

CRISIS-LED APPROACHES TO TEACHING AND LEARNING IN BANGLADESH:

TOWARDS A BLENDED LEARNING FRAMEWORK

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20 families, and in-depth case studies of six promising teaching and learning practices). A separate report on the findings from the first stakeholder workshop has been published (Khan et al. 2021).

Main Findings From This Project

The findings of the review show a lack of research on blended learning in primary school settings, including the use of digital tools and outdoor spaces, and how the two might be brought together in a range of contexts. In the context of low- and middle-income countries, where two third of the population do not have access to internet or TV, innovative teaching and learning practices have been adopted by authorities and teachers for continuation of children's education, e.g. outdoor teaching in community schools of Kashmir and using Facebook live to deliver teaching from one's own initiative in Bangladeshi context. However, evaluation of these practices for children's learning and developmental outcomes is not evident. There is evidence of the adoption of outdoor learning to continue children's education in the earlier pandemic, in Europe and the USA (Messynessy, 2016), there is also evidence of benefits of outdoor learning for children's attainment in Bangladeshi primary schools (Khan et al 2019, Khan et al 2020).

Findings from the telephone survey with 201 teachers from both public and private schools from urban areas of Bangladesh (conducted between April-May 2021) indicate that teaching and learning during the pandemic using remote teaching tools has turned to "one-way delivery", with "little or no personal contact". Amidst the challenges of poor connectivity and lack of devices and tools and any guidelines from authority, some teachers are innovating using the limited resources at their disposal to address the 'digital divide'. The infrastructural and equipment deficits, spatial constraints, lack of training in the use of digital and outdoor spaces for pedagogy are the main challenges where they would need support from local and central authorities.

In-depth interviews and creative methods were used with 20 families suggests significant differences in children's experiences of learning at home across different socio-economic groups and school types. While children from

Executive Summary

Education systems in low-income countries like Bangladesh have rapidly responded to the Covid-19 pandemic with extremely limited resources, resulting in adaptive and unique approaches to teaching and learning (use of mobile phones; national television; online live teaching and downloadable resources), but many children are missing out on critical periods of their education. The situation is exacerbated due to the Covid-19 pandemic and reform in the education policy is underway in response. The research project 'Crisis-led approaches to teaching and learning in Bangladesh: new frameworks for outdoor, blended learning in low-income country contexts' addressed these challenges and seeks to inform policy through developing a framework to combine digital learning with outdoor learning for primary education in Bangladesh, to mitigate the impact of the pandemic, but also to improve children's educational and wellbeing outcomes in the longer term.

Through working in partnership between Cardiff University, Bangladesh University of Engineering and Technology (BUET), #NextGenEdu and Aspire to Innovate (a2i), and directly with primary teachers and schools, we have developed an evidence base of the emerging responses to remote, blended, and outdoor learning in schools, households, and neighbourhoods during the pandemic, and developed a collaborative network to address current problems and frame new solutions. The project activities (a review of existing evidence, a stakeholder workshop to explore existing practices and needs for research, field research in Bangladesh and a dissemination workshop) were jointly conducted by Cardiff University, BUET, a2i, and #NextGenEdu between February and October 2021 and supported by HEFCW GCRF funds. This report draws on the findings from the review of existing evidence and field research at two phases (telephone survey with 201 primary school teachers and headteachers, in-depth interviews and creative methods with



Figure 1a: A summary of remote teaching approaches taken and challenges faced by teachers during COVID-19 pandemic.

comparatively well-off families and attending private schools continued learning online, children from lower socio-economic backgrounds struggled to get any education. Overall parents and children expressed concerns over children’s mental wellbeing and physical health, lack of interaction with peers and teachers. Some positives were reported e.g. increased use of surrounding open spaces, and positive changes in relationships with parents and extended families.

Findings from the case studies of promising practices by teachers suggest use of individual initiative and work of extra and unconventional hours on part of teachers and volunteer teachers for adoption of outdoor learning initiatives and development and delivery of online content. Personal motivation as an educator and support from local authorities have been enabling factors for such innovative practices to happen while teachers also had to work against resistance from local authorities.

Key Recommendations

Key findings and recommendations from the survey include: prioritisation of teacher training in digital and outdoor pedagogies, context specific blended learning design through mapping of spaces for digital, home and outdoor learning, and integration of outdoor learning in curriculum. Recommendations from children and families included: more interactive online learning, and creating opportunities for play, social interactions and outdoor learning when schools reopen to make up for the ‘gap’ induced by the pandemic. Recommendations from promising practices include support from the local authorities and school management for implementation of blended-outdoor learning in schools.



Figure 1b: Impact of COVID-19 associated school closure on children and families

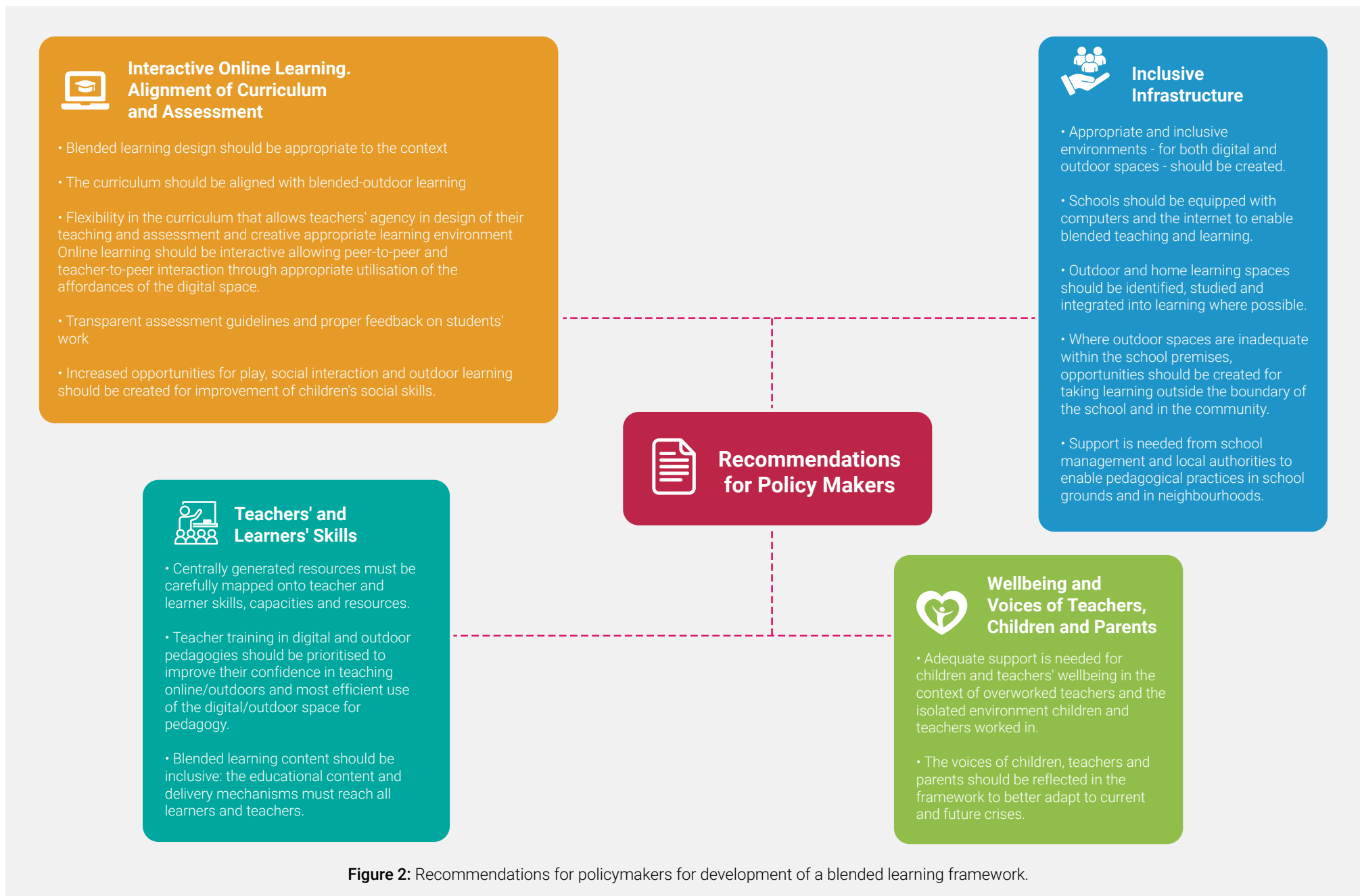


Figure 2: Recommendations for policymakers for development of a blended learning framework.

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LIST OF ABBREVIATIONS

A2i	Aspire to Innovate
BUET	Bangladesh University of Engineering and Technology
DPE	Department of Primary Education
GPS	Government Primary School
MoPME	Ministry of Primary and Mass Education
NCTB	National Curriculum and Textbook Board
NGOS	Non-Government Organisation run Schools
OLE	Outdoor Learning Environment
PE	Physical Education
PEDP	Primary Education Development Program
PPS	Private Primary School
SMC	School Managing Committee
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
UNCRC	United Nations Convention on the Rights of the Child

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1. Introduction

Education systems in low-income countries have rapidly responded to the Covid-19 pandemic with extremely limited resources, resulting in adaptive and unique approaches to teaching and learning (use of mobile phones; national television; online live teaching and resources), but many children are missing out on critical periods of their education. Smartphones are widespread, but few children have access to computers and quality internet connections. Equally, children living in dense urban environments have poor access to greenspaces and associated wellbeing benefits. The situation is exacerbated due to the Covid-19 pandemic and reform of education policy in Bangladesh is underway in response. This research project was developed to inform the education policy through developing a blended learning framework.

The research project 'Crisis-led approaches to teaching and learning in Bangladesh: New frameworks for outdoor, blended learning in low-income country contexts' addressed these challenges and seeks to inform policy through developing a framework to combine digital learning with outdoor learning for primary education in Bangladesh, to mitigate the impact of the pandemic, but also to improve children's educational and wellbeing outcomes in the longer term. The project activities (a review of existing evidence, a stakeholder workshop to explore existing practices and needs for research, field research in Bangladesh and a dissemination workshop) were jointly conducted by Cardiff University, Bangladesh University of Engineering and Technology (BUET), Aspire to Innovate (a2i), and #NextGenEdu between February and October 2021 and supported by HEFCW GCRF funds.

This report draws on the findings from the review of existing evidence and field research at two phases (telephone survey with 200 primary school teachers and headteachers, in-depth interviews and creative methods with 20 families and in-depth case studies of six promising teaching and learning practices). Two workshops were conducted. The first workshop collectively explored the existing

responses to the pandemic, challenges to, and success stories of teaching and learning, and insights on the development of a blended learning framework. The second workshop disseminated the preliminary findings with a wider audience. A separate report on the findings from the first stakeholder workshop has been published (Khan et al. 2021).

2. Findings from the Review: Learning at Home During Covid-19

The pandemic has had a severe impact on education across Bangladesh. Education has continued to be disrupted since school closures on the 18th of March 2020. During the pandemic-induced disruption to education, innovative measures have been adopted and rolled out by many governmental and non-governmental stakeholders for quick transitions to home-based learning, and to ensure continuity of education. The four common distance learning modalities: radio/audio, video/television, mobile phone, and online learning, have been utilised to promote inclusion and to increase access to quality teaching and learning (Cobo et al., 2020; UNICEF, 2020). Whilst Bangladesh, like many low- and middle-income countries, is endeavouring to use TV, radio, mobile phone, and internet platforms to reach a maximum number of students, only 33% of people in the region have internet access, and only 43.9% of households in rural Bangladesh own a television (Abbas, 2020; Abdullah, 2020; UNICEF, 2020; Wadud, 2020). In other contexts, low-tech and no-tech delivery approaches are reportedly being developed as part of current planning, for example in Kenya, Rwanda, Uganda, and Ghana, but are not presented as priorities (Wagner and Warren, 2020). In China, where the response is focused mainly on the online provision, there is some mention of TV-based learning for those in hard-to-reach areas (Wagner and Warren, 2020).

Besides learning modalities, the home learning environment and associated home contexts are significant factors that impact the success of learning at home. Resources, including families' time, income, and human, social, and psychological capital are differentially distributed across and within families, and impact upon

the kind of support that parents and caregivers can provide to assist children's learning (Wagner and Warren, 2020). Findings from the study conducted by Save the Children (2020) indicate that parents reported lower levels of parenting self-efficacy to support their children's learning due to space or resource constraints.

