. Given time constraints, our primary research was unable to include staff from the Teacher Resource Centers that form an important component of our policy recommendation, and it is recommended to have their inputs.

10.7 Conclusion

Enhancing learning outcomes in literacy and math for all primary school children is a major challenge for the MoE, Maldives— especially as the country continues to recover from the learning losses post COVID-19. While the MoE has adopted a progressive and ambitious agenda in the recently launched National Literacy and Mathematics Strategy (2022-23), it needs to be complemented with an actionable roadmap that leverages existing administrative structures and academic resources at the national, atoll and school levels. A special focus is required on struggling learners by building the capacity of teachers to implement effective and innovative pedagogies that are child-centered and accelerate learning. Finally, the Maldivian education system will need to build capacity in frequently monitoring the learning needs of its children to ensure no child is left behind.

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Three years since COVID-19 was declared a pandemic by the World Health Organization, in March 2020, students and teachers continue to experience challenges to their shared enterprise of teaching and learning. In part, this is because the learning trajectories of students were derailed by the limitations imposed during the acute crisis created by the school closures adopted during the pandemic, making it now essential to recover gaps in knowledge and skills in order to continue accessing the curriculum of higher grades. It is also because, related to what they were unable to learn during the acute phase of the crisis, some students have disengaged from learning, or abandoned schools altogether. Increasingly, it has become evident that these experiences and outcomes for students were very different across schools and jurisdictions, with the most vulnerable students experiencing the most significant disruptions to their learning opportunities. While the education results of the pandemic are fairly well known in broad terms, less well known are the important differences in how various education systems, across districts, states, or nations, fared during the pandemic, how some of them had or put in place programs to sustain educational opportunity during the crisis and to recover learning in the aftermath. Less is also known about important variations across systems in how they recovered from the crisis and about the challenges that they continue to face. This book advances our understanding of those critical differences across systems and provides a roadmap to building more resilient education institutions that can prepare students to invent a better future.

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