

# Saudi Arabia's Digital and Distance Education



Experiences from the COVID-19  
Pandemic and Opportunities for  
Educational Improvement

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Editors



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Experiences from the COVID-19 Pandemic  
and Opportunities for Educational Improvement

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# Foreword

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Under Vision 2030, Saudi Arabia has embarked on a path to build a diverse and sustainable economy grounded on human capital—the knowledge, skills, and health investments that help people realize their potential as productive members of society. The recently published “Human Capability Development Program” is testament to the efforts being made in Saudi Arabia to accelerate human capital formation. The World Bank is pleased to be a partner of the Government of Saudi Arabia in these efforts.

The COVID-19 pandemic brought unprecedented challenges to the development of human capital in Saudi Arabia, as it did in countries across the world. Saudi Arabia embarked on a unique and fast-paced journey to tackle this challenge, taking innovative actions to mitigate the potentially devastating effects in education through the wide deployment of digital and distance education.

The story of Saudi Arabia’s journey to rapid and widespread digital and distance education is one that many countries are interested to learn from. The study between Saudi Arabia’s Ministry of Education and the World Bank, conducted in real time as the pandemic was unfolding, provides a comprehensive analysis of experiences, including the voices of those most affected—the students, teachers, principals, supervisors, and parents. The study reveals innovation at all levels of the education system, particularly among teachers. Most notable is the way in which education technologies have enhanced teaching practices and enriched students’ learning. Also, the opening of virtual classrooms to observation, including by allowing parents to be part of the learning process with their children, is a positive outcome of the experience.

This report reflects the commendable efforts of the Ministry of Education to monitor and evaluate its performance during this most challenging period for education service delivery. It highlights the successes of the approach, which can be used to support the development of practice in other contexts, and shares the lessons learned and opportunities to promote innovative learning and teaching for the future. The findings and lessons that have emerged from this study stand to strengthen education and resultant human capital for many years to come.



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# Abbreviations

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<b>EdTech</b>	education technology
<b>HCI</b>	human capital index
<b>ICT</b>	information and communications technology
<b>K–12</b>	kindergarten to grade 12
<b>LAYS</b>	learning-adjusted years of schooling
<b>MOE</b>	Ministry of Education
<b>MOH</b>	Ministry of Health
<b>MOS</b>	measure of size (total enrollment in school)
<b>MS</b>	Microsoft
<b>NCEPD</b>	National Center for Educational Professional Development
<b>NALO</b>	National Assessment of Learning Outcomes
<b>NGO</b>	non-governmental organization
<b>OER</b>	open educational resources
<b>PISA</b>	Programme for International Student Assessment
<b>PPS</b>	probability proportional to size
<b>PIRLS</b>	Progress in International Reading Literacy Study
<b>SD</b>	standard deviation
<b>TALIS</b>	Teaching and Learning International Study
<b>TIMSS</b>	Trends in International Mathematics and Science Study
<b>TOTMOS</b>	total enrollment of all schools

# Executive Summary

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Faced with the crisis of the COVID-19 pandemic in March 2020, Saudi Arabia embarked on a journey to adapt the way in which schooling operated, enabling a continued education for children across the country. This was a unique journey, and one that will have lasting impacts on education in Saudi Arabia. The World Bank studied this journey in detail over the 2020–21 school year, as the pandemic was underway. This report compiles the results of this study and provides a comprehensive review of the experiences of digital and distance education in Saudi Arabia, along with an analysis of opportunities for future educational improvement.

The study aimed to answer three main questions. Firstly, how well did Saudi Arabia provide for, and achieve, continued education of K–12 students during the COVID-19 pandemic? Secondly, what were the strengths of Saudi Arabia’s response to the COVID-19 pandemic in K–12 education? And finally, what are the opportunities for educational improvement following the digital and distance education experience? To answer these questions, a variety of data gathering instruments were designed and implemented by the World Bank team. The data sources included focus groups; surveys of nationally-representative groups of school principals, teachers, students, parents, and supervisors; virtual classroom observations; and interviews with key personnel. Analyses of these data informed the conclusions and recommendations presented in this report, which were reviewed by global experts in the fields of education and education technologies.

## **How well did Saudi Arabia provide for, and achieve, continued education of K–12 students during the COVID-19 pandemic?**

This study found that Saudi Arabia has clearly succeeded in providing for continued K–12 education during the COVID-19 pandemic, particularly from the start of the 2020–21 school year. This included multiple ways of engaging students, and a host of new tools, providing teachers with a unique opportunity to experiment and innovate to meet their students’ needs. In developing the digital and distance education, attention was rightly paid to both the technology aspects and the educational aspects, with the teacher and student interaction prioritized, along with the necessary communication aspects that were needed to bring about rapid and widespread change.

Almost all students (98 percent) were able to access the Madrasati platform—the main vehicle for virtual schooling—during the 2020–21 school year. This is an impressive achievement given the scale and speed of the rollout and the fact that alternative arrangements were also made available such as in-person school visits, recorded lessons, and printed materials. In terms of regular attendance and engagement throughout the year, log-in data for the Madrasati platform shows that at least 75–85 percent of students were logged in to the Madrasati platform on average in any given school week, and others were also logged in directly to Microsoft (MS) Teams (not through the Madrasati platform), plus some students who needed face-to-face support attended school in-person occasionally or on a regular basis. A redistribution of assessment weightings—with less weight placed on end-of-semester examinations and more on smaller activities such as homework and assignments—may have helped to encourage student engagement throughout the year. Therefore, attendance and engagement appears to have been very strong during the digital and distance education. Schools were responsible for ensuring that all students had access to education and this was monitored at the regional and district level. To determine the success of these efforts and to quantify the

situation of student attendance and engagement with digital and distance education (or alternative arrangements) across the full school year at the national level, it would be important to put in place a system to regularly gather and report on relevant data beyond the Madrasati log-in numbers. Such monitoring could help to identify changes over time and differences (such as geographic or gender) that might suggest the need for targeted interventions and additional support. In addition, it has not been possible to determine changes in student learning—whether the digital and distance education led to increases or decreases—due to the absence of an externally marked, standardized assessment of student achievement before and during the pandemic.

Most teachers and school principals indicated high confidence in the effectiveness of the digital and distance education offered in terms of students' academic achievement and skills development, with some variation indicating that the experience may have been better for some than for others. For example, 68 percent of teachers felt that academic achievement was better this year than previous years, while 64 percent of principals of girls' schools and 57 percent of principals of boys' schools felt the same. This stands in contrast to the learning losses seen around the world among other countries that pivoted to digital and distance education for periods of time during the COVID-19 pandemic.

However, the different style of learning was not always easy for students. For example, most students (76 percent) found that following classroom instructions or understanding lessons could sometimes or regularly be hard, and two-thirds (67 percent) of students missed seeing their friends and teachers a lot. More than half of students (52 percent) felt that they would have learned more if they could have returned to in-person schooling (more so for elementary students at 58 percent). Overall, there is a strong desire to return to in-person learning, as stated by 85 percent of supervisors, 75 percent of school principals, 72 percent of parents, and 63 percent of teachers. In addition, more than three-quarters of students reported that they are looking forward to returning to school to see their friends (92 percent), do better in their schoolwork (85 percent), meet with their teachers, get help with their schoolwork, and participate in school activities.

There was high satisfaction with the resources and tools provided for digital and distance education with most stakeholders wanting to see a continued use of some of the tools and products. For example, 75 percent of parents were satisfied or very satisfied with the quality of distance education over the last school year, and 98 percent of teachers said that they would find it useful to continue to use the Madrasati platform. There is also high demand for more digital content and further improvements to the quality of the digital content.

### **What were the strengths of Saudi Arabia's response to the COVID-19 pandemic in K–12 education?**

Many strengths within Saudi Arabia's response to the COVID-19 pandemic in K–12 education have been identified in this study. These will be important to build on and to share with other countries. Some of the key areas of strength include the following.

1. **Rapid provision of distance education at scale for education continuity.** Digital and distance education was rolled out across the country at a large scale and at an impressively fast rate, with recorded lessons available through satellite television and online for over 6 million K–12 learners, made possible by previous investments in digital and distance education.
2. **Prioritized student-teacher connections.** The student experience was placed at the center of the digital and distance education provision through the Madrasati platform. Flexibility in the system allowed for varying situations, such as students needing to attend school to meet with teachers and obtain printed materials.

3. **Availability of a wide range of tools and resources.** An extensive range of teaching and learning tools, curriculum materials, and enrichment resources were made available for students and teachers.
4. **Regular monitoring of user data and feedback loops to improve tools and services.** Monitoring of Madrasati usage and user interaction with the platform was regular and resulted in proactive actions and decisions. In addition, feedback from users was regularly sought and acted upon. This resulted in high rates of user satisfaction.
5. **Low-tech alternatives for students without internet access.** Students without access to the Madrasati platform were able to utilize dedicated satellite TV channels for recorded lessons and regularly visit schools to receive printed materials and support from teachers.
6. **Provision of special distance education.** Satellite TV channels were put in place for students with disabilities and special educational needs, along with school visits as needed.
7. **High satisfaction with professional training and support.** There has been high and consistent satisfaction across all stakeholder groups with the training and support provided to access the tools and resources provided through the Madrasati platform.
8. **Good use of teacher communities of practice and coaching.** The use of in-school coaching with assigned school digital learning focal points and the creation of professional communities of practice have enabled teachers to share good practices.
9. **Frequent and clear communication with stakeholders.** Communication has been strong, with clear and timely guidance that allowed all stakeholders to understand their roles.
10. **Enhanced parental engagement.** Distance learning arrangements established through the Madrasati platform have significantly strengthened parental and family engagement in their children's education. This enhanced connection between schools and families, if continued, will be a powerful driver for educational improvement and stands to be one of the greatest outcomes of the digital and distance education experience in Saudi Arabia.

### **What are the opportunities for educational improvement following the digital and distance education experience?**

The study identified several strategies, practices, and procedures arising from the digital and distance education that could be further developed to bring about lasting improvements in children's schooling experiences and learning outcomes. These recommendations extend beyond education technologies (EdTech) and distance education because improvements in other areas of education are critical for the success of digital and distance education as well as in-person learning in schools. The recommendations are summarized in table 0.1 and detailed in chapter 8. Some of the key recommendations include the following.

1. **More explicitly target policies and resources on disadvantaged and struggling students.** With a prolonged period of distance education (over one school year), some students will be behind where they should be, and there is a significant risk of widening disparities given the proportion of students who did not regularly log in to Madrasati or who were unable to engage fully for various reasons. Schools should identify and support these students through the regular in-person class schedules and, in some cases, with additional targeted supports such as tutoring. Additional resources to schools with large proportions of disadvantaged and struggling students may be required.