The Covid-19 virus spreads with less virulence outdoors, and one feature of the pandemic across a range of contexts has been to highlight the need for outdoor physical activity and spending time in outdoor, 'natural' settings. Countries such as Denmark, Scotland, the USA, India, and Ethiopia have expanded their outdoor classroom environments in response, whether in schoolyards, community parks, or trips to 'wilderness' spaces (Bhat, 2020; Humphries, 2020; Ostfeld, 2020; Marquez, 2020; Tarafdar, 2020; Wadud, 2020; Wagner and Warren, 2020). In other contexts, such as the UK, the pandemic has had a negative impact on the use of outdoor learning and activity centres (IOL 2021). There are also examples of where outdoor/digital spaces have replaced learning in the classroom. In Bangladesh and India, pre-recorded lessons for primary school students were broadcasted by a state-run television channel for children in outside spaces (Tarafdar, 2020; Wadud, 2020). Teachers in western India have painted village walls for outdoor pandemic classes, and teachers have been using these murals to help poor students keep up with their education in the pandemic (Tarafdar, 2020).

Outdoor classrooms are also reported as one of the most cost-effective ways to increase school capacity (Laudato, 2021). The challenges that come with being outside all day – dealing with weather, building shelter, unearthing the unexpected – are embedded in the learning process (Laudato, 2021). From a pedagogical standpoint, nature and the outdoors can inspire children's inherent curiosity (Dietze and Kashin, 2018). Research has also illuminated the value of outdoor experiences for child development and learning (Waters and Rekers, 2019). Before the pandemic, research conducted by Khan et al. (2019, 2020) in Bangladesh demonstrates how children achieved learning gains in maths and science, physical, and socio-emotional development when attending classes outside that

use features of outdoor environments to teach contents from the curricula. The physical qualities of outdoor spaces increase children's motivation to learn and

improve their attainment (Khan et al, 2016).

Besides the spatial aspects of learning and its accessibility, the evidence shows that teachers are facing pedagogical, didactic, and methodical challenges in planning and implementing teaching and learning activities online, with particular challenges around their digital competence (Lapada et al., 2020). Despite their positive attitude and motivation concerning the transition to remote teaching, teachers may feel hindered by the lack of necessary equipment, resources, and space (Lapada et al., 2020). Technologies that support education are not always developed with the curriculum in mind, and there is little literature exploring the impact of different technologies on children's learning outcomes, classroom engagement, and social inclusion. Previous research suggests a reluctance among teachers to actively adopt technology-based solutions or interventions in their everyday teaching (Ferdig et al., 2020). Clearly, there is no 'one size-fits-all' or 'right' approach to remote teaching during a crisis. Instead, planning and designing of approaches must take into consideration the education system, local solutions, learning environments, and community and home contexts in which learners and educators live.

In low- and middle-income countries (including Bangladesh), different modalities of education and teacher training are deployed. However, the use of outdoor spaces (in the absence of digital tools or infrastructure) is popular in both the global north and south. For COVID-19, proper ventilation is necessary to reduce the risk of transmission (Bond et al., 2020). Indeed, there is evidence to suggest that time outdoors protects children and educators against virus transmission (Quay et al., 2020). Therefore, during an outbreak, children and educators will be better off if they get outside more often. Children have a right to play outdoors (Bento & Dias, 2017; Bilton, 2010; Kernan & Devine, 2010) and nature offers them rich sensory experiences and materials that support their development (Khan et al., 2020; Spiteri, 2020).



3. Research Context, Methodology, and Analytical Framework

3.1 Primary Education in Bangladesh

There are many types of formal and non-formal primary level educational institutions managed by the government and the non-government organisations (NGOs) in Bangladesh (DPE 2021). A variety of schools operate within the country: government run schools, privately run schools, madrasah, NGO run schools and learning centres, and kindergarten schools, among others. However, they broadly fall under three major systems: public schools (government and registered), private (nongovernment) and the madrasah. Most schools in Bangladesh are run by the government (Government and Registered) and therefore most students study in government schools. More than 10.6 million students are enrolled in the government primary School from Grade 1 to Grade 5. Madrasas account for a significant number of students while schools such as English medium schools are few and mostly situated in major cities (Prodhan, 2016). Kindergarten also provides primary education to 2% of the students as a private authority (CREATE, 2011). The current research focuses on major urban areas in Bangladesh, more specifically in Dhaka and Chittagong, the two largest cities.

3.2 Methodology

The research study reported here was conducted in two phases. Research methods included telephone survey with teachers and headteachers from primary schools at phase 1 to understand their approaches to, challenges faced, and solutions adopted during remote teaching over the course of the pandemic. At phase 2 data were collected from children and families to understand their experiences of learning at home during the pandemic. A further in-depth case study of six promising teaching practices were also conducted during phase 2. Ethical approval for this project had been obtained from the Cardiff University.

Phase 1: Telephone survey with teachers

Due to the local lockdowns during the pandemic in Bangladesh, remote methods of data collection were used for this first phase. 201 teachers from both public and private schools from urban areas of Bangladesh (primarily Dhaka and Chittagong) were interviewed over the telephone between April-May 2021. The survey gathered quantitative and qualitative data regarding their approaches to remote teaching (via internet or mobile), the regularity of contact, barriers in teaching and learning during the ongoing pandemic and perspectives on blended-outdoor learning. Interviews were conducted in Bangla which were then transcribed in English.

Phase 2: in-depth interviews and creative methods research with families, and case studies of promising practices

There were two components of this phase of data collection. The first focused on the experiences of families, and particularly of children learning at home in the pandemic. The second explored in more depth the promising teaching and learning practices adopted by teachers during the pandemic.

In-depth interviews and creative methods research with families

In-depth interviews and creative methods were conducted with 20 families with children attending primary schools was conducted to understand the impact of

crisis-led learning at home during the pandemic. The sample included children from a range of socio-economic background and attending different types of schools to ensure diversity and inclusivity in the sample. Parents of children with disabilities (but not the children themselves) were also interviewed as part of this phase in the study for an understanding of how the pandemic has impacted children with different abilities. The study was conducted between July-September 2021

Case studies of promising practices:

An in-depth study of six promising practices was conducted. We defined 'promising practices' as when teachers had developed strategies or innovative approaches for blended and outdoor learning during the pandemic. The promising practices were identified through a range of methods – including those identified directly through the questionnaires with teachers in phase 1, articles or clips from popular news media, and through cases identified in the first workshop. The data were collected between July-September 2021.

3.3 Data Analysis

Qualitative data from phases 1 and 2 were analysed using Nvivo, whilst quantitative data from phase 1 was analysed through SPSS and Excel. All questionnaire data (quantitative and qualitative) from phase 1 was inputted into Excel before relevant quantitative data was extracted into SPSS for analysis; whilst qualitative data was extracted into Nvivo for further analysis. Online interviews from phase 2 were first transcribed and cleaned before they were imported to Nvivo.

4. Results From Phase One: Telephone Survey With The Teachers

In this section we discuss the results from the first phase of the research, a survey of primary school teachers which focused on their experiences of teaching and learning in the pandemic.

4.1 Participant Profile

Table 4.1 summarises the demographic information of the 201 teachers who participated in the telephone interview. 66% of participants are female, which is not surprising given that the majority of primary school teachers are female in Bangladesh. Most participants (57%) are from the age group 35 to 44 years. 78% teach in public primary schools representing the major education provided in Bangladesh, and more than 90% are on permanent positions. The participants were mainly from urban areas of Dhaka and Chattogram (74%). The rest are from urban areas of different districts of Bangladesh.

75% of participants had passed Higher Secondary Examination, the remaining 25% have either a master's or bachelor's degree. The teachers were asked about their qualification regarding training, and it is found that majority (51%) has completed Certificate in Education (C in Ed) and a further 38% has completed a Bachelor or Master in Education (B.Ed/M.Ed). Only 3% of teachers have received training on ICT and a similar percentage have not received any training at all. In

terms of teaching experience, the majority (66%) are in the boundary of 5-14 years of experience in the primary education sector. All teachers in the sample are teaching more than one subject, and some of them teaching all the subjects at primary level. Participants come from a variety of socio-economic backgrounds with the household monthly income of a majority (71%) between BDT 10-69k (US\$117-US\$808) with only 2% earning below 10k and around 16% over 90k (US\$1054).

Most participants teach in public primary schools, either government or registered primary schools. This section provides a summary of the infrastructure and facilities available in the schools where the teachers in this survey worked.

Table 1: Profile of Teachers

		n	percentage
Gender	Female	133	66.2
	Male	68	33.8
Age	Less than 24	4	2.0
	25-34	55	27.3
	35-44	114	56.7
	45-55	26	13.0
	Above 55	2	1.0
Monthly Household Income (BDT)	< 10k	2	1.0
	10-29k	42	21.5
	30-49k	49	25.1
	50-69k	47	24.1
	70-89k	24	12.3
	90k+	31	16.0
Educational Qualification	HSC	151	75.1
	Bachelor/Degree	47	23.4
	Masters	3	1.5
Teacher Training	C in Ed	102	50.8
	B.Ed./M.Ed.	76	37.8
	ICT	7	3.5
	Subject-wise	34	17.9
	Others	46	22.9
	None	7	3.5
Teaching Experience (Years)	0-4y	27	13.4
	5-14y	133	66.2
	15-24y	29	14.4
	Over 25y	8	4.0
School Type	Public (Gov. & MPO reg.)	157	78.1
	Private	40	19.9
	Others (Unreg. & non-formal)	4	2.0



4.2 School Facilities Before The Pandemic

To establish a baseline to compare facilities available at home for children learning at home, and for teachers' digital literacy, we ask participants about the existing facilities in their schools, particularly computer and multimedia equipment. In terms of available school facilities, most schools have general classroom equipment, for example chairs, tables, benches, lighting, and a blackboard. Around 66% of schools had multimedia classrooms and/or computer facilities, and an additional 25% had a computer lab in their school before the pandemic (see Fig 3 a and b below). Our data revealed 60.2% of schools have laptop or desktop in their school and 59.7% have projector, a further 39.3% have multimedia classrooms. training on ICT and a similar percentage have not received any training at all. In terms of teaching experience, the majority (66%) are in the boundary of 5-14 years of experience in the primary education sector. All teachers in the sample are teaching more than one subject, and some of them teaching all the subjects at primary level. Participants come from a variety of socio-economic backgrounds with the household monthly income of a majority (71%) between BDT 10-69k (US\$117-US\$808) with only 2% earning below 10k and around 60% over 90k (US\$1054).

82% of the schools in urban areas had access to some form of open space (playground/ field/ garden), and 33% has indoor playroom or space. Over 20% schools have a field (28.85%), garden (25.87%) or schoolyard (23.88%) (see Fig 4a below). Only 19% of schools do not have any open space. However, only 46% of teachers were making some use of outdoor space for teaching, mostly for teaching science, and 36% had never utilised the outdoor spaces (see Fig 4b).

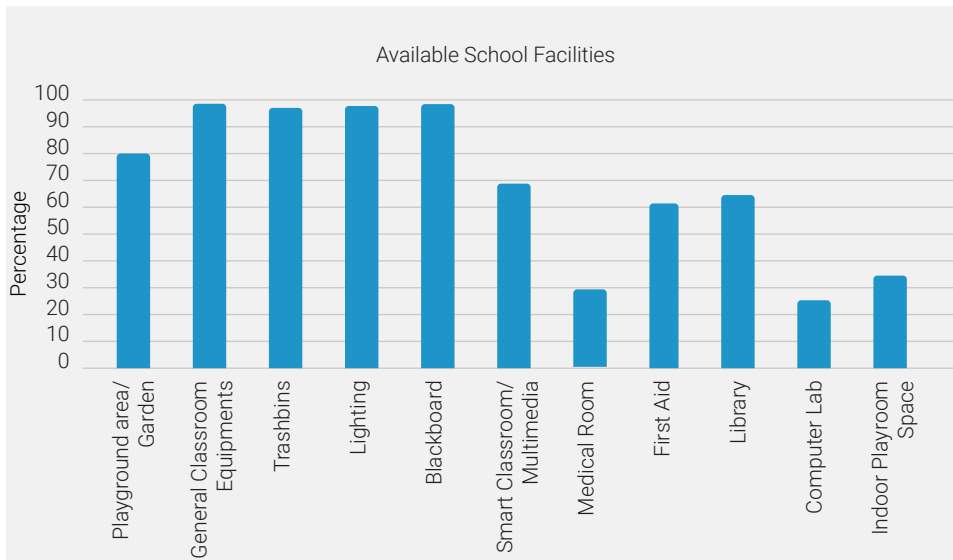


Figure 3a: Available school facilities before the pandemic: Percentage of interviewed teachers who had access to these facilities.

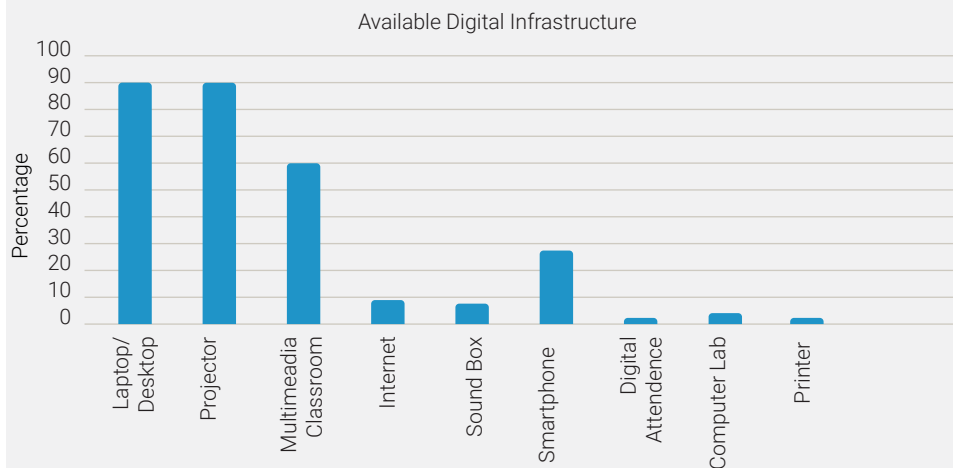


Figure 3b: Available digital infrastructure and facilities in schools: Percentage of interviewed teachers who had access to these facilities.

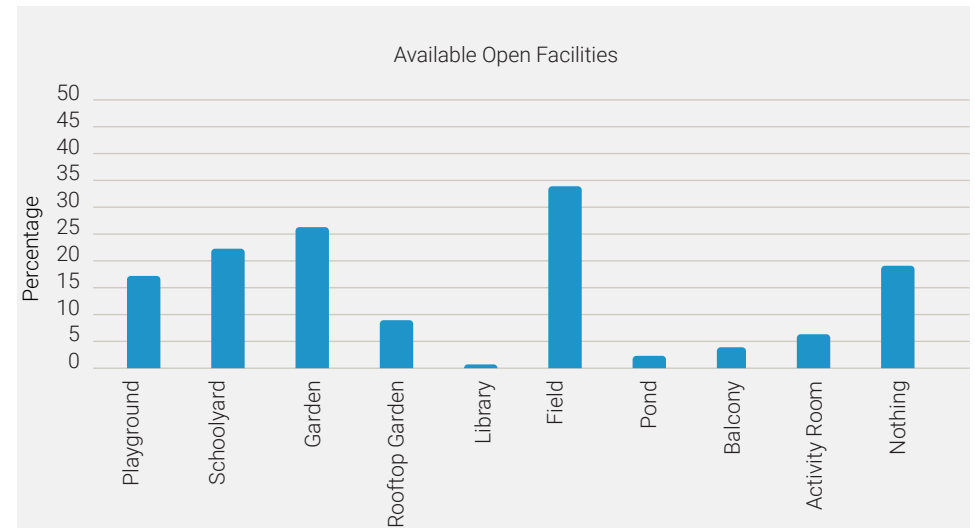


Figure 4a: Percentage of interviewed teachers who had access to open spaces in and around school, and type of open space accessible

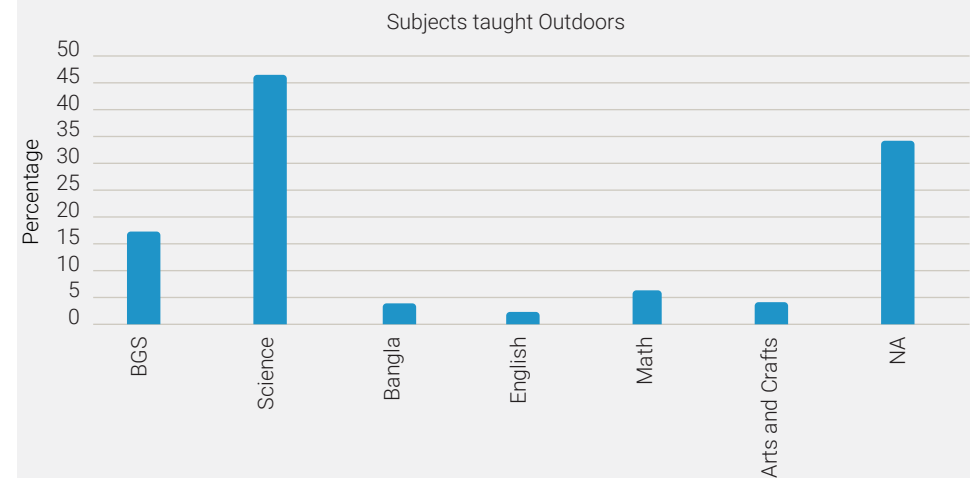
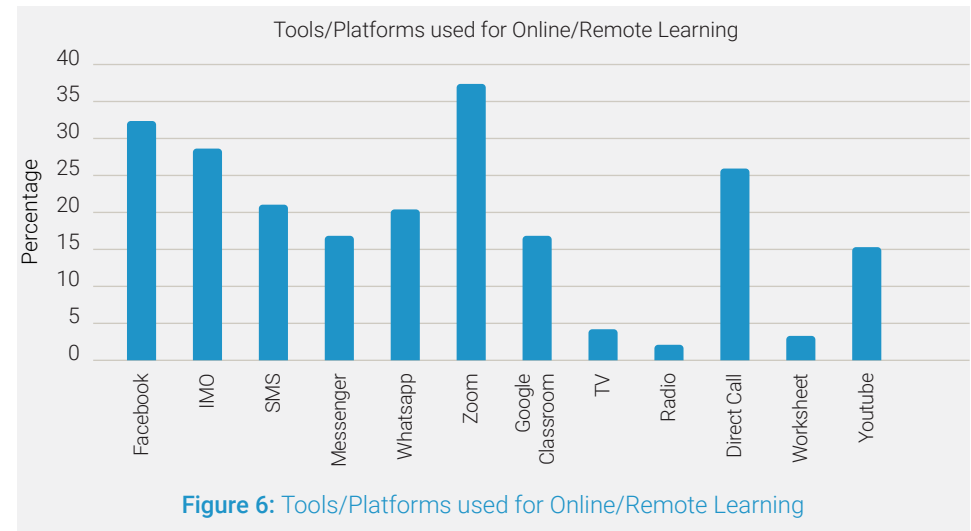
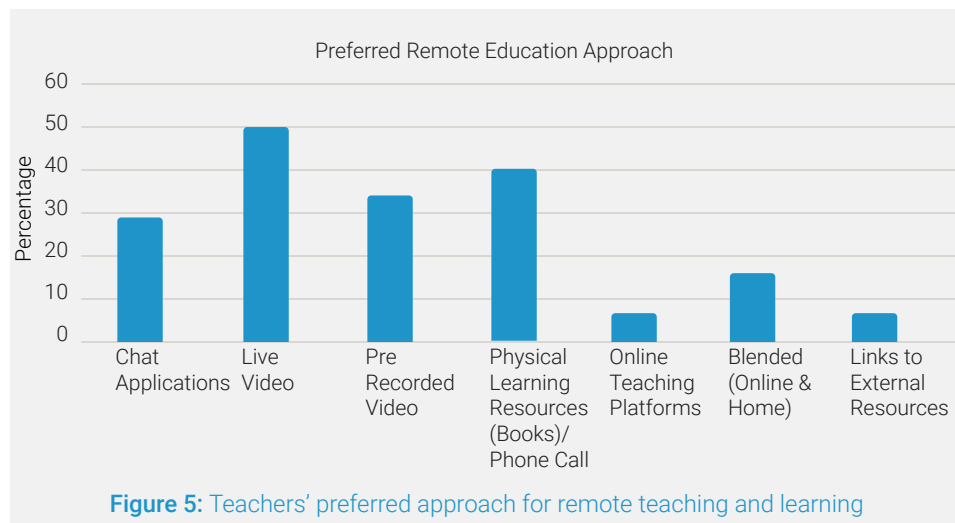


Figure 4b: Subjects where surrounding outdoor space was used: percentage of respondents who reported doing subject outdoors.

4.3 Different Crisis-led Approaches to Remote Education: Affordances of Digital Learning Platforms and Outdoor Spaces

Teachers used a combination of low-tech (e.g. radio, television and phone calls), high-tech (e.g. online platforms and tools: zoom, google classroom, etc.) and no-tech approaches (work sheets, in-person teaching at home) to deliver teaching and learning in response to the pandemic. There were significant variations in the type of education that young people were able to access from their home across different type of schools. While most private schools have continued teaching online using a range of platforms, the majority of students attending Government Primary Schools (GPS) were left with low- and no-tech options, typically because teachers, learners or both had poor access to devices (laptops, phones), had poor internet access, or were not well-equipped to deliver adequate online learning.

Our survey findings suggest that around half of the teachers preferred live video as the most for remote teaching (that mimicked traditional classroom teaching) followed by physical learning resources, such as books and communicating with students through phone calls. Online teaching platforms were only favoured by 7%, and zoom was the most used method (37%) for online teaching.



4.3.1 Low-tech Platforms and No-tech Tools: TV, Radio and Worksheets

The Ministry of Education in Bangladesh began offering programmes to enable children’s learning from home via radio and over a state-owned television channel, Sangsad TV in response to the pandemic (Ria et. al, 2020). The programs like ‘ghore bose shikhi’ (learning from home), ‘amar ghare amar school’ (my school is at my home) aired via Sangsad TV were available via their Facebook pages and YouTube accounts.

In Bangladesh, during the first lockdown, teachers who responded to our survey asked students to watch television classes or listen to radio lessons particularly to the students with little or no access to digital devices. Some teachers recorded their lessons and “Broadcasted from local Cable TV channel. Also we uploaded our content in the Facebook page 'biswomvorpur online pathshala” (Female, GPS, Dhaka South). Another teacher from Chittagong shared that, “I also like Sangsad TV classes, I think that is really helpful. There is a Sangsad TV app, we also use that to update data about students” (Male, GPS, Chittagong).

Teachers also expressed that they are following a print-based learning model, making use of textbooks, guidebooks, and reading lists, more closely mimicking the kind of learning that might happen in schools. A teacher shared:

“Most of my students do not have access to online classes directly. Even I am not sure if they are watching the TV when it is class time or not. I prefer to give them worksheet and then take it back. These worksheets are made by teachers of same area, it is shared with us. Some time I add more questions to it”
(Female, GPS, Dhaka North).

Despite the availability of TV-and radio-based lessons early in the pandemic, relatively few students in Dhaka reported using these offerings as their primary form of learning during school closures (Jones et al., 2021). During the second lockdown, teachers in our survey mainly depended on phone calls to engage students in remote learning, however there were challenges accessing them. A teacher shared:

“There was instruction from upozilla shikha office that the kids that are not available online, we need to call them. The problem was managing time, may be the father is riding van when I called, later I used to go to their houses, I could reach only 20% of the kids through online. We got worksheet from NAPE that we distributed house to house. We have registry for when we will be in the school and we have informed the kids as per requirement, so they fill up the sheets, and their parents will bring those to the school. We actually did it even before, now we are just following as per NAPE”
(Male, Govt, Dhaka North).

4.3.2 High-tech Approaches: Teacher-directed Live Streaming Lessons and Flexible Learning

Several teachers in our survey who had stable access to the internet and digital devices (see also section 4.5 below) reported of organising live-streaming sessions so they can facilitate students’ flexible learning and avoid being bound to a fixed programme as might be found in TV and radio resources. Some teachers shared that they have started recording videos for their Facebook handles or their school’s YouTube channels, “Since last year, we started using fb [Facebook] live for teaching. Then we used to call the kids as per instructions from the department. DPEO (District Primary Education Officer) also opened a YouTube

shared that they have started recording videos for their Facebook handles or their school’s YouTube channels, “Since last year, we started using fb [Facebook] live for teaching. Then we used to call the kids as per instructions from the department. DPEO (District Primary Education Officer) also opened a YouTube channel for the recorded class” (Female, GPS, Dhaka North). Teachers further elaborated about how they used Facebook live or recorded sessions for teaching,

“We have divided the students into multiple groups (15-20 students each group). We use the school Facebook page to post about the detailed class schedule to share the zoom link or messenger class schedule. We tell the kids of one group to gather in any of the kids’ houses.”
(Female, GPS, Dhaka South).

4.3.3 Summary

Overall, teachers demonstrated that whilst they were aware that online interactive platforms could potentially be the most useful for teaching children at home and remotely, the circumstances of most of the children (i.e. limited or no access to the necessary technologies) meant that such delivery was not possible and would not reach most learners. Instead, they adapted their approach to make use of TV and radio resources, but even these could not be guaranteed to reach all learners. Instead, many reverted to more tried-and-tested methods that they and their students were likely more familiar with, using physical worksheets and other materials which could be worked through at home. Worksheets were available from NAPE and there were instructions from Government to call children at home who could not access online learning from home. Yet an important challenge remained about accessing children during work hours where the only phone remained with the parent at work.

4.4 Teachers' Views of Students' Experiences of Learning at Home

In our survey, teachers mentioned a range of factors that they consider are impacting children's access to education and their learning experiences at home during the pandemic. The majority of teachers mentioned the limited access to a smartphone or laptop (75%) and internet inaccessibility (82%) (see Figure 7), as the main factors preventing students from accessing learning at home. Spatial contexts (digital and physical) for learning at home, parents' education, efficacy and socio-economic background, lack of contact with peers, lack of concentration are the main themes that emerged from the qualitative insights shared by teachers that are affecting children's learning experiences and attainment.