2. **Plan for long-term purposeful blended learning models that best suit existing practices and conditions, such as the “Flipped Classroom” and “Flex and Enriched Virtual.”** When considering blended learning models for the future, be sure to have a clear purpose and vision for the change and only make changes where they are needed or will be beneficial. Two blended learning strategies most suitable to Saudi Arabia’s current context are the “Flipped Classroom” and “Flex and Enriched Virtual.” This study and materials from the accompanying “Blended Learning Design Workshop” provide definitions and examples of these strategies.
3. **In the short-term, ensure that a plan for providing devices and connectivity to all students who do not have them is feasible and enacted as a matter of urgency.** For the long-term, set policies for teacher and student access to devices and connectivity. If blended models such as the Flipped Classroom are expected in the next or future school year, the MOE should make sure that all students have access to the required devices and internet connections at home. A plan to make this happen should be developed (beyond support from charitable organizations) or, if already developed, shared with stakeholders to ensure that it is feasible and that all parties are on board. One of the most cited areas for development raised by stakeholder groups in the nationally-representative surveys conducted as part of this study was to improve the infrastructure internet connection and access to devices to improve accessibility and reduce inequality. Around 41 percent of students reported having a lot of trouble connecting, and 45 percent reported having a little trouble connecting. A long-term plan will also be needed to ensure all students and teachers have access at home and in school to devices and connectivity.
4. **Target professional learning to reduce variability in teacher performance.** While many teachers have increased their professional skills to support student achievement, there is a need to reduce variability in teacher performance to effectively plan and deliver high-quality learning experiences for all students. This means that professional learning should be targeted to where it is needed, especially for schools and teachers that have not yet reached good performance levels in digital and distance education.
5. **Support and require teachers to recognize and meet the socioemotional needs of their students.** Distance learning challenges relating to students’ physical and mental well-being were raised by stakeholders in this study, including feelings of isolation, boredom, laziness, lack of physical activity, eye strain from too much time on a device, and concern over the lack of social interaction with their peers. Going forward, it will be important to support the knowledge and understanding of teachers to adapt their lessons and expectations to effectively meet the socioemotional needs of students, particularly at the time of transition from distance to in-person learning. Careful transition planning will be required to ensure that students are well supported as they return to in-person classes, for example by establishing a well-being framework and formalized support for schools providing evidence-based intervention to guide practice.
6. **Ensure continuity in national assessments to provide crucial information on overall levels of student learning.** A stable system of externally marked, standardized national student assessments will allow valid monitoring over time. The National Assessment of Learning Outcomes (NALO) has been implemented for several years covering different subjects but has not yet been implemented over the COVID-19 pandemic phase to allow a comparison against previous years. Because of this, the effect of the pandemic on student learning could not be assessed directly. This should be a priority for the next school year, implemented at an appropriate time (after students have settled into the new school year), ensuring that the instrument used can be matched to a recent pre-COVID-19 baseline. As the NALO now moves to a census basis, it will be important to allow a significant period of stability in the national assessment (avoiding frequent design and

methodology changes) to reap the benefits of monitoring changes in learning levels over time.

- 7. Improve data and monitoring of student attendance and engagement with distance education and in-person schooling.** More accurate monitoring of student attendance in virtual settings would be needed in the future. Currently, complete data is not available at a central level to enable a judgment on the degree to which all students received an adequate education across the full 2020–21 school year. Systems of central monitoring and reporting on student attendance in class—both in-person and at a distance—are needed to ensure that students are not left behind and that there is a better understanding of the extent of attendance and engagement across the country. Through the survey written responses, teachers, parents, school principals, and supervisors also raised the issue of monitoring attendance and engagement. Any new arrangements for gathering and monitoring student attendance should connect with existing data systems to streamline the process and not present an additional burden to teachers.

In addition to the above key recommendations, the study highlights three points worthy of consideration at this point in Saudi Arabia’s education journey, beyond the digital and distance education initiatives. Firstly, with a redesign of curricula and teacher assessment currently underway, it will be important to ensure a move away from predetermined lesson delivery to aligning instruction to students’ current learning levels, skills, and goals. This concept of skill building, starting from where each child is at, needs to permeate throughout the education system and be well understood by all of those involved in educating children and young people.

Secondly, the expected time for curricular reforms to be effectively embedded into the teaching practices and learning experiences of all children and young people should be realistic and set accordingly. International examples suggest that around 5 to 10 years for these types of reforms are necessary.

Finally, there is a rare opportunity now to build on the strengths created by the need for distance education in response to the COVID-19 pandemic, the most important of which is likely to have been the successful communication processes and parental engagement strategies that were implemented. The opening up of the classroom to parents through virtual classes, and the increase in communication between schools and families, bodes well for long-term benefits, particularly if this is sustained as students and teachers return to in-person schooling.

In summary, Saudi Arabia’s journey toward a virtual school model, rolled out at scale from the start of the 2020–21 school year to provide continued education during the COVID-19 pandemic, has been remarkable. Innovation has taken place at all levels, particularly among teachers. There is now a greater awareness of how education technologies can support and enhance teachers’ work and students’ learning experiences. Beyond that, there are now new methods and styles of communication and better awareness of what is happening in classrooms across the country. The resultant innovations and disruption to business-as-usual in Saudi Arabia’s schools will affect change in children’s learning experiences well beyond the pandemic.

**Table 0.1 Summary Matrix of Recommendations**

1. Driving Purposeful Educational Change	2. Designing and Acting at Scale, for All	3. Empowering Teachers	4. Engaging the Ecosystem	5. Incorporating Data and Evidence for Ongoing Improvement
Recommendations specific to digital and distance education and COVID-19 pandemic response				
<ul style="list-style-type: none"> <li>Continue to use and adapt the Madrasati platform and develop further digital content</li> </ul>	<ul style="list-style-type: none"> <li>In the short-term, ensure that a plan for providing devices and connectivity to all students who do not have them is feasible and enacted as a matter of urgency</li> </ul>	<ul style="list-style-type: none"> <li>Identify and promote innovative and evidence-based effective teaching and learning practices in digital and distance education</li> </ul>	<ul style="list-style-type: none"> <li>Employ strategies to gain the trust of stakeholders who may be anxious about a safe return to in-person schooling, for example by encouraging schools to incorporate student voices in return to school plans</li> </ul>	<ul style="list-style-type: none"> <li>Improve data on student attendance and engagement with distance education and in-person schooling</li> </ul>
<ul style="list-style-type: none"> <li>Plan for long-term purposeful blended learning models that best suit existing practices and conditions, such as the “Flipped Classroom” and “Flex and Enriched Virtual”</li> </ul>	<ul style="list-style-type: none"> <li>Provide additional targeted resources to students not regularly attending virtual classes</li> </ul>			<ul style="list-style-type: none"> <li>Assess and address learning losses on return to in-person schooling</li> </ul>
Recommendations related to broader areas of education reform including digital and distance education				
<ul style="list-style-type: none"> <li>More explicitly target policies and resources on disadvantaged and struggling students</li> </ul>	<ul style="list-style-type: none"> <li>Set policies for long-term access of teachers and students to devices and connectivity for both distance and in-person schooling</li> </ul>	<ul style="list-style-type: none"> <li>Reduce variability in teacher performance through targeted professional learning, and increase consistency of practice through clear guidelines for digital and distance education, for example on student engagement and use of cameras</li> </ul>	<ul style="list-style-type: none"> <li>Support and require teachers to recognize and meet the socioemotional needs of their students</li> </ul>	<ul style="list-style-type: none"> <li>Ensure continuity in externally assessed, standardized national assessments to provide crucial information on overall levels of student learning</li> </ul>
	<ul style="list-style-type: none"> <li>Promote policies and communications that emphasize high expectations for all students across all key skills</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate the impact of teachers’ learning to better understand which teacher professional development investments have been most impactful and should continue</li> </ul>		<ul style="list-style-type: none"> <li>Revisit student assessment tools and practices, plus training of educational professionals, to better track students’ development of critical cross-disciplinary and 21st century skills</li> </ul>
Recommendations specific to other areas of education reform				
<ul style="list-style-type: none"> <li>Strengthen the quality of teaching as a priority to improve learning outcomes</li> </ul>		<ul style="list-style-type: none"> <li>Review and strengthen the roles of school principals and supervisors to lead education improvement</li> </ul>	<ul style="list-style-type: none"> <li>Engage school communities in setting high behavioral standards and creating positive school cultures and climates</li> </ul>	<ul style="list-style-type: none"> <li>Reexamine student assessment policies and consider developing a national assessment framework to coordinate and communicate intent</li> </ul>

Note: These recommendations are described in more detail in chapter 8.

# 1. The Study

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In March 2020, the COVID-19 pandemic forced Saudi Arabia to cease regular in-person schooling and require students to stay at home. This marked the start of an innovative and unique journey to change the way in which schooling operated so that children across the country could continue their education. This journey is one that will have lasting impacts on education in Saudi Arabia. The World Bank studied this journey in detail over the 2020–21 school year. The results of this study are provided in this report, which comprehensively reviews the experiences of digital and distance education in Saudi Arabia and analyzes the opportunities now available to make long-lasting educational improvement.

## 1.1 OBJECTIVES AND SCOPE

The objectives of the study were to review Saudi Arabia's digital and distance education experiences in response to the COVID-19 pandemic, to evaluate its impact, and to identify opportunities to harness the most effective new practices to "build back better" from the crisis.

The scope of the study extended from kindergarten to grade 12 (K–12) with a focus on elementary, intermediate, and secondary education. In-depth data gathering took place in grades 3, 6, 9, and 12.

### Research questions

The study aimed to answer three key research questions:

1. How well did Saudi Arabia provide for, and achieve, continued education of K–12 students during the COVID-19 pandemic?
2. What were the strengths of Saudi Arabia's response to the COVID-19 pandemic in K–12 education?
3. What are the opportunities for educational improvement following the digital and distance education experience?