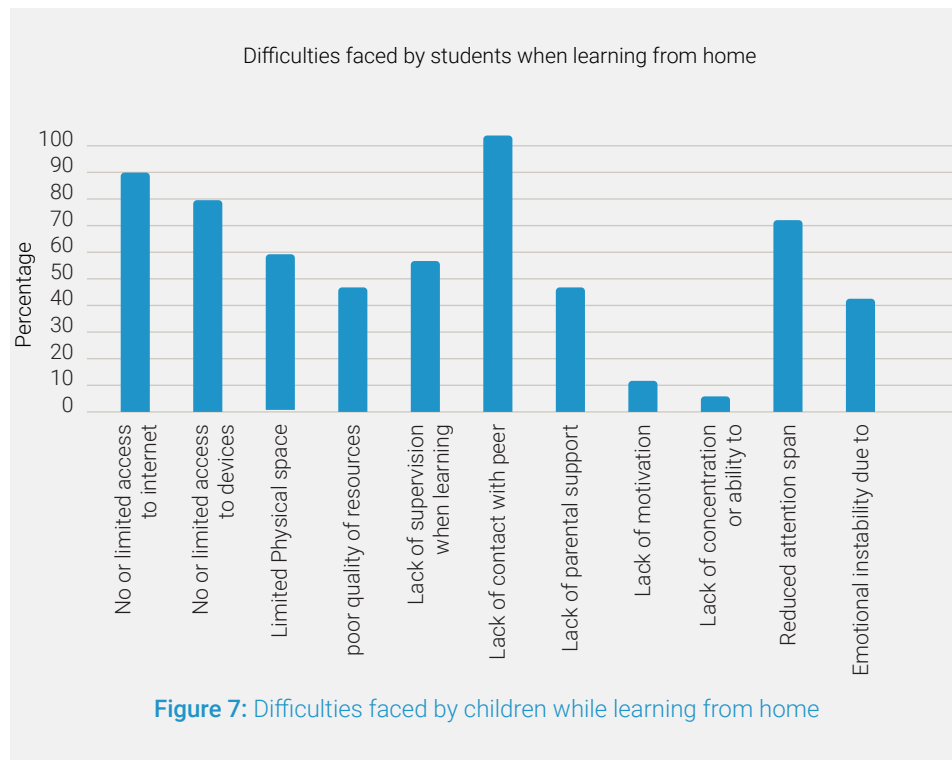


Figure 7: Difficulties faced by children while learning from home

4.4.1 Spatial Contexts of Learning

The spatial context of learning (i.e. the children's homes) varied significantly among children coming from varying socio-economic background and attending different types of schools. According to teachers in our survey, the majority of students are using smart phones to access online learning with only a handful have access to a laptop (Figure 8).

Overall students attending government primary schools belong to low Socio-Economic Status (SES) group do not have the proper learning environment equipped with the necessary digital devices and physical tools (such as chairs, tables, writing equipment etc.). This trend is similar across Dhaka, Chittagong and other urban areas. A teacher from Dhaka South shared this concern:

"Since most of the students don't have enough space and most parents don't have digital devices for online classes so the home environment is having a negative effect on their learning"
(Female, GPS, Dhaka South).

Teachers from Dhaka North echoed similar concerns, a teacher shared,

"They do not have enough space to study with siblings as well as steer on parents, that's why they want to come to school"
(Female, GPS, Dhaka North).

In terms of Chittagong, teachers shared that the majority of students belong to the low-Socio-Economic Status group. A teacher shared that:

"Most of my students belong to families living under poverty. Their family members aren't that conscious about the necessity of education. there is not enough space, chair, table for their studying"
(Male, GPS, Chittagong).

The home environment is affecting the focus of students according to our teacher respondents. Teachers from Chittagong explicitly shared the impact of the home environment on students' progress and concentration. A female teacher said:

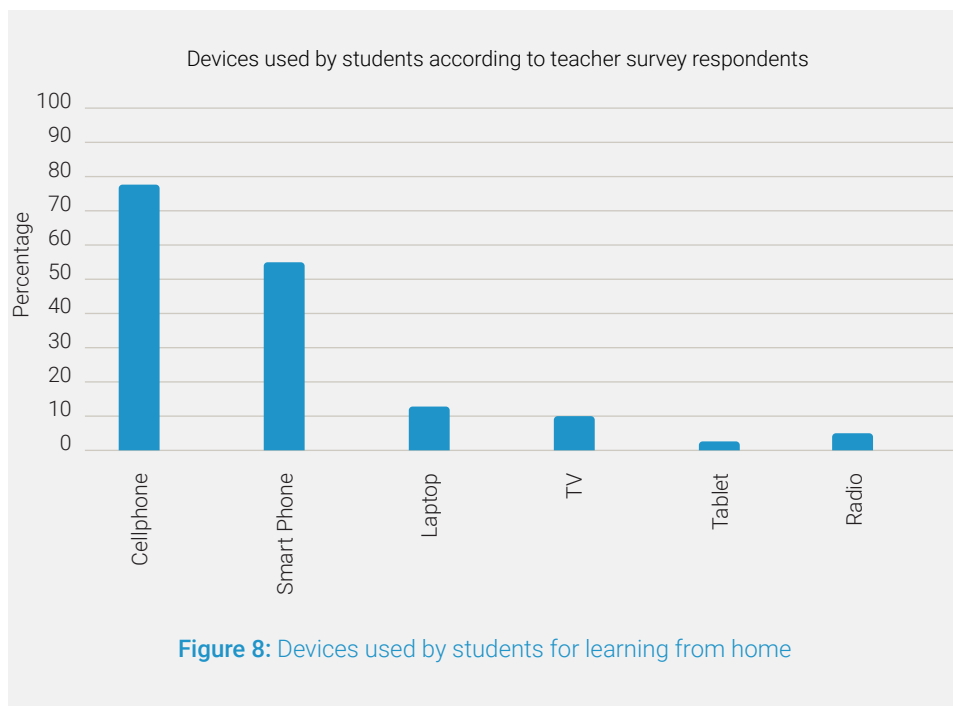


Figure 8: Devices used by students for learning from home

“I do not think they are progressing. They are learning 30% of what they could learn at school. I think the home environment is affecting, and for 90% of students, it is affecting negatively. Since most of them are slum dwellers, there is always some noise of TV or someone quarrelling. If the student tells them to keep quiet, s/he gets yelled at instead. Parents do not care about the learning environment at all”
 (Female, GPS, Chittagong).

For students going to private schools and coming from better-off families, the experience was positive during the first lockdown which changed over the course of time as teachers’ reported disengagement and disinterest.

“The kids are interested to study from home, actually it is easy choice for the ones who can afford this. For the rest, they are the sufferers and they are not liking it at all”
 (Male, GPS, Dhaka North).

A teacher from Dhaka South expressed that:

“I think they are not too interested right now. In the beginning, they were so excited, they were so happy to see their teachers on the phone screen. But now they are unhappy because they cannot come to school. Some students also feel frustrated because their friends have devices and can attend classes, while they cannot”
 (Female, Govt, Dhaka South).

4.4.2 Parents’ Support, Education and Socio-economic Background

Most teachers shared that those students from a low-income background have been affected adversely during the pandemic. In most cases, parents from low-SES groups did not have the time or efficacy to support or supervise their children’s learning. A teacher shared:

“Parents are not supporting much either. Since most of my students are from low-income backgrounds, they do not care much about education. Some are from broken families, their situation is worse than others, nobody cared about them at home. The school was their place for refuge”
 (Female, GPS, Chittagong).

A teacher from Dhaka South shared that:

“Our students’ parents aren’t that much educated. Still, they try to help as much they can but that’s not enough. they must take their phones to work place. after returning from work, they get busy in household chores in the evening. So they feel a bit annoyed when we call them in the evening”
 (Female, NGOS, Dhaka North).

Teachers also thought that pandemic and the school closure was also impacting parents' motivation. A teacher from Chittagong said:

"Parents are losing motivation; they have their work and say 'how much longer will we teach them?' as their time is occupied. However, some help the students in completing the homework." (Female, GPS, Chittagong).

Teachers also shared that where parents had means they appointed private tutors to look after their children's learning:

"Some parents arranged for private tutors. Those who do not have any television at their house, send their children to other students' houses, students who have a TV at their house. Some parents are allowing other parents' children in their house to watch Sangsad TV even in this pandemic time, which is very generous of them" (Female, GPS, Dhaka North).

4.4.3 Impact on Children's Wellbeing: Lack of Contact with Peers and Reduced Motivation

The majority of teachers in our survey expressed concerns around the negative impact of remote learning on children's wellbeing. Lack of contact with peers, lack of motivation and addiction to online games are the three main themes that emerged from teachers' qualitative insights.

In terms of engagement and socialisation, a teacher from Dhaka South said that

"Students aren't attentive about their studies. They are eager to be back in school for regular class activities" (Female, Govt, Dhaka South).

Another teacher from Dhaka South expressed:

"At the beginning, students were very interested. But with the passing of time, they are getting bored. Well, there are still some exceptions, some students still like to attend classes. But the number is very few. Students are missing the classroom, their friends, and classroom environments" (Female, GPS, Dhaka South).

During the pandemic, teachers shared the issues of addiction, a teacher from Chittagong said that:

"A few students keep up with their studies. Many students who have phones are getting addicted to playing games. it's difficult to keep them engaged in studies when we aren't being able to evaluate their learning. The students who don't have any device are lagging behind. Students are rather eager to be back in school" (Male, GPS, Chittagong).

Another teacher from Dhaka North expressed that:

"A few students are serious about their studies but most of them are developing digital device or game addiction. Not just during class time, they are using the phone for game/cartoon for hours and hours which is

having a negative impact on their mental health and behaviour. Those who couldn't manage the device for the initial months have lagged behind in studies”
(Female, PPS, Dhaka North).

4.4.4 Summary

Overall teachers demonstrated that parents' background (education and socio-economic status) have impacted on children's access to education, and their support at home. The spatial context of the home was also important, particularly if children did not have access to basic resources and a quiet space to do their schoolwork. School closures have further contributed to a digital divide as limited resources and limited competencies made it difficult for students from low-SES backgrounds to learn and engage in comparison to peers with better access. In addition, school closures have affected the mental health and wellbeing of children from all strata, where children with access to ICT developed addiction to online games, those who could not manage device have lagged behind in their studies.

4.5 Barriers and Challenges Faced by Teachers

Our survey findings suggest that the main barriers teachers faced while teaching during the pandemic are infrastructural and equipment deficits, lack of training and support, and impact on personal health and wellbeing.

Teachers faced several challenges related to access and use of ICT. Although 97% of teachers surveyed had a personal smart phone, only 58% of them had access to a laptop to deliver online teaching (Figures 9 and 10). Not all parents have cell phones/laptops, and internet signals are poor for many, both of which determine the instructional activities that can take place between teachers and learners.

Many teachers in our survey shared that they also did not have appropriate working environment at home to deliver teaching online. In terms of spatial constraints, teachers shared spatial and temporal issues. A teacher said:

“I show them from the book on my live class, I record the video from my \ home so there is a lot of problems regarding lighting, sound quality, checking if any student is commenting. Also, some of my colleagues need help, so I also manage some time to give them training, my time schedule is all over the place since I have to do everything like collecting information of school activities then submitting on the government page. I must say, I am struggling to manage my time”
(Male GPS, Dhaka South).

When we asked about training, 82% of the surveyed teachers shared that they did not have any training that would prepare them for remote teaching during crisis (see Figure 11).

A teacher from Dhaka North said,

“Not that much. Sometimes little technical support related to content making”
(Male, PPS, Dhaka North).

Another teacher from Chittagong elicited that:

Primary school teachers are not learned about online learning; they know less about the digital world. Online teaching creates extra pressure, which is unidentified, and no benefits are given, teachers are not trained well including me, even simple slide preparation is very difficult for me”
(Female, Non-Govt MPO Registered school, Chittagong).

Many teachers surveyed mentioned that they are juggling housekeeping, family responsibilities and their own well-being during the lockdown. There was an increase in workload which affected their wellbeing.

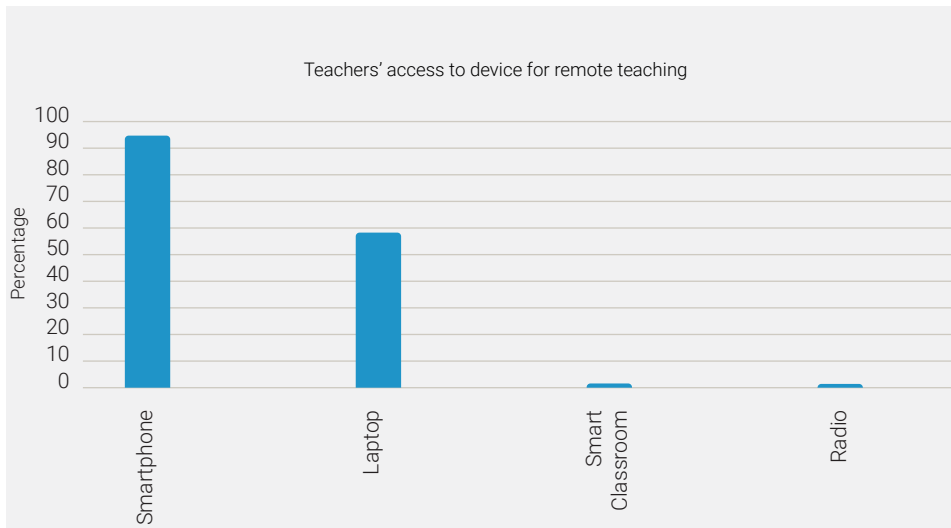


Figure 9: Teachers' access to device for remote teaching

Internet Coverage experienced by teachers

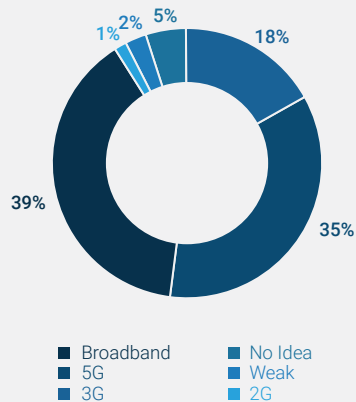


Figure 10: Internet coverage experienced by teachers

Traning for preparation of online teaching

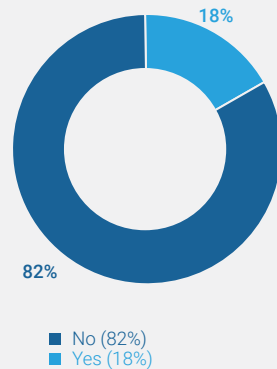


Figure 11: Teacher training preparing them for online teaching

"Initially the workload was reduced because school was closed. Then when school initially opened, we weren't understanding how to adjust everything. Often our class time passed just by trying to follow covid health rules, we couldn't do any teaching learning or assessment. Later when we got back on track, workload increased since we had to conduct teaching and learning, teaching prep, and checking assignments and then distribution of food relief among students"
 (Male, NGOS, Dhaka North).

Another teacher said:

"I get migraines from calling and talking to the students, I cannot reach all students, as the timing of the parents are different. As they're often working outside, parents sometimes misbehave and don't give enough importance when we call them. It's also difficult to find all the students over the phone"
 (Female GPS, Dhaka North).

When we asked teachers on how they mitigate challenges, the majority of our teacher participants shared that they received support from headteachers or their colleagues. A teacher said:

"Colleagues are helping each other with compassion, explaining digital platforms and applications; there's family support. It's tough for a woman to work if there is no support from family, they're taking care of my children while I'm working" (Female GPS, Dhaka North).

In summary, although teachers faced physical space and ICT related problems, and issues associated with lack of training and support from authorities, they are helping each other out in various ways. However, these issues are not only affecting instructional activities but also their personal health and wellbeing, with likely impacts on their ability to teach effectively either in the classroom or online.

4.6 Preferences of a Blended (Digital+Outdoor) Learning Framework

Most of the participant teachers (58%) have not considered combining outdoor learning with any other remote or online teaching approach. The majority (74%) also did not consider teaching outdoors however, 15% teachers thought it was 'completely possible' and 50% of teacher thought it was 'somewhat possible' to teach outdoors (see Figure 12a and 12b). Teachers also thought 86% of students would be willing to have classes outdoors.

In regards teaching and learning after the pandemic and in the long term, teachers express favourable attitudes towards blended-outdoor learning. A teacher from Dhaka South shared that:

"Activity-based learning or real-life learning helps students to learn science profoundly. Besides students will find subjects like Bangla, Religion and Bangladesh and Global studies more interesting through these methods"
(Male, GPS, Dhaka South).

Another teacher explained that:

"For example, while teaching plants we show photos in the classroom or at home, and then take them outside to the school garden and show it to them practically and things that are not available, outdoors, those can be shown via projector from a laptop or smartphone. I do an activity where in the science lesson, I teach them about how the planets rotate against the sun, which I do in the classroom. This activity can be done outdoors"
(Female, GPS, Dhaka North).

In order to implement blended-outdoor learning, one teacher suggested that this required curriculum alignment, he said:

"If our curriculum is made for blended learning, and the infrastructure is planned then it can be done. We need the facilities, and an aligned curriculum. With the

present curriculum blended learning is not possible. We need to give flexibility on course plan preparation in blended learning" (Male, PPS, Dhaka South).

Moreover, a majority of teachers think that they need support from schools and policymakers, a teacher shared that:

"It can be done if the school authority arranges and facilitates. Outdoor learning can be effective for Science, Bangladesh, and Global studies. Students can learn about different types of soil from outside spaces"
(Male, GPS, Dhaka South).

Another teacher echoed similar views, she shared:

"It's not included in the current regulations, if it is included then we can try it. It is that I can't just take the kids outside unless it is required to do it. So, I think, if the principal tells us to do so, then we can try to use outdoor teaching methods"
(Female, GPS, Dhaka South).

In summary, teachers interviewed in our study shared a positive attitude towards blended learning framework, however, they mentioned the importance of alignment with the curriculum and appropriate infrastructure along with support from local authorities and school management for its implementation.

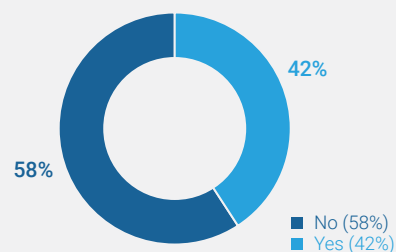


Figure 12a: Consideration of combining outdoor learning with any other approach

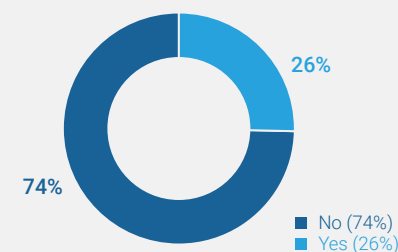


Figure 12b: Consideration of taking classes outdoors post pandemic

5. Results from Phase Two: In-depth Interviews and Creative Methods Studies with Children and Families

In this section we discuss the results from the second phase of the research, a survey of 20 families which focused on children's experiences of learning in the pandemic and how it affected the families.

5.1 Participant Profile

Table 2 summarises the demographic information of the 20 families who participated in the in-depth study that included interviews with parents and children and engaging children in creative methods i.e. drawing, crafting, photography and videos taken by children. Either of the parents could participate in the interview, but most were female, and in the case of one family both parents participated.

More than 76% of the parents are between the age of 35 and 44. Despite our efforts to select families from diverse SES backgrounds being somewhat successful, as reflected in the wide range of household income in Table 2, the sample is slightly skewed towards higher income groups with four families earning above 130k and only one family below 10k. Around 62% of the participants had a master's degree or equivalent where 24% participants did not have any education or studied up to Grade V. The participants are also from diverse professions that included a maid, a garment worker, homemaker, banker, engineer, architect and dentist. The household size had a range of 3-5 which

suggested a typical nuclear family in most cases, however two families lived close to their extended family i.e. different floors of the same apartment, and one grandparent also participated in the study. The sample also included two families with disabled children (autism and SEND), where only the parents were interviewed.

Participating Children's Profile

A total 18 children participated in the study between the ages of 6 to 11 of whom 44% are boys and 56% girls, the mean age of participating children is 8.94. More than 50% of the participating children attended private school, which corresponds with the household income of the families, whilst 10% of them attended schools for children with special needs.

Table 2: Profile of parents/caregivers who participated in the second phase

		n	percentage
Gender	Female	18	86.4
	Male	03	13.6
Age	Less than 24	00	00.0
	25-34	03	13.6
	35-44	16	72.8
	45-55	02	9.0
	Above 55	01	04.6
Monthly Household Income (Bdt)	< 10k	01	05.0
	10-39k	06	30.0
	40-89k	05	25.0
	90-129k	05	25.0
	130k+	04	20.0
Educational Qualification	Upto Grade 5	05	22.8
	SSC	02	13.6
	Bachelor/Degree	01	04.6
	Masters	13	59.0

5.2 Spatial Contexts of Children and the Families

The spatial context (physical and digital) varied across different families who participated in our study. The majority of participants lived in flats (75%), 25% of the families were renting a room with another family or were located in a slum (figures 13 and 14). Only one family were living in a detached two storey house. All

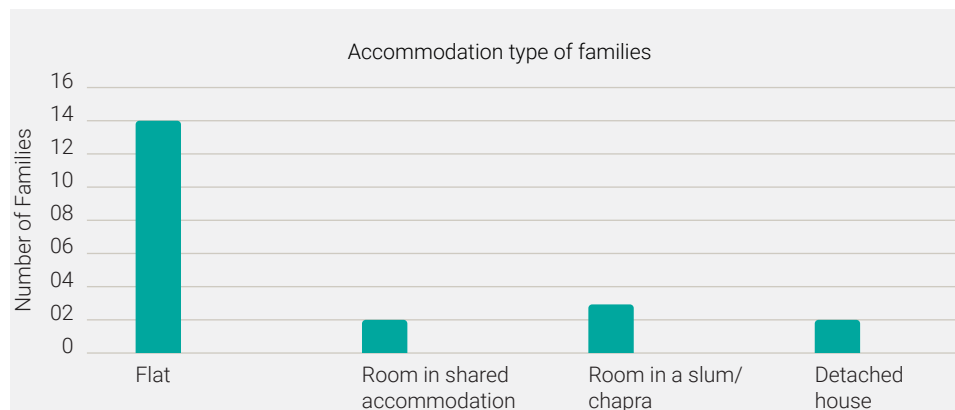


Figure 13: Accommodation type of participating families

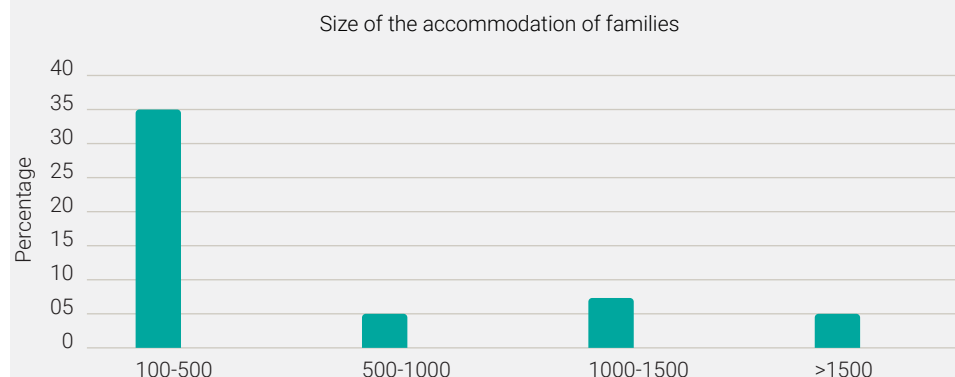


Figure 14: Size of the accommodation of participating families

families except three were renting their flats or rooms. The families living in their own house or renting a room in slums have access to the ground floor. Most of the families have access to a balcony (76%) and/or a roof garden (62%). The majority of the families also have some sort of access to an outdoor space, i.e. parks or open grounds, however some of these open spaces were fenced and locked during the lockdown.

Digital Infrastructure

All families have access to wifi and/or phone data with six families having limits to their use of data. All families have access to a smart phone or tablet, more than half of the families have access to a laptop (Figure 15). Even where children have access to a laptop, smart phones were mostly used by children to access online classes.

Our sample of families was skewed towards those of middle- to higher-SES, however, it did also include those of lower-SES. The majority had limited immediate access to private outdoor space because they lived in flats, typical of many urban dwellers in Bangladesh. It was notable that access to ICT devices and to the internet appeared greater than what teachers suggested their students had access to in our teachers' survey, which again might reflect the overall medium- to high-SES status of those families who participated in this part of the research.