### Study themes

To answer these research questions, the World Bank team reviewed the recent global literature and the work underway by the World Bank and other international organizations on education during the COVID-19 pandemic, as well as the experiences of other countries across the world as they responded to the pandemic. This helped the team to identify a common set of themes that could be used to prepare a set of custom-built data collection tools and to frame the analysis. The six themes identified included:

1. Enabling digital and distance education
2. New and adapted tools and materials for education continuity
3. Teaching and learning practices during the pandemic



4. Estimated effects of the pandemic on student learning
5. Engagement and well-being
6. Implications for next steps.

The effectiveness of the digital and distance education provision, in terms of student learning outcomes, could not be directly analyzed because of the lack of a comparable standardized national assessment during the study period. Significant efforts were made to develop banks of test items, mapped to expected learning outcomes, and have them readily available and convenient for teachers to use in assessing their students. However, a formalized moderation system is not yet in place to ensure consistency of teacher judgment in summative assessments of student learning within and across schools, districts, and regions.<sup>1</sup> Therefore, the results of teacher-assigned grades and marks could not be used to reliably determine overall changes in student learning outcomes before and during the COVID-19 pandemic. Instead, the perceptions of effectiveness of the digital and distance education were gathered from a wide range of stakeholders and examined within this study.

## 1.2 BACKGROUND AND CONTEXT

Globally, when the COVID-19 crisis first emerged, little was known about the disease, how it was spread, or how to treat it. Governments in 167 countries had closed all schools by the end of March 2020 as a precautionary measure, leading to 1.5 billion children out of the classroom. The shocks to education extended beyond school closures—which were expected to have an impact on learning as well as the health and safety of children and young people—to an economic crisis and long-run associated costs (World Bank 2020a). To mitigate these impacts, plans and policies were needed for (1) **coping** with the crisis, including protecting health and safety and preventing learning losses; (2) **managing** continuity in the complicated reopening phase including prioritizing within the curriculum and helping students to catch up; and (3) **improvement and acceleration**, including harnessing the best practices to make schools more resilient, equitable, and effective (World Bank 2020a). The COVID-19 pandemic led to an urgent need for alternative models of education service delivery across the world, particularly as the time needed to tackle the virus (and its recurrent waves) extended beyond initial expectations. The pandemic also highlighted the need to build resiliency in education systems to withstand any future requirement for large-scale school closures, something that only a few countries had experienced in the past.

In Saudi Arabia, schools were closed for in-person learning on March 9, 2020. Just one day later, distance education in the form of recorded lessons was made available through TV and YouTube channels for all school grades. This swift response, an immediate nationwide implementation of distance education at large scale was made possible because of Saudi Arabia's previous investments in e-learning, significant accumulated experience in education technologies, quick decision-making, and well-coordinated effort across multiple entities. After the summer, schools remained closed for regular in-person learning and synchronous online teaching took place for the full school year. These efforts and innovations were documented by the MOE in its report released in the Spring Semester of 2020: "The Saudi MOE: Leading Efforts to Combat Coronavirus Pandemic (COVID-19)" (MOE 2020).

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<sup>1</sup> For further details regarding moderation, see footnote no. 4 and OECD 2020.

One year after the crisis began, by March 2021, almost all countries had reopened their schools for in-person learning, either in full or in part, with just 32 countries, including Saudi Arabia, continuing with fully distance education.<sup>2</sup> In fact, Saudi Arabia has had among the longest periods of implementation of nationwide distance education across the world, totaling 41 weeks (appendix A). However, Saudi Arabia stands apart from the other countries with long-term nationwide school closures (shown in appendix A) in that synchronous virtual classes operated for the full 2020–21 school year with mandatory attendance, while asynchronous alternatives were made available for students without connectivity or devices alongside regular in-person school contact. This makes the education response and experience of Saudi Arabia during the COVID-19 pandemic unique.

Global estimates of the effect of COVID-19-related school closures and economic contractions suggest that children could lose, on average, 0.6 years of effective schooling, and experience a reduction of US\$872 in yearly earnings, approximately equivalent to US\$16,000 over a student's work life (at present value). The share of lower secondary-aged students who are below minimum proficiency levels may increase globally from 40 percent to 50 percent under the "intermediate" scenario of these estimates (Azevedo et al. 2020).

Results from individual countries indicate widespread and concerning "learning losses" since the start of the COVID-19 pandemic. For example, in the United States, students started the fall semester of 2020 being, on average, three months behind where they should have been in mathematics and a month and a half behind historical averages for reading (Dorn et al. 2020). In England, after a second lockdown in early 2021, primary school children were 3.5 months behind non-pandemic years in mathematics, and 2.2 months behind in reading; progress made in the in-person Autumn term was lost after the second lockdown (Education Policy Institute). In Belgium, grade 6 students lost 0.19 standard deviations (SD) in mathematics, and 0.29 SD in Dutch after 9 weeks of school closures (Donnelly and Patrinos 2021). While data is still coming in on learning losses around the world, the overall picture appears to be one of concern over learning loss, increased inequalities, and a need for targeted catch-up and remediation. While a return to school (where it was safe to do so) and improved distance education will have helped, significant catching up may still be required given these losses.

As countries look to invest more in education technologies (EdTech), spurred on by the necessities of distance education and the promises of efficiencies and new learning opportunities, the World Bank recently published its guidance, advocating for attention to five key principles when education systems invest in EdTech (World Bank 2020b). The five key principles are outlined in box 1.1. Some of the interconnected and varied topics that the principles touch upon are illustrated in figure 1.1.

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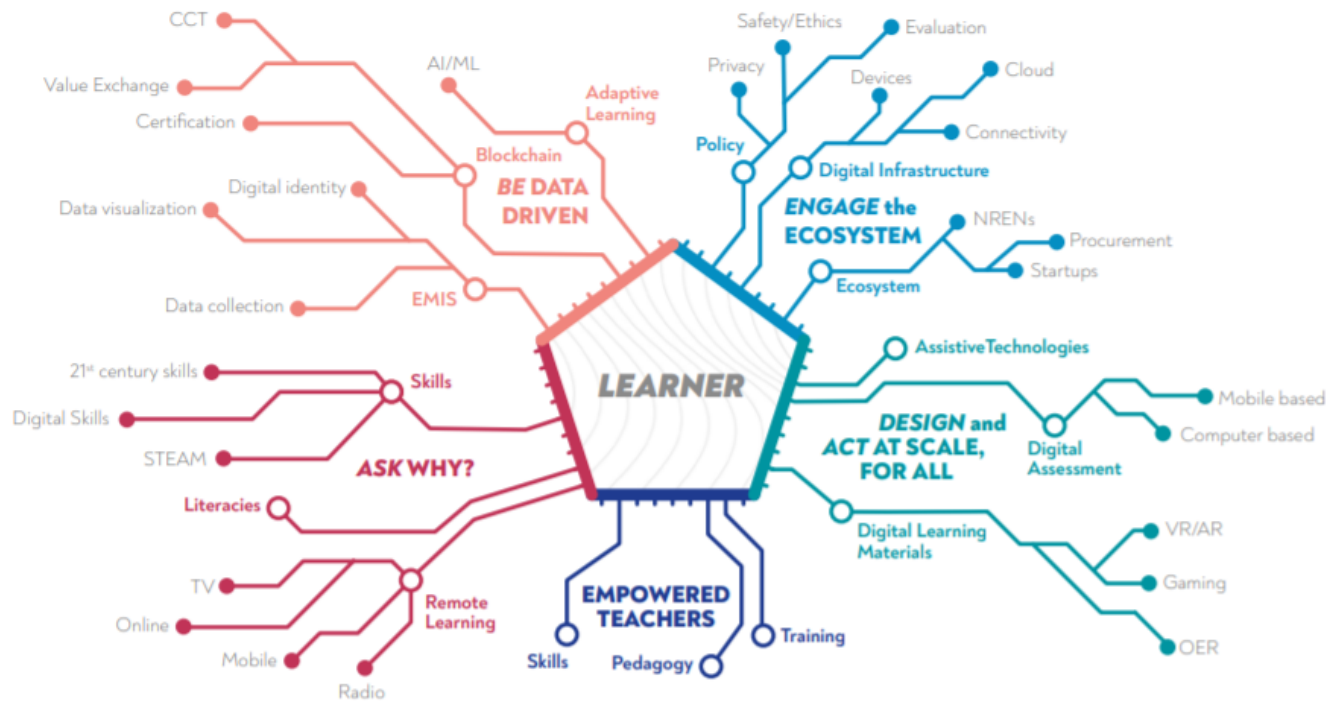
<sup>2</sup> UNESCO Global Monitoring of School Closures database: <https://en.unesco.org/covid19/educationresponse#durationschoolclosures> (accessed on June 5, 2021).

**Box 1.1 Five Key Principles for EdTech Investments**

1. **Ask Why:** EdTech policies and projects need to be developed with a clear purpose, strategy, and vision of the desired educational change. EdTech considerations should focus on “education” and not just on the “technology.” “Education at its core is a human-centered, socially intensive endeavor that connects a community of learners. Technology should support and enable those connections” (World Bank 2020b, p. 12).
1. **Design and Act at Scale, for All:** The design of EdTech initiatives should be flexible and user-centered, with an emphasis on equity and inclusion, in order to realize scale and sustainability for *all*. EdTech has exacerbated inequalities in many places, and this need not be the case. Understanding users’ needs and contexts will lead to more inclusive investments.
1. **Empower Teachers:** Technology should enhance teacher engagement with students through improved access to content, data, and networks, helping teachers better support student learning. Global evidence indicates that the effective use of EdTech results in the role of teachers becoming more central, and not peripheral.
1. **Engage the Ecosystem:** Education systems should take a whole-of-government and multi-stakeholder approach to engage a broad set of actors to support student learning. This includes, alongside governmental agencies, students, teachers, school leaders, parents/caregivers, non-governmental organizations (NGOs), academia, and the private sector.
1. **Be Data-Driven:** Evidence-based decision making within cultures of learning and experimentation, enabled by EdTech, leads to more impactful, responsible, and equitable uses of data. There will be an abundance of data, and therefore a need for capacity to utilize data and evidence to inform decisions that improve teaching, learning, and the management of the education system.

World Bank 2020b.

**Figure 1.1 Five Key Principles and Interconnected Topics for EdTech Investments**



Source: World Bank 2020b.

The 2021–22 school year closed one month early (ending on April 22, 2021 for elementary schools and April 30, 2021 for intermediate and secondary schools). After that, virtual summer school operated in each education directorate for elementary school students (between 3pm and 8pm) and intermediate school students (between 9am and 1pm) for approximately 4 weeks via the Madrasati platform. Students with connectivity and devices could opt into this program, which focused in foundational skills and core subject areas such as mathematics, Arabic, science, and Qur’anic studies. This was an opportunity for remedial education to take place, compensating for disadvantage and falling behind that some students would have experienced, in line with a growing body of evidence on the need for remediation and the benefits of tutoring to help students catch up (World Bank 2021). At the start of the summer school session, around 47,000 students and 1,500 teachers were involved. While this represents only 1.2 percent of students and 0.4 percent of teachers in elementary and middle schools, the summer school is a mechanism that, in the future, could be used in a more targeted way to support remedial needs by selecting the students most in need, and incentivizing their participation.