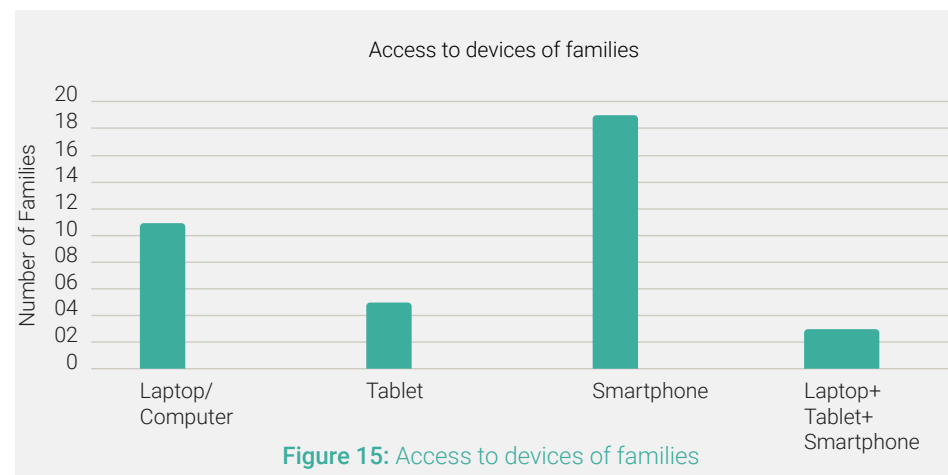


Figure 15: Access to devices of families

5.3 Children's Experiences of Learning at Home

5.3.1 Children's Access to ICT and Experience of Online Classes

Our phase 2 study findings suggest that children's access to and experience of online classes varied across different socio-economic groups, and different age groups of children. Children attending private schools had access to regular online classes and continued to learn amidst the pandemic, whereas their counterparts from lower socio-economic groups going to either government or NGO-run primary schools in most cases did not have access to regular online classes as indicated in parents' words:

"If I could admit them to a good school where they are taking regular online classes that would be good, but we cannot afford good schools." (Parent).

"The problem is he [son] is not going to school for over one and half years. So he is not learning anymore. Last year there was no learning at all like it used to happen in the classroom, where the teachers could guide them what to study and how to read and write. Last year [2020] they were totally out of any education. This year [2021] teachers are sending instruction about what to do and they are doing it." (Parent).

Where children had access to online classes, they had to deal with technical difficulties. The length of the online classes and the support from teachers also varied across different schools.

"The time their teacher providing them, in that time they are covering all their subjects. There are 5-6 subjects. I don't know how much they can cover in one hour. I think teachers can increase the time slot. Children cannot interact with teachers in online classes as teachers mute them." (Parent)

Despite teachers' aims to cover all the aspects in the curricula, the experience of learning in online classes were described as 'boring', 'chaotic' and sometimes 'crazy' by children. The delivery was mostly teacher centred (e.g. lecture-style) and

there were little opportunities for interaction among peers, as one boy talked about:

Child (Boy, age 10): Online classes are really boring.

Interviewer: Can you explain a bit further?

C: My school is really good, but they don't give us any chance to speak. I think interaction is really important. My school does not give us productive tasks. They teach us only basic stuff. In the beginning, we used to concentrate on online classes. But then we could not. We are just staring at the screen. We cannot focus.

I: So, it seems classes are mono-directional. Do teachers give anything interactive?

C: No, they don't.

Our findings also suggest that although online classes worked well for older children, the experience of these classes were not positive for younger ones who only started attending schools.

"They are trying to teach as they used to teach in a face-to-face class. But you know it is different. So it's mostly teacher is showing something on the screen and I am helping her to do it." (Parent)

"They do not participate in an online class for a long time as they are small kids. As Rohan is in class 1, he does not join online classes because he cannot maintain these classes." (Grandparent)

For children with disabilities, where children attended special schools, parents created dedicated corners for their child's online learning.

"His school started taking online classes. I was so worried that he won't like it or won't pay attention or even sit for 5 minutes let alone finish his 30 minutes session! The first day when he saw his teacher online, he didn't pay much attention then got upset! His teacher suggested that I create a corner for him, a designated space for him where he will know that he's supposed to sit and pay attention. So I set up the room with the things that he will play and work with during the session, switched to computer rather

than a phone to grasp attention easily with a bigger screen to notice, gathered his favourite things around the room. In the second session things worked like magic!" (Parent of a child with ASD)

5.3.2 Assessment and Feedback

Our findings suggested that assessment and feedback varied across different schools, and there was a lack of clear guidelines from authorities as was found in the survey with teachers. Some schools replicated the exams online where parents were asked to submit the hard copy later in the school, or assignments were scanned and submitted via email by parents, whereas some schools did not have any assessment in place.

"School is taking online exams. We need to submit copies of the answers to the school. They give us the exams routine. Exams take place according to that routine. We got to submit the papers." (Grandparent)

"There will be an exam in August or September. In the previous year there no online exam but in this year, there will be an online exam". (Boy, age 10)

Some parents expressed their concerns over a lack of clear assessment process, that the parents could not measure how much their child has progressed over the year.

"Teachers also give homework regularly and regular assessments. Though the assessments we had last week were not assessing their knowledge much. A teacher shared the question with us and then they left. We had to conduct the assessment. But with me, she [daughter] got used to it. She asks me things in the middle of the assessment if she forgets anything. So, it becomes more like homework than an examination. The submission process was another mess. First, they said we will send the pictures of their copy right away, then they said you can send it later. Later they asked to submit the hard copy when there is lockdown all over the country!" (Parent)

5.3.3. Dependence on Private Tuition for Academic Outcomes

Some parents mentioned that they depended on private tutors for their children's academic outcomes as the schools are closed. Some parents did not have the time due to the nature of their work to assist children during their online classes while some other parents did not have the means to pay for private tutors when their children's education discontinued.

"We do not pay that much attention to their academic education. We do not get much time and they spend a lot of time in their private tuition in the afternoon. So, in the evening, I do not give time to their academic study. But they have curiosity in different subjects. They ask me many questions. I try to answer them as much as I can." (Parent)

Overall there was considerable variation in parent's and children's experiences of online learning. Where they did have access to online classes, many children struggled to concentrate, and many parents felt that classes were too short or lacked a sense of being interactive for the children. However, as we found in relation to some children with additional needs, there were positive stories of teachers and parents working together to create appropriate learning environments in the home. Experiences of assessment and feedback were mixed, but almost all experienced problems where either assessments were cancelled, or were muddled in terms of how they were delivered and marked. Where they could afford to do so, some parents turned to private tuition.

5.4 Impact on Children's Physical Health and Mental Wellbeing

The study findings suggest that the impact of the pandemic and learning from home on children's mental wellbeing is negative. The themes that emerged from the phase 2 data include a negative impact on children's behaviour, increasing gap in communication skills, changing relationships with parents and particular impacts on younger children.

5.4.1. Impact on Children's Behaviour

Most the parents interviewed in phase 2 mentioned about a negative impact on their children's behaviour with reports of more tantrums, a display of temper, and an inability and/or unwillingness to understand their parents more than usual. The lack of routine in their daily lives, increased screen time, spending less time outdoors and lack of interaction with peers were mentioned as some of the reasons for such behaviour as demonstrated here:

"Mentally there's a lot of change. She becomes agitated quite easily now. Also, she misses her friends from school. She's bored quite easily now. She keeps complaining I'm bored, I'm bored, all the time. And I think her physical movement reduced a lot. Because the child of this age there's a lot of energy that needs to be channelled out. Sometimes she doesn't get the chance to channel her energy out. That frustrates her and she cries without any reason sometimes. I also notice an increase in food intake. Especially sweets. It's like she tries to cover her frustration with food. That impacts her body as well." (Parent)

However, for some children there was a positive change in their eating behaviour:

"There is discipline in everything, like in sports, or class while in school. But that is absent now. They are almost like house arrest. We do not let them go outside except on the rooftop. But in the case of physical health, their eating habits are improving. They are taking showers timely, eating timely." (Grandparent)

Even where a positive impact on children's learning was noticed by parents, they expressed concerns over the negative impact on their children's behaviour.

"I won't say there is any negative impact on his [son's] learning. I would say it is better now. Because of covid, my office hour has reduced. So, I can give him more time. I can teach him and take care more, so in that sense it is good. In terms of mental health, he becomes angry so easily. Easily agitated and shouts." (Parent)

5.4.2 Children's Interaction with Peers and an Increasing Gap in Communication Skills

Opportunities for interaction with peers have reduced for children due to school closures. The opportunities for mixing with the school friends are extremely limited, a child expressed the desperation to communicate with her peers by saying:

"If teachers go after being bored, then we [students] talk. Sometimes we irritate teachers a lot so that they leave [the online class] and we can chat." (Girl, age 11)

"I cannot see my friends in zoom, the video is off. Teachers keep us in mute. I want to see my friends." (Child, 11)

"Then the friend circle they had in the class, they have no contact with them. Many guardians contact me over phone. They ask me about how [daughter] is doing, if she is attending classes, exams or not, etc. Then I tell her that your friend is doing well in the study, you have to do much better too. We give them this type of motivation." (Grandparent)

However, some children living in flats or shared accommodation and had more chances to meet and play with other children living in the same apartment complex or household. The opportunities for outdoor play and activities were greater for children living in flats and in slums.

"[Son] has a friend upstairs, he comes and they play together. Then after lunch, he plays, watches TV again. Then at 5 pm, they go to the rooftop. They took their rabbit with them. On the rooftop, they engage in different kinds of play like cricket, football with the other children of the building." (Parent)

An increasing gap in children's communication skills were reported by parents due to lack of contact with peers and teachers in an educational setting.

"A gap has been created in their communication skills. If they could go to school, there would be opportunities to socialise for them. But that opportunity is not there right now. We cannot even let them go outside. Sometimes they go downstairs or on the roof to play. There they have 3-4 friends. But they totally cannot meet new people and make new friends." (Parent)

5.4.3 Changing Relationships with Parents

Parents in our interview have reported of improved relationship with their children as working from home provided them the opportunity of spending more time with them. Although this has been mostly true for parents with a higher socio-economic background.

"I used to be in the office most of the time, she didn't have any special place for me. She was close to my mom. Now she values me more as her mother. We created a book corner, and we take turns to read to each other." (Parent)

"We are spending as much time as possible with them. Also, before this strict lockdown started, we used to take them out at least twice a week to eat out or to play outside." (Parent)

5.4.4 Impact on Younger Children and Children with Special Educational Needs and Disabilities

All parents and caregivers with younger children during their interview reported of a more significant negative impact of the lockdown and school closures on their learning and development, and also behaviour and wellbeing. They linked this to the lack of opportunities of spending time with other kids, and increased time spent indoors.

"[Younger son] does not understand what is school, so to say. [Older son] went to school for about 1 to 1.5 years. But [Younger son] did not go to school. He does not understand what school is, what is a friend circle. Then they are not experiencing physical movements like going outside,

playing. They cannot even mix with other children outside. Their behaviour is changing. They are becoming stubborn, angry. They are often arguing, which was not the case before." (Parent)

The disruptions due to school closures and the change in the daily routine also affected children with disabilities, whose attendance in schools were associated with getting therapies that are important for their development and wellbeing.

"My son has trouble in transitions, things have to slowly phase out to prevent the meltdowns, he has auditory issues too - you never know which sound he will be sensitive to! In March [2020], the first two weeks were quite happy and fun for him getting papa home full time. It was like 'Party time' for my son but very tiring time for me. But after two weeks he started to develop some sensory issues. Most probably it happened because he wasn't getting the sensory play that he needed and got from his school every day. He loves going to his school, he's fond of his teacher, I guess these were somethings that affected him" (Parent of a child with ASD).

'Sometimes she became hyper to go outside. She became restless sometimes because she used to go to school. It was seen that she roamed with her school bag saying "I'll go to school".' (Parent of a child with physical and speech disability).

It was notable that almost all parents in this study had concerns about their children's wellbeing, including their emotional, social and physical development. Whilst some benefits were found to the whole family being at home more, particularly for children to connect with their parents in a way that was not possible before, otherwise responses were overwhelmingly negative. Not only were children isolate from their peers, but also disconnected from their routines of going to school spaces, and, in some cases, some of the additional support that schools could offer. Many parents witnessed deteriorations in their child's behaviour, and children too were upset about missing their friends. Ultimately, this evidence demonstrated that the experience of going to school was more than just learning for these children, it facilitated their social and emotional development which, when disrupted, had significant negative impacts.

5.5 Space and Children's Everyday Experiences

5.5.1 Increased Use of Surrounding Spaces

Children's access to and use of open spaces also varied across different socio-economic groups and the spatial context they were living in. The use of the surrounding spaces has increased during the pandemic as suggested by both parents and children, however in most cases this was limited to the use of rooftop and balconies (Figures 16 and 17). Many families engaged in gardening on the rooftops during the pandemic. Rooftop gardening was already a popular practice in urban areas of Bangladesh, and has become the sole breathing place for families during the strict lockdown when parks and playgrounds were closed.

"The rooftop is the centre of everything now for them. Be it sports, be it looking after plants. They themselves are able to see the flowers of those plants, the name of these plants, growing vegetables as we have a roof garden. That's about it. Then they are 5-6 kids in our building. All playing together." (Grandparent)

In some cases the rooftop garden was also used by parents for teaching some aspects of the curricula.