The MOE has announced return to school plans for the start of the 2021–22 school year, which will see fully vaccinated intermediate and secondary school students returning to regular in-person schooling on August 29, 2021. Kindergarten and elementary school students and unvaccinated intermediate and secondary school students will continue with distance education until the population vaccination rate reaches 70 percent or October 30, 2021 (whichever is reached first). There are some situations (such as in overcrowded schools) where it will be difficult to incorporate social distancing, and so the MOE has issued guidance on hybrid models whereby in-person contact time in schools is reduced and a mix of synchronous and asynchronous learning takes place using the digital and distance education tools and mechanisms employed over the 2020–21 school year. More broadly, blended learning models,

where there is a combination of in-person and distance learning, will be further explored by the MOE to see how they can be helpful in the education process beyond the pandemic, and for particular situations such as children studying in very remote locations.

### 1.3 METHODOLOGY

Data was gathered specifically for the study using the following custom-designed tools.

#### Focus groups

Virtual focus group discussions took place between February and April 2021 with groups of stakeholders, as shown in table 1.1. The main objective of the focus group discussions was to augment data collected for the study from the surveys and other sources by providing a deeper understanding of each group's experiences and perceptions. The focus group discussions were planned and moderated following a script that aligned with the study's themes. The advantages of using this model are that focused questions direct thinking and reflections, moderators can elicit comprehensive responses, participants are guaranteed to respond, and it provides opportunities for peer-to-peer discussions that lead to deeper understanding for the researchers. While efforts were made to include a range of participants by region, type of school (general or Qur'anic, and boys' or girls' schools), ages and grades, and subject specializations, the virtual engagement of participants often limited the representative nature of the sample. The results of the focus group discussions were used in the design phase for the survey questionnaires. In addition, the results from the focus groups are used throughout this report in the discussion of various aspects of Saudi Arabia's experience of K–12 digital and distance education, with quotes from the focus group discussions providing insights from stakeholders' own voices.

**Table 1.1 Number of Focus Group Participants**

Focus group	Number of participants
Elementary teachers	7
Intermediate and secondary teachers	9
Supervisors	11
Parents	8
Boys (intermediate and secondary)	7
Girls (intermediate and secondary)	6
School principals	3
TOTAL	51

#### Surveys

The following stakeholders were surveyed to gather information on their views, perceptions, and experiences in relation to the study's objective and themes:

1. School principals
2. Teachers
3. Students

#### 4. Parents

#### 5. Supervisors

Questionnaires were designed for each of the groups of stakeholders covering the study theme areas. The questionnaires were first developed in English and then translated into Arabic, and were reviewed and tested by MOE officials, supervisors, and teachers. The questionnaires were designed in Microsoft (MS) Forms, using a mixture of question types with response selections, plus an opportunity for written comments.

A nationally-representative sample of school principals, teachers, students, parents, and supervisors was selected and the questionnaires were sent via the regional education authorities to schools in April 2021. Specific attention was given to a robust method for obtaining nationally-representative results, as opposed to only hearing from those motivated to respond, while also having a process that was manageable to implement and minimized administrative requirements of regional educational administrations, district education offices, and schools.

To focus the data gathering, four grade levels were targeted: grades 3 and 6 in elementary school, grade 9 in intermediate school, and grade 12 in secondary school. A two-stage, systematic, cluster sampling strategy was used to select schools, with selection probability proportional to size (PPS). In this case, the measure of size (MOS) was the number of students in a school at the target grades. Separate samples for elementary, intermediate, and secondary schools were selected. The sampling frame included all public schools. Systematic sampling involved sorting the schools in the sampling frame by boys'/girls' school, school type (such as general or Qur'anic schools), geographical region (13 administrative regions), and total school size (number of students). This implicit stratification means that the sample reflects the population in terms of these variables. The target number of schools was based on an analysis of similar studies, such as OECD's Programme for International Student Assessment (PISA) and the balance between taking a larger number of schools to minimize clustering (similarities within schools) and a smaller number to minimize non-response bias, which would have been detrimental to the validity of the results. This led to the decision to select 200 schools at each of the elementary, intermediate, and secondary levels (totaling 600 schools).

After the selection of the 600 schools, it became apparent that only 4 of the 47 regional education administrations were not included. Given that this might be construed as an oversight (as opposed to an artefact of the sampling methodology), one school from each of those regional education administrations was selected in addition to the original sample. These additional schools were selected by sorting the regional education administrations and total school enrollment, and then selecting the second last school as the additional school: one elementary, two intermediate, and one secondary. This led to an intended sample size of 604 schools (table 1.2). The school principals of the selected schools were given the link to the school principals' questionnaire.

Teachers were selected within the sampled schools according to instructions provided by the MOE and communicated through the regional education administrations. To have a manageable sample, the following core subjects were chosen: Arabic, mathematics, science, and English. Elementary school principals were given instructions on how to select one grade 3 class (which are general classes and not specific to the core subject areas) and one grade 6 class for each of the core subject areas. Intermediate school principals were given instructions on how to select one grade 9 class for each of the core subject areas, and secondary school principals were given instructions on how to select one grade 12 class for each of the core subject areas.

The teachers of the selected classes were given the link to the teachers' questionnaire. All students in one of the classes for each grade in each school were given the link to the students' questionnaire, and the parents of the selected students were asked to submit one response to the parents' questionnaire.

The supervisors of Arabic, mathematics, science, and English from the district education offices in which the nationally-representative sample of schools were located were asked to complete the supervisors' questionnaire.

The intended sample size for the surveys is shown in table 1.2, along with the achieved sample size and the response rates. An explicit target for response rates was not set; in fact, response rate benchmarks are only one part of broader assessments of survey quality (Sturgis, Smith, and Hughes 2006). However, compared to other similar electronic surveys, the achieved response rates are similar or higher.<sup>3</sup>

**Table 1.2 Surveys: Intended Sample Size and Response Rates**

	Principals	Teachers	Students	Parents	Supervisors
Intended sample	604	2,617	22,218	22,218	1,334
Responses received	368	1,832	9,352	5,575	858
Response rate (%)	61	70	42	25	64

Note: For students and parents, the intended sample was approximated because the data on class size from the school principal survey was deemed to be unreliable. An estimate of 27.6 students per class was applied, which is the average of the class sizes reported in Saudi Arabia by teachers of nationally-representative classes of grades 4 and 8 reading, mathematics, and science from the Trends in International Mathematics and Science Study (TIMSS) and the Progress in International Reading Literacy Study (PIRLS).

The MOE monitored survey responses after the questionnaire links were sent, and followed up with regional education administrations, who in turn followed up with district education offices and schools in which responses had not yet been received. This process helped to increase the reliability of the survey results. After the survey period was closed, the data was cleaned and weights were added to allow for the calculation of nationally-representative responses to each question. The weights account for selection probability and non-response. Details on the weighting methodology are provided in appendix B. The cleaned dataset with weights was used to create tables of results for each question by level of education and by boys' or girls' schools, as shown in appendixes C to G. These results have been used throughout this report to provide evidence on the various aspects discussed around Saudi Arabia's K–12 digital and distance education.

Respondents to the questionnaires had an opportunity to write a comment upon completion of the questions. A thematic analysis was conducted on the written responses. Analysts scanned the responses from each of the stakeholder groups, removed unsubstantial responses (such as "no comment"), reviewed the response for each group in more detail, noting emerging themes, then identified common themes, which formed the basis of the full analysis. The selected common themes and sub-themes are shown in table 1.3. The results of this analysis were used throughout the study analysis, with quotations enabling key themes to be portrayed in respondents' voices.

3 See, for example, UK Higher Education Academy 2016.

**Table 1.3 Questionnaire Open-ended Question: Thematic Analysis Themes and Sub-themes**

Theme	Sub-theme
1. Advantages and benefits of distance learning	Skill gains
	Comfort of learning at home
	Ease and efficiency considerations
	Parental and family engagement
2. Disadvantages and challenges of distance learning	Internet connectivity and devices
	Measurement and evaluation of student performance
	Students' physical and mental well-being
	Student motivation and engagement
	Distance learning schedule and class duration
	Teachers' skills and performance
3. Recommendations for digital and distance learning	Improving infrastructure
	Improving student assessment
	Improving the Madrasati platform
	Reviewing distance learning schedule and class duration
	Planning for professional development
	Maintaining/reinforcing communication with parents
4. Future preferences around the type of education	Distance learning
	Face-to-face learning
	Blended learning

### Virtual classroom observations

The observation of a sample of virtual classroom practice was undertaken within the study to obtain qualitative evidence about the digital and distance education approaches in Saudi Arabia during the COVID-19 pandemic. As one of the pillars of triangulation used in the study, classroom observation is unique in that it provides direct insight into the teaching practices that are actually being delivered in the classroom, as opposed to what teachers may say, or believe, they or their students are experiencing.

A sample of 64 virtual classes were requested for observation, spread across grade levels (lower and upper elementary school, intermediate school, and secondary school), subjects (Arabic, mathematics, science, and English), urban and rural locations, and boys' and girls' schools. However, due to technical difficulties, one virtual classroom observation could not be completed, resulting in a total of 63 virtual classroom observations undertaken.

A customized virtual classroom observation schedule was developed to assess the quality of teaching and learning practices within the digital and distance education context. The teachers' regular supervisors were trained by the World Bank in using this tool to observe the following aspects of the virtual lesson:

1. The use of digital teaching and learning resources
2. Planning the learning
3. Establishing a positive climate for learning



4. Teaching and learning

5. Feedback and assessment

Following the observation of the lesson, the supervisor had a 30-minute general debrief and discussion about the lesson, about the teacher's views on digital and distance education, and about aspects of communication and student engagement, assessment, and parental engagement. Guiding questions were given to the supervisors and the teachers' responses were recorded and provided to the World Bank and MOE analysis teams. In total, 63 virtual classroom observations took place around March 2021. The findings from these observations and the post-observation teacher interviews are discussed throughout this report.

## **Interviews**

The study team conducted a range of virtual interviews via videoconferencing and through emailed proformas. Key officials responsible for various aspects of digital and distance education, aligned with the study's themes, were consulted. This included officials from the MOE's Departments of General Education, Planning and Development, Digital Transformation and Information Security, General Administration of E-Learning and Distance Education, Information Technology, and the Curriculum Development Center, as well as the Tatweer Company for Educational Services. The interviews provided insights into the themes of the study, enabling the analysis outlined in this report.

## 2. Enabling Digital and Distance Education

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The digital and distance education provided across Saudi Arabia during the COVID-19 pandemic required meticulous planning and careful attention to the roles and needs of all stakeholders. This chapter examines the planning, communication, preparation, provision, and monitoring of digital and distance education, particularly in advance of (and during) the 2020–21 school year.

### 2.1 PLANNING AND COMMUNICATING MITIGATION MEASURES

Like other countries across the world, Saudi Arabia was faced with the crisis of having to pivot away from in-person schooling in early 2020 due to the COVID-19 pandemic. Just one day after regular in-person classes were ceased in March 9 of the same year, distance education in the form of recorded lessons was made available to more than 6 million K–12 children across the country. This immediate implementation of distance education at large scale was made possible because of Saudi Arabia's previous investments in e-learning, significant accumulated experience in educational technologies, quick decision-making, and well-coordinated efforts across multiple entities.

The immediate asynchronous distance education modalities made available to school children in the late part of the 2019–20 school year were sufficient to enable most children to continue their studies at that time. However, it became clear that more would be needed before the start of the 2020–21 school year to ensure effective continuity of learning as the crisis continued to require the ceasing of regular in-person schooling.

In the years before the pandemic, Saudi Arabia invested in digital learning, starting with the establishment in 2005 of the National e-Learning Center, followed by the Tatweer Company for Education Services (T4edu) in 2012, and Tatweer Educational Technologies (TETCO) in 2016 to support the MOE's goals. Several initiatives were underway by these organizations under the MOE's supervision. These initiatives aimed to promote digital and technology-enabled teaching and learning in schools and raise teachers' and students' digital skills. One of the key initiatives underway before the pandemic was the Education Information Network (iEN) Portal, which houses electronic copies of course materials, recorded lessons, enrichment activities, question banks, and professional development resources for teachers. The rich experiences and expertise built up across these organizations—for example, in procuring, implementing, and evaluating the trialed learning management systems and developing recorded model lessons—laid the groundwork for the ramping up of a unique digital and distance education model in response to the crisis.

As the pandemic first hit, these established resources were made available and scheduled for asynchronous learning opportunities for children during the crisis situation. More lessons were recorded to complement those already available. The recorded lessons were aired 24-hours a day on dedicated iEN TV channels (one for each grade) and iEN YouTube channels.

Over the summer of 2020, the MOE decided to further enhance the online learning and teaching experience and require virtual live connections between students and teachers for all lessons

(synchronous learning), wherever possible. This was a bold decision made for the benefit of students' learning and required infrastructure capable of hosting over 5 million students online at the same time. Building on existing initiatives, and a new partnership with Microsoft (MS), the Madrasati ("My School") platform—a national platform owned by the MOE and integrated with MS tools and virtual labs—was created in time for the start of the 2020–21 school year.

One of the key success factors in the rapid transition to online learning, in addition to having built up expertise from prior investments in digital learning, was strong leadership and quick decision-making.

An action plan that addressed key dimensions such as leadership, infrastructure, content, and pedagogy was developed. This plan commenced with engaging large, experienced service providers such as Microsoft.

Attention was paid to aspects of change management in rolling out the virtual school program, particularly at the start of the 2020–21 school year. A "Back to School" information platform was established to raise e-learning awareness and enhance students' digital citizenship skills. This was a single, central place for parents, students, and teachers to access all the information, user guides, video training packages, expectations, and regulations necessary for a successful e-learning experience. Infographics were used extensively through social media to encourage engagement with distance education.

## 2.2 PREPARING SCHOOLS, TEACHERS, STUDENTS, AND PARENTS

Preparing 400,000 teachers to use the new digital tools and significantly alter their teaching methods in such a short period of time was an enormous but essential task. Teacher training was made widely available; a teacher in each school was designated as the e-learning focal point to support their colleagues, and networking support across the teaching profession appears to have been widespread. Supervisors have played a key role in the professional development of teachers through communicating and sharing good practice across subject areas and schools during the pandemic.

The impact of many of the teacher professional development programs provided by the MOE has been evaluated locally, but impact data has not yet been collated at the national level. The MOE has collected data relating to the number of training programs as well as the total number of hours of teacher professional development provided during the pandemic. Going forward, it will be important for the MOE to collect and collate national impact data. This will allow the MOE to understand the overall level of effectiveness of the resources it has invested in, plus highlight which aspects of the program have worked well and which need amendment.

The provision of technical support in multiple ways was essential to help students, parents, and teachers connect, particularly in the first few weeks of distance education. This included a dedicated call center, integrated online live chat, support staff based in district offices, and guidance to schools on how to help with log-in enquiries. More than half (54 percent) of teachers felt that they had received the right level of communication and advice to help them prepare for distance education, while 33 percent felt that they had received too much information. Teachers found advice from the internet, school principal and other teachers, followed by the supervisor, the most helpful.

In response to the urgent need for online learning approaches, the MOE planned a new online curriculum that aimed to provide an overarching digital educational content for its K–12 general and special education schools. The design of the curriculum went through a series of quality-controlled stages, including the identification of curriculum goals, development of curricular structures, and

selection of curriculum content. Thereafter, individual courses and lessons were designed by educational specialists who created training materials and teaching manuals and had responsibility for filming, recording, editing, and determining the most engaging and effective delivery methods for each lesson.

In developing the new online curriculum, the MOE made changes to existing time allocations for individual subjects. For example, the amount of curricular time allocated to mathematics and science was increased, whereas time for the Arabic language, arts, and physical education was reduced. The number of weekly classes, overall, was reduced. This reduction in the scope of the curriculum and learning time was a temporary response to the crisis. An extended school year (with three semesters) was announced after the end of the 2020–21 school year. This will help to ensure that the curricular breadth and depth is re-established and further enhanced moving forward, particularly for the important foundational skills such as literacy and numeracy.

## 2.3 PROVIDING FOR ALL STUDENTS

At the start of the pandemic, access to devices and Wi-Fi connections was presumed to be relatively high among students across the country, but not universal. Therefore, the system of distance education for the 2020–21 school year needed to have flexibility to cater to students' different circumstances and ensure students' equitable access to education. Initially, around 70–80 percent of students were expected to log onto virtual school through the Madrasati platform. However, within a short period of time, 98 percent of all students had logged onto the Madrasati platform at some point, which is a remarkable achievement.

Those students unable to access Madrasati due to the lack of a device or connectivity were expected to regularly attend school to receive materials and check-in with their teachers in an asynchronous mode.

## 2.4 MONITORING ATTENDANCE AND ENGAGEMENT

The MOE has closely monitored the levels of engagement on the Madrasati system on a weekly basis. Figure 2.1 shows that students and teachers were able to access the Madrasati platform within a matter of weeks (with a dip following the break between semesters). After concerted communication efforts in the first two weeks of the school year, more than 90 percent of students had logged onto Madrasati. By the tenth week of school, 98 percent of the student population had logged onto Madrasati (figure 2.1). This indicates that the technical support and follow-up mechanisms were effective. In total, 98 percent of students across the country were able to access the Madrasati platform at some point during the year. Teacher engagement was felt to be high, with 89 percent of school principals reporting through the survey that they had seen a reduction in teacher absence compared to previous years.

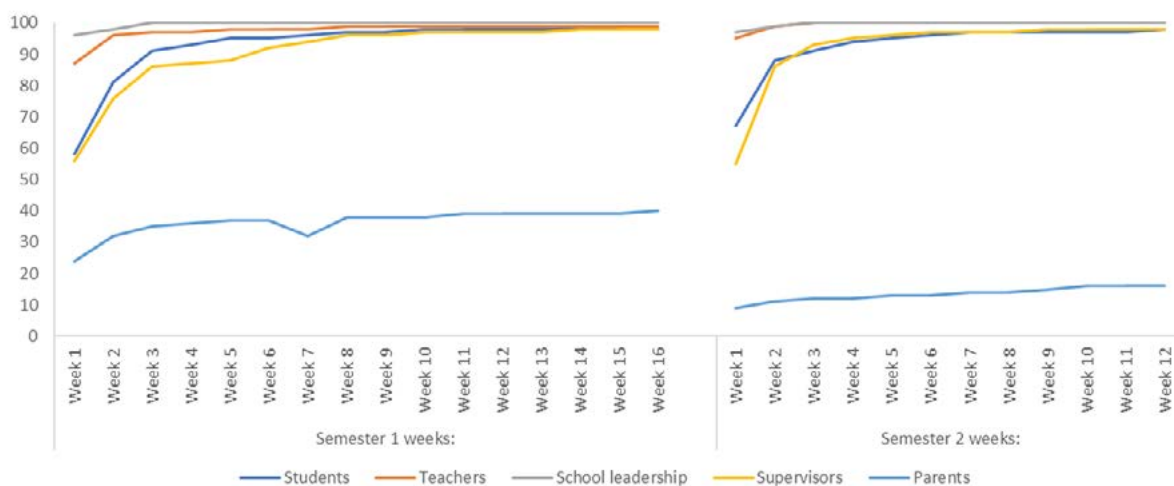
On average in a week, student engagement with the Madrasati platform, through logging in, was around 75–85 percent (figure 2.2). In addition, some students directly accessed virtual classes through MS Teams (not through the Madrasati platform), and those students needing face-to-face support attended school in-person occasionally or on a regular basis. Future work to analyze data on students' interactions with EdTech, both synchronously and asynchronously, will help to gain a better understanding of student attendance and engagement, including the degree to which they maintained contact and engagement throughout the virtual classes. Students dropping out of the virtual classes was mentioned by some teachers and supervisors in the comment section of the

questionnaires, although this question was not specifically asked in the questionnaire so the extent of this view is not known. However, 67 percent of teachers found that it was difficult to engage students throughout the lesson’s required time, and 59 percent found poor internet connections to be a main problem to student engagement, highlighting the need to move beyond measures of logging in to ascertain true levels of student attendance and engagement.

Data is not yet centrally available on the degree to which students studying on an asynchronous mode regularly accessed education through school visits. Data is also not yet available on the degree to which students accessed recorded lessons. From the nationally representative surveys, 19 percent of students reported having met in-person with their teacher; however, only 6 percent of teachers reported meeting students regularly in school, so the degree to which these students received in-person support from their teachers may have been less than expected. It will be important going forward with any further digital and distance education provision that those children not attending virtual classes through the Madrasati platform are monitored in terms of their attendance and engagement, with schools and districts following up on individual students and the center monitoring performance on this across the country.