"There are two more kids: a girl reading in class 6, another in class 8. They relate plants with their science book. Their guardian brings their book and shows them plants, flowers, trunks, leaves, etc." (Grandparent)

Children coming from lower-SES groups and living in slums had more opportunities to play outside compared to children living in flats. Open spaces and alleyways were used frequently by children to play during the pandemic (Figure 18), however children coming from lower-SES groups also had caring responsibilities and had to help out their families.

"He plays with other kids from the area. They play cricket. I ask him not to go out much because of COVID. It is dangerous. But you cannot keep a kid in the room whole day. When I am not home, he stays at home. He got to look after one of my grandchildren." (Parent)



Figure 16: Children playing Tag on rooftop



Figure 17: An image of their roof garden taken by a parent

Children's use of outdoor space was also partly determined by their gender, as parents were more concerned about their daughters' safety and security outdoors.

Interviewer: What type of game do they play together?

Parent: Like playing together sitting, maybe with dolls.

I: Do they get to go outside to play?

P: No, I do not let them go to the field or the street to play. You never know what will happen to them. They are girls. We will not be able to take care of them if anything happens to them accidentally in the field or street. There is different kind of people in the street you cannot trust them.

5.5.2 Increased Screen Time and Online Games

In addition to using the physical space for play, children participating in the study were utilising the online space for spending their leisure (Figure 19). Roblox and Minecraft were among the games children mentioned that they played online with their friends. Some parents also expressed concerns about the safety and security of the digital world, as children were making friends beyond the boundary of their schools and even their country.

Interviewer: Okay, what you play online?

Child (Girl, age 10): Mine craft, road block... (inaudible)

I: How many of you play together?

C: We created a squad now.

I: You created a squad!

C: Yes, the squad's name is "Pagla Fish" (crazy fish).

Parents who participated in the interview during the second phase of the study expressed concerns around increased screen time and use of devices by their children. Parents of the child quoted above expressed her concern over their spending more time with device and not on the roof top or balcony where they had access to the outdoors. Another parent also mentioned about their young children's addiction to online videogames:

"They [the children] try to manipulate me to acquire my device, this is their main target. I mean they prefer devices more than my company. If we turn

YouTube on, they continuously keep watching it until we ask them to stop. They don't even take breaks." (Parent)

In this section we have outlined how children made use of limited outdoor space, and digital space, during the pandemic. During the pandemic, children were very limited in terms of the outdoor space that they had access to, although some made good use of the space that they had, for example going to play on rooftop gardens to meet their peers. Children from lower SES-groups sometimes had more access to outdoor spaces because they were not confined to flats. Some children were also able to make use of 'digital space' such as playing online games to socialise with peers, but many parents worried about this increased use of screen time. There was some limited evidence that parent's used outdoor spaces, such as roof gardens, to help teach their children.



Figure 18: How I spend time during a pandemic, drawn by a child participant (boy, age 10)



Figure 19: A child's map of their digital world (girl, age 10)

6. Results from Phase Two: Promising Practices of Blended-outdoor Teaching and Learning

In this section we present the results from analysis of interviews conducted with teachers and practitioners, whose practices were identified as 'promising' based on their creativity and potential for developing into strategies for continuing education during any crises or in the longer term for children's attainment, development and wellbeing. We can divide the six promising practices that were investigated into two broader theme- 'multimodal remote teaching' and 'outdoor learning', and the summary from the findings are under these two themes are share below:

6.1 Multimodal Remote Teaching

Our data reveal that teachers in Bangladesh already adopted a range of different approaches to remote teaching during the pandemic either simultaneously or at different phases depending on the COVID restrictions and guidelines from the government. Teachers in most cases equipped with minimal training, and with limited access to quality digital devices, went on to find innovative ways of delivering content online (recorded or live using the LIVE function on Facebook, personal YouTube channels, or broadcasting through local cable channels), and sending students worksheets along with teaching over phone where students could not access online classes. In order to enable creation of content and

support colleagues who do not have the devices, two teachers interviewed set up teaching studios in their living room (Figure 20), and regularly delivered live sessions for 'ghore bose shikhi' (learning from home) – the online portal created and managed by a2i, Bangladesh government's flagship program. Through the online portal the content could reach a large number of students beyond their own school, and the teachers could connect with students who could access the school site. One teacher described how they reached out to a wide range of students:

"I had all different sorts of students from different parts of the country. They used to comment under my class that they liked my classes. They even invited their friends to join my classes as they liked my classes. I created a messenger group including them. After creating that messenger group, whenever I start my class, I text them in messenger as a reminder to join the class. For example, today I will teach English to Grade 5 students, they will be ready to attend the class." (Teacher)

The teacher further described their at-home studio set-up:

"I have to use a board because my students are little kids and prefer a board. I use a white board, I had one when I was in college. I created some paper made flowers and decorated the board for making it more beautiful. And for the mobile stand, initially, I made that, after that, I used the mobile stand those are available in the market and arranged a little lighting. That's my studio." (Teacher)

The teachers in our small sample addressed the challenges that came with delivering online sessions, i.e. by making classes interactive within the limited time of a zoom class, which was 40 minutes for a free account, and the scheduled slot for 'ghore bose shikhi' classes. The teachers found it challenging to engage children with their surrounding environment in the limited time, however, they took the time beforehand to prepare interactive PowerPoint slides with visuals, and collating materials from their surrounding environments that were relevant to the content of the class.



Figure 20: The corner of a teacher's living room was set up as a studio for delivering lessons online (Photo taken by the teacher)

"I didn't ask them to collect something, but I used materials collected from the surrounding environment. For example, when I was teaching about plants, I used natural plants to show them. There is a chapter about the environment and trees. I had pot plants in my house I used a flowering plant for that." (Teacher)

Communication with children and parents have been a challenge which teachers addressed through informing people in the Friday congregation at mosque or through Facebook messenger and Imo that required less data.

"I do try to minimise the challenges from my personal level. I ask all the parents who come to school to let their children join the online classes. Sometimes I send our school supporting staff to the mosque during Jumma Prayer time. To tell the guardian how to join the online classes. Lots of guardians gathered during Jumma Prayer." (Teacher)

Intrinsic motivation, or inspiration from colleagues, have been the principal impetus for teachers to innovate and find ways for combining different modes of teaching as children were learning from home. However, in addition, recognition from the authorities (e.g. remuneration from a2i for developing content), and their support and training to conduct classes online and in innovative ways (e.g. training on game based learning and socio-emotional learning) were the main enablers for multimodal teaching.

"All of this was from our own initiatives, and many teachers motivated us a lot." (Teacher)

"With the support of our District Commissioner (DC), we started to telecast the classes in local channels. Many students were benefited from this initiative. As we started the class in the local tv channel at the district level, we later initiated this approach in subdistricts with the UNO's (Upozilla Nirbahi Officer) help, association, and motivation." (Teacher)

Our findings illustrate that some teachers were able to establish good-quality online lesson spaces, and to deliver these lessons largely through free-to-use online channels, although later some were supported through a2i. Teachers

primarily used their own networks, including mosque networks, other teachers, or connecting to other groups of children through Facebook groups, to disseminate their lessons more widely beyond their immediate school classes. They were supported by fellow teachers, and in some cases by local authorities, but overall, we found that much of this work came from teachers' own initiative, their own funds, and their own motivation.

6.2 Outdoor Learning Initiatives

Our study findings from phases 1 and 2 indicate that although some online activities were being run during the pandemic, during the first year of the pandemic in 2020 many schools were closed throughout the period, and any activities online, TV or radio was inaccessible to a large population of children. In these circumstances there were some initiatives from teachers and local people for taking classes outdoors for children from marginalised communities. Two such promising practices are teaching on a roof top initiated by an individual teacher (figure 21) and teaching in open areas by volunteers in a community (figure 22), which later on were scaled up and implemented in 29 districts (out of 64 in total) in Bangladesh with 41 programs running with the name 'Odommo Pathshala' (Irrepressible learning space).

In both the cases, comparatively safer environments (in terms of Covid-19 risk), and the more flexible learning environment found in an open spaces, have been the main motivating factors for adoption of these initiatives for teachers and community volunteers. One teacher commented:

"If we stay inside a room, a lot of setups are needed there like a fan, light, etc., especially as the time was during the Corona, we all were concerned about Coronavirus. For that, we thought it would be better if we could arrange this in an open space to minimize the effects of COVID-19." (Odommo Pathshala teacher)

In addition to teaching content from the curriculum, in Odommo Pathshala volunteer teachers organised fortnightly seminars or study circles on science and literature which they found helped students understand complex phenomena from their science textbooks, but they incorporated texts beyond the curriculum.

"We arrange two 'Biggan Adda' (science seminars) each month. Students participate in this. We tried to teach them what an ecosystem is, how it loses its balance, how we can save the balance, how it affects our lifestyle, how our life and nature are related. It was very enjoyable. We didn't choose only textbooks, we made some exceptions, even in our curriculum."
(Odommo Pathshala teacher)

In terms of challenges, the interview findings suggest that there were fewer challenges in teaching outdoors compared to online, as children were attending in person and learning from their surrounding environments. The initiatives were further supported by parents and the local community who also could see the benefits in outdoor learning and the value of continuing children's education. One teacher commented:

"I didn't face any challenges at the time of roof top teaching because the parents were very welcoming. They wanted their kids to continue with their learning. These parents still tell me that, "Madam, it would have been much better if those classes were still going on", Or "when will you teach again on roof top?" But I faced many challenges at the time of conference call teaching. Because I had to call the parents, when they were at home, then I would take the class." (Teacher)

Weather condition was one of the main challenges that the outdoor educators faced at Odommo Pathshala, however this was easily solved with the support from the community, as one teacher recounted:

"I told you that we faced a lot of trouble on a rainy day. There is an under-construction building beside the place where we teach. The owner of that building told us to teach in that building. The roof casting was done, we used the ground. He even cleaned the ground with his labourers for us. They hung boards for us when we used to teach there. Usually, we took

classes under the trees, but on rainy days, we took classes in that building."
(Odommo Pathshala teacher)

While there was support from the local authorities to promote online learning and enabled teachers to reach more children within the community through broadcasting lessons on cable TV, outdoor teaching initiatives on the other hand faced some resistance from local authorities. One teacher found that local authorities were refusing to permit them to teacher outdoors:

"They were telling us, "All of you are educated people, take classes online." I told them that this class is for those students who can't do online classes. He was creating a lot of trouble. He said, "No, you can't do it, we have restrictions from the higher level. They gave us notice for show-cause why this is happening in this district." (Teacher)

Whilst roof top teaching did not continue in the context of a stricter lockdown in 2020, Odommo Pathshala initiated on the 30th May was scaled up and implemented across Bangladesh. The organisation was supported by a political party and was given support from the local communities who wanted their children to continue with education during the crises.

Local, and later nation-wide outdoor teaching initiatives were therefore successful in engaging some students through outdoor classrooms. Those teachers and volunteers who ran these classes were highly positive about their impact, because they enabled students to attend who might not have been able to attend online classes, and because they felt that learning outside was pedagogically valuable, enabling them to continue to teach aspects of the curriculum. Whilst these forms of outdoor learning appeared to be supported by the local communities, and were well-attended by students, there were some examples of resistance from local authorities.



Figure 21: Teaching and learning on a roof top during the pandemic (Photo taken and shared by teacher)

6.3 Teachers' Perspectives on Implementation of Blended outdoor learning

All six teachers interviewed at Phase 2 considered blended learning as the future of education. According to the teachers interviewed, children preferred learning in person than solely online, and a blended learning approach can influence the pedagogical process and make a positive change in how children are engaged in their learning in a physical classroom setting. One teacher commented:

"The blended learning framework obviously will be beneficial. As in school, students come, teachers give lectures, students absorb those and go back to their home. If we can keep the blended learning that not only studying in the classroom, there will be more engagements, then that will be more helpful and effective for children." (Teacher)

Our qualitative data also indicate that in order for blended-outdoor learning to be implemented and promising practices to be scaled up, intervention and support from policy makers and local authority are required in two main areas. Firstly, children and teachers should be provided with appropriate tools and training along with internet coverage for the use of ICT in teaching and learning, as many children and teachers alike do not have access to devices or data. Teachers will further need appropriate training on how they can efficiently use online platforms and tools for interactive and efficient pedagogical practices. One teacher felt that isolated training was not enough, and that training practices should be ongoing:

"We are doing the training with our own initiatives. You will not get many teachers who will follow up after getting the training and they will not use the training in the class. So, the government should follow up the training. Even after 12 days of training of ICT, they should be followed up with advanced training." (Teacher)

Another focused on the importance of getting digital infrastructure in place for use in schools and at home to allow blended learning to happen:



Figure 22: 'Odommo Pathshala' (irrepressible learning space) classes held outdoors (Photo taken and shared by teacher)

“The challenge for the students of my class is they don't have enough devices to be connected with online classes. Not all students have the ability to bear the cost of the Internet. Moreover, not everyone knows how to use the Internet. So if both the training to use digital technologies and the devices to use digital technologies are provided, we can do this blended teaching.” (Teacher)

Outdoor learning was perceived as important and beneficial for children and considered as an essential part of the blended learning framework. However, teachers also think outdoor learning should be explicitly mentioned within the national framework for blended education to enable its sustained implementation. The teachers echoed the concerns shared in the telephone interviews at phase 1 (section 4.5), that many teachers required leadership from government authorities to empower them to undertake blended learning:

“I told you that our teachers like to follow only the strict instruction of the government. If the instruction of blended learning comes from the government, in that case, teachers are bound to follow this. They will feel the need to experiment.” (Teacher)

In this section we have shown that teachers initiated more than one way of teaching to reach the maximum number of students while working extra and unconventional hours. Some of the teachers have created their own studio with own cost to record classes and conduct online classes, while some others have taken classes outdoors despite the resistance from local authorities. Overall, government bodies (e.g. a2i) and local authorities enabled creation and sharing of content through development of online portals (e.g. shikkhok batayon, ghore bose shikhi), and also facilitating unconventional ways of teaching via using local cable networks. For sustained practices and implementation of a blended learning framework, policy makers' support is needed for equipping teachers and children with appropriate online tools and physical environment, and also mentioning outdoor learning explicitly within education framework to enable taking classes outdoors.