In terms of obstacles to student engagement, one-third of teachers said that the lack of availability of digital devices for students was a main problem regarding student engagement in class (32 percent), with almost a further half saying it was an occasional problem (47 percent). Students themselves reiterated this concern: 41 percent of students said that poor internet connection can make it hard to study at home.

**Figure 2.1 Madrasati Cumulative Log-in, 2020–21 School Year**

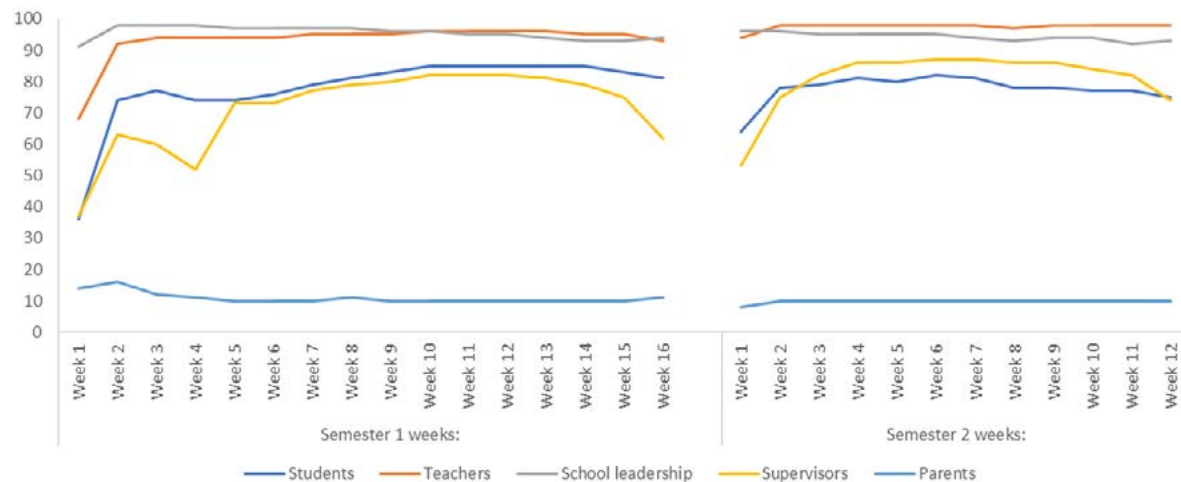


	Semester 1 weeks:																Semester 2 weeks:												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	7	8	9	10	11	12	
Students	58	81	91	93	95	95	96	97	97	98	98	98	98	98	98	98	67	88	91	94	95	96	97	97	97	97	97	98	
Teachers	87	96	97	97	98	98	98	99	99	99	99	99	99	99	99	99	95	99	100	100	100	100	100	100	100	100	100	100	
School leadership	96	98	100	100	100	100	100	100	100	100	100	100	100	100	100	100	97	99	100	100	100	100	100	100	100	100	100	100	100
Supervisors	56	76	86	87	88	92	94	96	96	97	97	97	97	98	98	98	55	86	93	95	96	97	97	97	98	98	98	98	98
Parents	24	32	35	36	37	37	32	38	38	38	39	39	39	39	39	40	9	11	12	12	13	13	14	14	15	16	16	16	

Source: MOE General Directorate for E-Learning and Distance Education.

**Figure 2.2 Madrasati Average Weekly Log-in, 2020–21 School Year**

Average percent who logged into Madrasati each week (based on daily log-in data) (%)



	Semester 1 weeks:																Semester 2 weeks:											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	1	2	3	4	5	6	7	8	9	10	11	12
Students	36	74	77	74	74	76	79	81	83	85	85	85	85	83	81	64	78	79	81	80	82	81	78	78	77	77	75	
Teachers	68	92	94	94	94	94	95	95	95	96	96	96	96	95	95	93	94	98	98	98	98	98	98	97	98	98	98	98
School leadership	91	98	98	98	97	97	97	97	96	96	95	95	94	93	93	94	96	96	95	95	95	95	94	93	94	94	92	93
Supervisors	37	63	60	52	73	73	77	79	80	82	82	82	81	79	75	62	53	75	82	86	86	87	87	86	86	84	82	74
Parents	14	16	12	11	10	10	10	11	10	10	10	10	10	10	10	11	8	10	10	10	10	10	10	10	10	10	10	10

Source: MOE General Directorate for E-Learning and Distance Education.

# 3. New and Adapted Tools and Materials for Education Continuity

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The digital and distance education provided during the COVID-19 pandemic included a wide variety of tools and materials that were created or adapted for education continuity. These included the Madrasati platform, the iEN educational channels (YouTube and TV), the National Education iEN Portal, and the Virtual Kindergarten. These are reviewed in turn in this chapter.

## 3.1 THE MADRASATI PLATFORM

The Madrasati platform was launched in August 2020 to ensure the continuity of distance education and to provide unified and comprehensive educational services under one platform. The project's completion and the transfer of more than 5 million students and over 400,000 teachers, plus students' parents, and educational staff onto the platform was achieved in a remarkable time span.

The Madrasati platform is more than a learning management system. It is a unified e-learning platform containing links to tools and services for use by students, teachers, school principals, and parents. Madrasati is designed as a virtual school model that provides students with an online learning environment simulating the in-person school model through diverse instructional processes and activities. It is also designed with the aim to enable and empower teachers and school principals with the useful tools and basic teaching and learning services. These include Microsoft (MS) Teams, Office 365, iEN Portal, and interactive tools as depicted in figure 3.1.

The Madrasati platform has enabled over 154 million virtual classes and provided over 16 million diverse educational resources, including videos, educational games, augmented reality, 3D objects, interactive experiences, educational stories, and books. These support synchronous and asynchronous learning. The Madrasati platform also provides tools for instructional planning and design, as well as for measurement and evaluation such as e-tests (with almost 700 million test samples and 41 million homework tasks created by teachers for students). Support to teachers is provided on the platform through question banks that contain over 93,000 validated questions for most subjects. Teachers can use these to create homework or tests to measure educational goals. Teachers, supervisors, and school principals can also follow up on performance through a system of reports and indicators. Various channels for communication and interactions among parties are also offered, such as discussion forums, chat rooms, e-mail, and teacher rooms.

To keep the Madrasati platform relevant and responsive, frequent feedback from stakeholders was gathered from users and common issues were addressed. Software updates were also regularly implemented. The platform is considered as a developing (not static) tool based on agile and governed processes.

The innovative and flexible Madrasati model has achieved considerable success and played

a prominent role in the continuity of distance education in Saudi Arabia. Satisfaction with the Madrasati platform is indicated by, for example, 98 percent of teachers stating that they would find the Madrasati platform useful after the pandemic.

### 3.2 RECORDED LESSONS ON IEN CHANNELS AND YOUTUBE

A significant number of educational channels were also allocated to allow students to continue with their education outside of their physical learning environment. Twenty-three iEN satellite channels, broadcasting lessons for all academic levels, continuous education, and special education, were provided for free through video broadcasts on TV (available to those without internet access), and 24-hours on YouTube.

The 23 iEN channels undergo a continuous, extensive review process to assure the quality of recorded lessons, which are then published on iEN YouTube channels in addition to being used in the Madrasati platform as part of either synchronous or asynchronous lesson planning.

The iEN recorded lessons have been used by students in Saudi Arabia as well as students in other countries. Over 230 million views were reached within a year, placing Saudi Arabia in the top position for the most-watched educational channels among Arab countries: a total of 24 million hours watched, 186,000 satellite broadcasting hours, and more than 25,000 filming hours.

### 3.3 OTHER TOOLS AND ENRICHMENT MATERIALS

Several other digital tools and enrichment materials were made available, as follows.

#### **The Education Information Network (iEN) Portal**

The National Education Portal iEN was developed in 2015, in partnership with Tatweer Company for Educational Services, to provide renewable educational services and enriching solutions based on international quality standards. The iEN portal is a content management system aiming to provide high-quality digital content and materials to students, parents, teachers, supervisors, and school principals, and is open to all students in Saudi Arabia as well as in overseas Saudi schools.

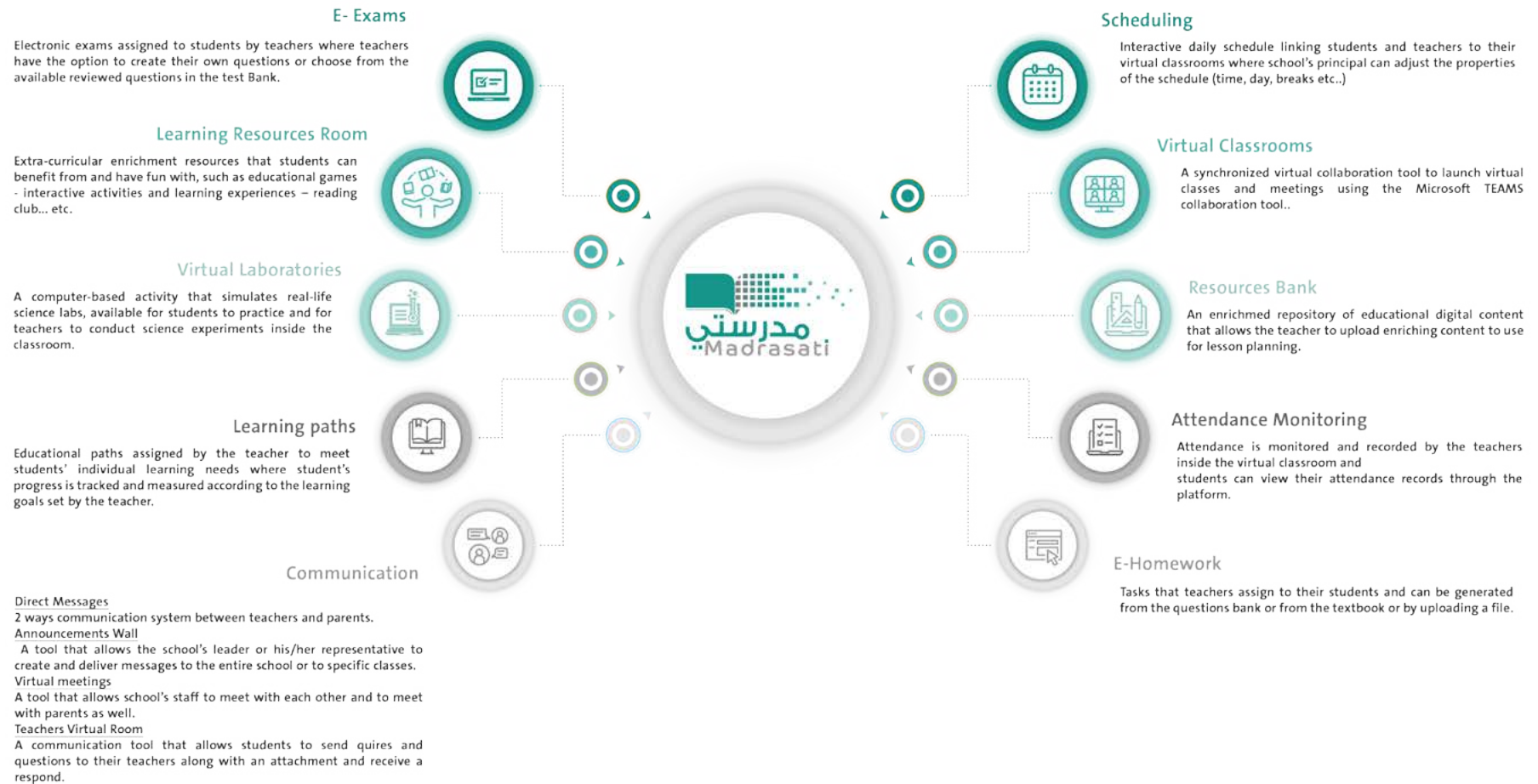
The portal had already been leveraged during in-person education prior to the COVID-19 pandemic, enhancing teachers' capacity to use technology in teaching and learning processes. The portal offers diverse educational resources such as digital books, e-tests and self-assessment tools, recorded lessons, lesson plans (over 450,000 e-lesson plans created with teachers' participation), instructional design guidelines, and a variety of educational games, videos, and content resources based on virtual and augmented reality and three dimensional (3D) technology. The iEN National Education Portal is also linked to the Madrasati platform, allowing digital content to be uploaded directly onto the platform. The iEN National portal is updated and developed, and its content enriched, in a continuous way.

#### **The Back-to-School website**

The Back-to-School website provides multiple educational and instructional materials for K–12 and can be accessed through the Madrasati platform. Over 300 multimedia resources and educational materials, such as user guides, infographics, training manuals, and interactive guidance videos are provided to guide users on how to use the Madrasati platform and apply distance education strategies effectively.



**Figure 3.1 Madrasati Interactive Tools**



**Figure 3.1 Madrasati Interactive Tools (cont.)**

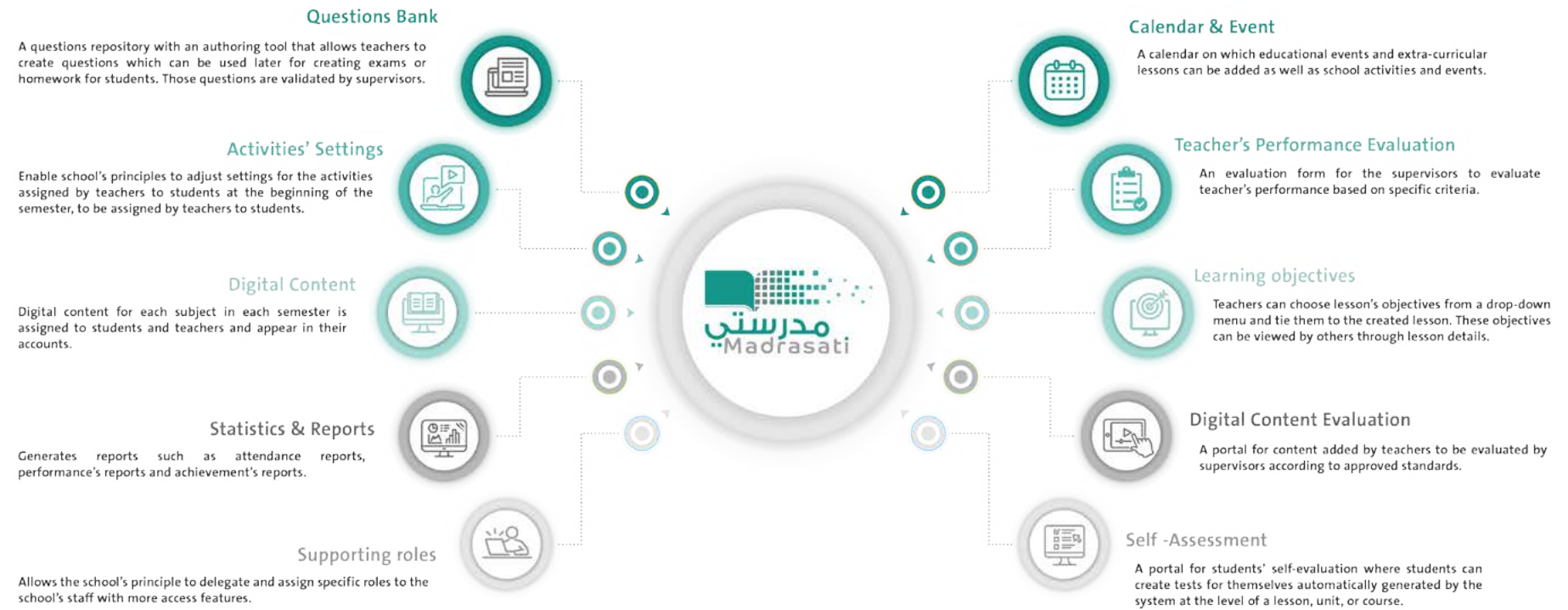
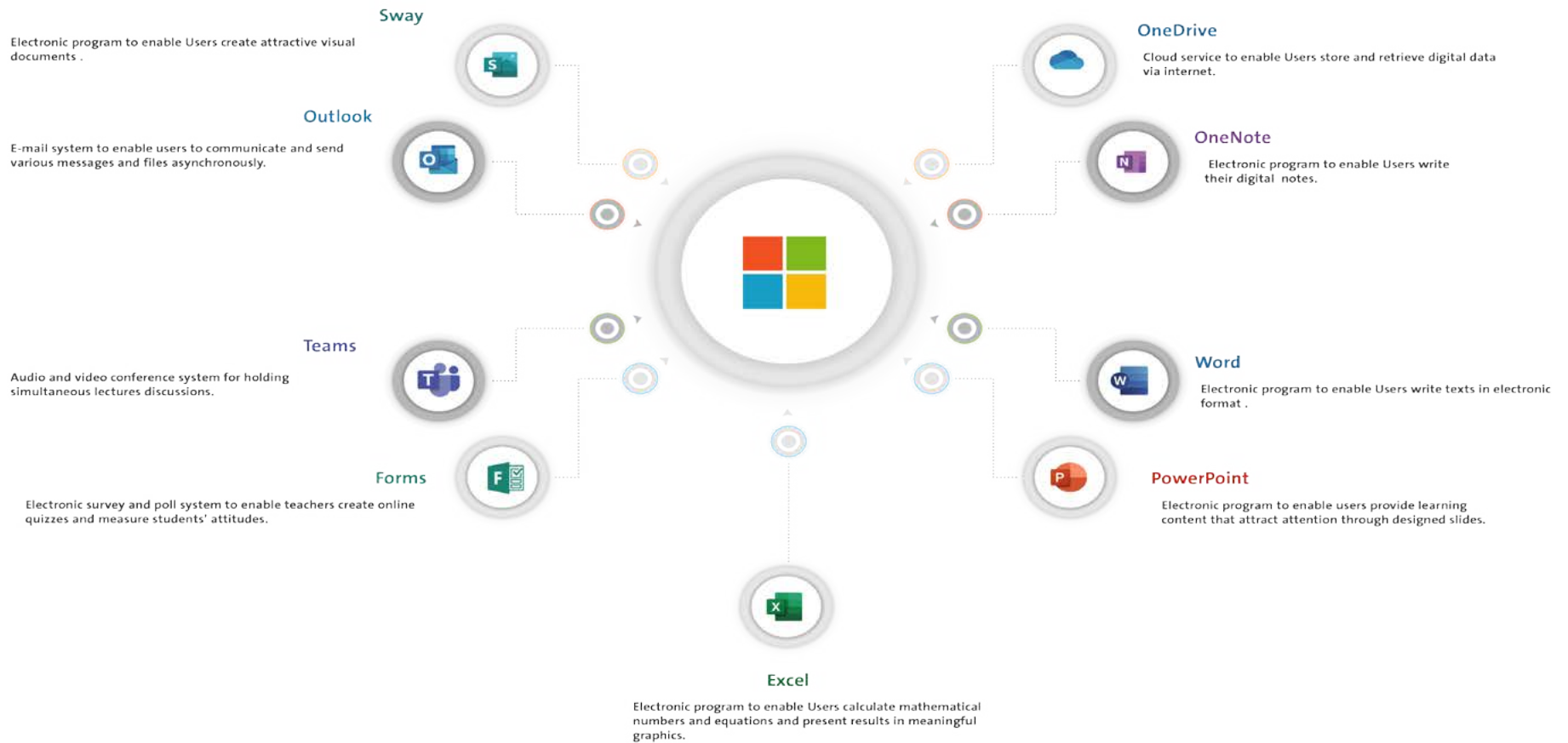


Figure 3.1 Madrasati Interactive Tools (cont.)



## Providing for children with special needs

The MOE has taken specific measures to support children with special needs through digital and distance education. Three open educational channels (on iEN and YouTube) were allocated to cover all curricula tailored to students with special needs, with thousands of recorded lessons supported with sign language for students with hearing difficulties. Other alternatives and supportive measures were offered to children with special needs through the Madrasati platform and MS Teams, in addition to the option for some children to attend school for individualized one-on-one sessions and support.

The iEN educational channels, in addition to the Back-to-School portal, included specific guidelines to parents to encourage their involvement in their children's learning. Special education teachers and supervisors were also trained on using the Madrasati platform, and comprehensive reference guides supporting distance education processes were developed for special education programs, centers, and institutes. The first electronic guide for kindergarten children with special needs was also issued. This guide aims to clarify the mechanism for providing early intervention services to children with special needs who are younger than six years of age, including content such as clarifying measures and procedures for early intervention programs, and specifying mechanisms for raising the efficiency and effectiveness of services provided to children with special needs. Parents of children with special needs can also access this guide and other various educational materials through the Virtual Kindergarten application.

## The Virtual Kindergarten

The Virtual Kindergarten application was inaugurated on November 20, 2019, coinciding with World Children's Day. The application aims to provide an interesting and entertaining virtual educational system for children between the ages of three and six years. The application provides children with the opportunity to simulate the reality of kindergarten, with educational videos, stories, games, interactive activities, as well as instructions and assessment tools for guardians to help them support their children's learning from home. As such, families unable to bring their children to nearby schools are able to benefit from this virtual interaction.