7. Recommendations for Policymakers & Researchers

In this section we will summarise the recommendations for policymakers and suggestions for future research based on the findings.

Note that our recommendations are relevant for the following:

1. Any future **Covid-19 lockdowns** that require teachers and learners to return to isolation at home, or where there is limited access to school facilities, meaning that remote learning becomes the norm for any length of time.
2. Any future **societal crisis situation** in low-income country contexts which means that learners are isolated from their teachers and schools. This could include, but is not exclusive to: human displacement due to extreme weather or conflict; health crisis; significant disruption to schooling due to weather, communications or infrastructure breakdown.
3. Current or future **individual, household or locality crisis**, where individual children or families may be isolated from their school, for example, having to travel, or where children must support parents who are ill at home, or where children's home caring or working duties take them away from schooling for long periods. Localities may also experience 'crisis', such as being cut-off in a remote rural community.
4. Where **remote learning** may be desirable to fill gaps in provision of schooling. Such remote learning may be relevant for children in isolated rural contexts, where children must work seasonally, such as in agricultural contexts, or in scattered communities.

7.1 Recommendations for Policymakers

The recommendations for policymakers can be discussed under four separate headings:

7.1.1 Interactive Online Learning, Alignment of Curriculum and Assessment

Our data has highlighted some of the significant disparities of access to ICT devices and the quality of access to the internet for both children and teachers. It also highlighted how responses by teachers to the crisis of implementing home-based and distanced learning were varied and, in some cases, innovative, but in other cases were very limited. Our recommendations are aimed at further supporting teachers and learners with their access to, and skills with, ICTs and curriculum design which will empower teachers and learners to engage in remote and online learning in the future. They are:



a) Blended learning design should be appropriate to the context given the difference among children from different socio-economic groups and attending different schools whether government or public, and urban or rural.

- In the short term, for some teachers and children where there is not appropriate ICT access or quality internet, this might mean that remote teaching should be low- or no-tech, rather than rely on online classes.
- Even when there is high-quality ICT and internet available, this does not mean that all remote learning techniques have to employ ICTs in complex ways, or at all, as high-quality pedagogy can be delivered through a range of medium.



b) The curriculum should be aligned with blended-outdoor learning and prescribe outdoor learning where appropriate to enable its uptake.

- This requires teachers to be trained, supported and empowered to deliver both quality online and outdoor teaching, and for this to be fully supported by national, regional and local authorities.



c) There should be flexibility in the curriculum and allow teachers' agency in design of their teaching and assessment and creating appropriate learning environment for that to happen.

- The freedom and flexibility that teachers have should be explicit and clear in curriculum design, so that teachers feel empowered to develop their own resources, techniques and ideas.



d) Where learning is happening online, this should be interactive and allow peer-to-peer and teacher-to-peer interaction through appropriate utilisation of the affordances of the digital space.

- This requires teachers to be trained effectively in delivering online learning, for there to be sufficient dedicated space and ICT facilities for teachers to be able to do this, and for networks and forums for teachers to learn and gain resources from other educators which they can build on.
- Peer-to-peer interactions are critical for children's learning, but also for their emotional and social wellbeing and development. In times of crisis, children should not be completely isolated from their peers and

opportunities to socialise with them may be found through the use of online materials appropriately within and outside the classroom.



e) Assessment guidelines should be transparent and appropriate feedback should be given on students' ongoing work.

- Teachers should be supported and trained to be able to deliver feedback and assessment remotely, which will also improve feedback and assessment during 'normal' school operations.



f) Increased opportunities for play, social interaction and outdoor learning should be created for improvement of children's social skills.

- This is important for the post-pandemic recovery of many children who have been isolated from their peers during the pandemic. However, it is also broadly applicable to schooling both in crisis, and non-crisis situations. Our study reveals that children and parents hugely value the social and emotional development that comes from spending time with peers.

7.1.2 Teachers and Learners Skills



a) Centrally generated resources must be carefully mapped onto teacher and learner skills, capacities and resources.

- Our study finds significant differences geographically, and socio-economically, between children in terms of their resources and skills, as well as those of teachers in primary schools. Any resources developed to support blended learning must support this existing diversity, whilst also aiming to up-skill teachers and learners.

- This means that, for the immediate future, low- and no-tech solutions to blended learning (which can involve outdoor learning) should be supported alongside building teachers' and learners' ICT capacities.



b) Teacher training in digital and outdoor pedagogies should be prioritised to improve their confidence in teaching online/outdoors and most efficient use of the digital/outdoor space for pedagogy.

- Whilst over time it is important that greater resources are provided for teachers and schools, such as ICT resources and better quality outdoor spaces, teachers should know how to make best use of the ICT and outdoor resources that they have available.

- Many teachers in our study simply lacked the confidence, and the reassurance from authorities, to conduct teaching outdoors, or to use ICT facilities in particular ways.



c) Blended learning content should be inclusive: the educational content and delivery mechanisms must reach all learners and teachers.

- Whilst our report includes excellent 'best practice' examples of online delivery of teaching and learning, it also starkly portrays the fact that most children in Bangladesh do not have the needed access to ICT devices and quality internet to be able to learn through online delivery.
- Teachers and learners must have strategies to make sure all learners are reached, and should be able to quickly audit the access that children do have for future crisis.

7.1.3 Inclusive Infrastructure



a) Appropriate and inclusive environments – for both digital and outdoor spaces - should be created.

- Currently teachers and learners rely on existing online platforms to deliver remote teaching. These should be audited for their appropriateness for teachers to engage with children, and for children to engage with peers.
- Parent's concerns should be attended to about 'safe' online spaces for their children, and might be reinforced by support from authorities about monitoring screen time and the digital spaces that children access.
- Safe and appropriate outdoor space for teaching should be found, and these spaces supported by local authorities and communities such that they are



b) Schools should be equipped with computers and internet to enable children's access to ICT and competency in digital literacy.

- Over time, authorities should invest in the resources that teachers and children have access to in schools, to build current and future skills in ICTs. This will develop their capacities as learners, but will also equip children with lifelong skills to be successful in the world of work.



c) Outdoor and home learning spaces should be identified, studied and integrated into learning where possible.

- Outdoor and home learning spaces have been largely neglected as a topic of focus until recently. Children need appropriate space to work in the home, which is relevant to non-crisis times as much as it is in a crisis, for example having space and time to do homework. Where possible, parents should be encouraged to support children, and to make physical space for them in the household to do their school work when needed.
- Outdoor spaces are important for children to learn in, both in a guided way (with parents or teachers), and in less formal ways, such as reading outside, or exploring and socialising with their peers. Finding these spaces, making families and parents aware of them, and ensuring they are safe spaces for children to use, is critical. This is particularly important in dense urban areas. Where possible, improving the quality of such spaces, based on what is important for children and families, is also important.



d) Where outdoor spaces are inadequate within the school premises, opportunities should be created for taking learning outside the boundary of the school and in the community.

- This requires that such appropriate spaces are identified and, where possible, improved or designated for outdoor learning. Local authorities should assist schools in finding and improving such spaces.



e) Support is needed from school management and local authorities to enable pedagogical practices in school grounds beyond the boundary of the classroom, and in neighbourhoods outside the school premises.

- This requires support for teachers to be trained in outdoor pedagogies, to identify appropriate spaces and places for outdoor learning both within and outside of school grounds, and for local communities and authorities to support teachers and children to access these spaces.

7.1.4 Wellbeing and Voices of Teachers, Children and Parents:



a) Adequate support is needed for learner's and teacher's wellbeing in the context of overworked teachers and isolated environment children and teachers worked in.

- Additional consultation is needed with teachers, parents and children to identify what practical steps are needed to improve their wellbeing, both during 'crisis' and non-crisis times.
- This requires addressing more general issues with teachers' workload, alongside those of children who might be burdened by additional responsibilities outside of their school work.



b) All relevant stakeholders should be consulted to better adapt to the current and future crisis, particularly the voices of children, teachers and parents should be reflected in the framework.

- Children have the right to have their views heard and for it to be taken seriously as per Article 12 of the United Nations Convention on the Rights of the Child (UNCRC) and hence their voices should be taken into consideration in any educational reform in response to crises.

7.2 Suggestions for Future Research

This project provides a baseline for understanding of teaching and learning practices during the pandemic and how that may have affected children's learning outcomes and wellbeing based on a rich data set. Future research in the area could include experimentation and evaluation of blended learning in primary school settings particularly combining no-, low-and high-tech solutions for the same learning outcomes. Future research also could focus on context specific adaptations of blended learning solutions for the same learning outcomes and evaluation of those comparing different school contexts.

More research in the area of outdoor learning is needed in the context of Bangladesh, although some work has already been conducted (e.g. Khan et al 2020), to better understand how teachers and learners can engage with outdoor spaces for different subjects, and with different levels of access to outdoor spaces.

Further research should also expand the geographical coverage that this research was able to achieve, particularly focusing on teacher and learner circumstances in rural contexts, and in smaller urban contexts such as regional towns. A more detailed study of learner and teacher experiences would benefit from a stratified sampling technique based on socio-economic background, to enable further reflection on the different needs of teachers and learners.



8. Conclusion

This report has covered the outcomes of two phases of research with teachers, children and parents in the context of the covid-19 pandemic and its impact on education, and more broadly the welfare of respondents. The research comprised of a survey of over 200 teachers, followed by in-depth and creative methods interviews with parents and children, and in-depth interviews with teachers who have conducted promising practices in the fields of blended and outdoor learning.

Our findings attest to the highly mixed impacts the pandemic situation has had on teachers, children and families alike. It has demonstrated the extremely diverse capacities that teachers and children have had to continue their education at home, and how access to ICT resources, quality internet connection, but also a supportive environment at home, as well as individual teacher initiative, all strongly influence the conduct of blended and remote learning in a crisis situation. It has highlighted the significant inequalities of access to the needed resources to learn from home, but also the significant inequalities amongst teachers and learners alike to have the confidence, training and necessarily flexibility and freedom to deliver remote learning in a way that best suits and reaches the children. We found that outdoor learning was one important way that both teachers, children and families could continue learning in the pandemic situation, yet it was under-utilised as a technique across our sample. Teachers were often not always confident to undertake outdoor learning, as with their ICT capacities, because they had little training, and because they were concerned they would not have the educational backing of authorities to do so.

The recommendations of this report are relevant not only to the ongoing pandemic, but to a range of other potential crisis that might impact the education of children, including wider societal crisis, to those that might impact individuals or families where remote learning may be appropriate for a period of time. The

findings of this report may also be important for situations where remote learning may improve educational access more generally, such as when children live in remote communities. Our recommendations are wide-ranging, but include the need to significantly improve the skills and capacities of teachers and learners in ICTs and blended, remote learning, and for outdoor learning. In the short- to medium-term, these must account for the fact that ICT and internet access are highly uneven, such that no- and low-tech solutions may be most appropriate for most children. In the longer-term, building capacity in access to ICTs will improve the capacity to deliver remote teaching and learning, but this must be complimented with developing teacher and learner capacities and skills. Outdoor learning can compliment and enhance the curriculum in crisis and non-crisis situations, however access to safe, quality outdoor spaces must be prioritised, as should additional training and support for teachers and learners. Empowering teachers with additional agency and flexibility should be embedded in any future curricula.

Our research was clearly limited by the sample size of teachers, learners and families that could be reached during the timeframe and the resources of the project. It represents a snapshot of how primary teachers in predominantly urban contexts responded to the pandemic, and how a small number of families in turn responded to learning from home. It is important to acknowledge that a wider, stratified sampling strategy, with greater resources to cover families and teachers in more diverse circumstances, would provide a stronger dataset. Yet the struggles of these teachers and families that took part in this study are still likely applicable to many others.

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