During the first semester of 2020–21, the Virtual Kindergarten application witnessed over 3.5 million views. By the spring of 2021, more than 300,000 children and 283,000 parents had been registered on the application. Teacher accounts have also been added to the application, allowing teachers to view digital content; use it for lesson planning and evaluation of students' levels and progress; share teaching and educational content with children during synchronous learning; or direct them to specific content during asynchronous learning. During the pandemic, the Administration of Early Childhood Education has also prepared a guide for early childhood education, updating admission and evaluation criteria, in addition to developing foundational practices for reading skills from kindergarten to the third grade. This study did not include an analysis of the effectiveness of the Virtual Kindergarten.

### 3.4 PROCESSES FOR DEVELOPING AND SHARING NEW TEACHING AND LEARNING MATERIALS

A key feature of Saudi Arabia's journey with digital and distance education has been around the processes of developing and sharing the new materials and methods.

#### Accessing new digital tools and materials

The ease of accessibility and use of the Madrasati platform, as well as other digital tools, including iEN channels, MS 365 tools and the Virtual Kindergarten has been commended by stakeholders, including teachers and supervisors. The MOE has ensured to address early difficulties in accessing digital content and lessons on the Madrasati platform through providing recorded lessons on TV and YouTube, as well as providing digital devices to students in need through different initiatives, including the charitable Takaful.

#### Guidance and professional development opportunities

The Madrasati platform, through its Back-to-School portal, provided various guidance materials and training videos for all stakeholder groups on how to effectively use the platform and enhance the distance learning experience. For example, videos explaining teachers' roles in distance education, as well as instructional guides and infographics on how to prepare for and deliver virtual lessons, and mechanisms for student evaluation, were provided.

In addition, various professional development activities and opportunities were also available for teachers, supervisors, parents, and principals to enhance their distance education experience. Almost all parents found the digital tools available for children's education to be useful or very useful (94 percent) and found accessing the information that they needed to support their children's learning to be easy or very easy.

Teachers have particularly benefited from the training and support that they received from the MOE and their colleagues to prepare them to deliver their virtual lessons. Almost all teachers (93 percent) found that accessing the information to implement distance education was easy. Training sessions on using the Madrasati platform and its tools such as how to use MS 365 applications, how to incorporate new pedagogical strategies in distance education, how to design interactive content, or how to use digital assessment and evaluation methods, are a few examples of professional development opportunities provided.

In addition, live webinars presented by teachers, under the supervision of the MOE, were also provided to demonstrate successful experiences and practices and encourage teachers to implement them in their distance education lessons.

#### Electronic supervision

Electronic supervision has also helped in sharing new teaching and learning materials as well as good practices in distance teaching. Almost all school principals reported that using digital tools during the period of distance education helped them to monitor virtual classes, give feedback to their teachers (93 percent), and review academic achievement indicators for their school (91 percent).

Supervisors have also played an important role in coordinating virtual training programs, workshops, and other professional development opportunities for teachers based on their digital education needs. As indicated during focus group discussions, supervisors sent links to online training sessions

directly to teachers' emails, in addition to scheduling virtual meetings for teachers to share teaching and learning materials and exchange experiences to learn from one another. Supervisors also invited teachers to attend model lessons to showcase and share good practices in using new teaching and learning materials and tools.

### **Professional learning communities**

Distance education has increased opportunities for self-development and the exchange of successful experiences among teachers. Teachers are now active members of both formal and informal professional learning communities, supporting each other to try new ways of working and helping them to identify creative solutions to address the challenges of distance learning. Many individual teachers and supervisors have produced video clips and shared files that explain to other teachers how to use digital tools. Some have shared sample lessons with peers, for example, on YouTube.

*The pandemic provided an opportunity for everyone to educate themselves. They are developing themselves in the technology of education; teachers are researching and learning more than before. We had 50 to 70% [previous] knowledge in technology, while now we have a higher technical knowledge rate, up to 90%.*

***Female supervisor***

Joint online learning platforms are used effectively to capture promising policies and practices, as well as success stories. Such platforms could strengthen further regional cooperation and exchange, as well as support work toward joint solutions for education continuity such as developing training programs, putting in place reliable learning assessments, and identifying ways to maximize education investments in times of crisis. Peer mentoring provides valuable opportunities for teachers to support each other through the shift to remote and fully online teaching and learning. However, not all teachers in Saudi Arabia receive sufficient peer mentoring resources and some have never had the experience.

Overall, from the surveys it is clear that there is high demand for more digital content and for improvements in the quality of digital content available. Almost all school principals (97 percent) reported that they would like more digital content to be created. In addition, almost all school principals (98 percent) and 94 percent of teachers stated that they would like to see improvements in the quality of digital content.

# 4. Teaching and Learning Practices During the Pandemic

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Beyond infrastructure and digital resources, the quality of teaching and learning being delivered in the virtual classrooms is a key determinant of the effectiveness of digital and distance education. Teachers' planning and facilitation of learning remains just as crucial in virtual learning environments as it is in more traditional school environments.

## 4.1 PLANNING FOR LEARNING

A lesson plan is a teacher's guide to what students will learn during the lesson, how they will organize the learning experiences, what resources will be used to support the learning, and importantly, how they will evaluate the impact of the lesson. When used well, it is a key tool to effective teaching practice and improved learners' experiences.

The Madrasati platform includes tools for teachers to develop lesson plans, which are quality assured by supervisors. In addition, the platform includes a "Learning Paths" feature in which teachers set individual learning goals for students and monitor those.

During the virtual classroom observations, supervisors across all levels and selected subjects evaluated the quality of lesson planning as high in over 90 percent of the lessons they observed. Supervisors reported that, in many lessons, teachers reviewed and made good reference to earlier work completed by their students and linked this effectively to the observed lesson. This is critical for making sure that the material presented to students is in line with what they know and can do. In a few lessons, teachers took time to review the learning objectives of the previous lesson, which helps students to remember previous lessons and to place current lessons within that context.

Most supervisors described a high level of organization and structure in the lessons that they observed. Several supervisors described lessons that were planned and structured, for example, using organizers, such as *Revision, Introduction, Explanation/Presentation, and Assessment*.

In many lessons, teachers had set out clear objectives or goals for the lesson and worked to a lesson plan that contained the key learning activities of the lesson. In a few lessons, supervisors noted good practice in involving students themselves in agreeing and setting learning objectives for observed lessons. For example, in one lesson, the teacher had assigned a student to be a "young teacher" for the duration of the lesson, leading and encouraging discussion and other learning activities. This approach had encouraged fellow students to participate more actively in lessons.

In several lessons, it was clear that they were being planned and enriched to take good advantage of the wide range of digital video materials from the iEN platform and other digital resources, such as YouTube. In many cases, lesson planning created opportunities for related homework and other extracurricular activities.

In fewer than 10 percent of lessons observed, supervisors raised concerns about the quality of lesson planning. For example, in these lessons, teachers did not sufficiently link their lessons to students' earlier learning nor provide clear goals or objectives for students. In these cases, teachers were inclined to simply copy the standardized online lesson plans without personalizing or reviewing the planning to take account of their teaching context or the needs of their students.

Lesson planning, in best practice, reflects the realities of the classroom, is focused on students' learning, is customized to suit the needs of particular cohorts of learners, and is periodically updated. This reflects the best of practice described by supervisors in the virtual classroom observations. High-quality lesson planning should also build in an opportunity for self-reflection at the end of each lesson, where teachers evaluate their practice, and share ideas with peers, including about their achievements and challenges.

## 4.2 VIRTUAL CLASSROOM PRACTICES

Regarding virtual classroom practices, elementary school teachers highlighted the enhanced interaction that is possible through digital tools. They pointed to the transparency and ease of use of the different tools, and the ability to use several tools and platforms simultaneously during class making increased interaction with students possible. An example provided was the virtual class on MS Teams, where interactive educational games can be used (e.g., in an Arabic language class) and responses to questions can be sent on social media groups (e.g., WhatsApp).

Digital learning has also helped teachers use time more effectively; for instance, if a student has a specific question, instead of using class time or having to come back in the next class with more information, teachers can now find the content quickly with the use of digital tools.

*Distance education provides me with easy access to content, if the student has a specific question or wants to watch a specific clip, I can go online and find a video in one minute via YouTube...*

**Male teacher**

Technology also enabled more practical opportunities to be seen or experienced by students, especially in classes that did not have facilities or opportunities at school for students to practice.

*I did not have a laboratory but now I use applications and everyone uses devices*

**Female teacher**

In several lessons, supervisors noted that teachers had adapted their teaching methods successfully to take good account of the constraints and opportunities of digital and distance learning. In many lessons, effective use was made of a wide range of interactive video clips, digital textbooks, and other virtual tools. For example, in some lessons, teachers made good use of digital tools, such as *Nearpod* and *Padlet*, to display high-quality visual images of plants and animals and to demonstrate chemical processes and reactions.

Several teaching techniques used traditionally in the classroom continued to be deployed in the distance education lessons observed by supervisors. In a few observed lessons, children continued to



learn through play activities, educational games, by recitation, and through song. In science lessons, teachers were able to demonstrate experiments for students, encouraging the development of skills of observation and deduction.

In almost all the observed lessons, teachers demonstrated a wide variety of teaching techniques and approaches. For example, from one lesson:

*The teacher used various teaching strategies, such as problem-solving, dialogue and discussion, as well as technology such as the interactive whiteboard, Microsoft Teams program, and video clips from the iEN portal.*

#### **Supervisor**

The wide variety of technology, programs, and applications available allows information to be presented to students in interesting ways and teachers have noticed that it makes learning more enjoyable for students. Teachers find it helpful to use applications to attract students' attention and involve them in class or group discussions, which allows teachers to be aware of the level of students' understanding of the lesson content.

Feedback from teachers suggests that they derived professional enjoyment from providing virtual lessons. They find the process of teaching more enjoyable and are enthusiastic about the use of the platform, the variety of available applications and other digital techniques. Some comments indicate that teaching this way lessens teachers' burden requiring less time and effort from them.

Overall, teachers felt that technology created a positive context for dialogue and discussion, which puts students at the heart of the educational process.

In terms of ensuring quality teaching, distance education has facilitated supervisors' capacity to review and evaluate teachers across a wide range of criteria using digital tools.

*The supervisor now has constant knowledge of what our teachers are doing. We have access to details of reports and files of their achievements, statistics, and figures. We can know the number of simultaneous and asynchronous lessons provided, and the type of questions. All the details can be obtained now with the use of e-learning.*

#### **Supervisor**

### **4.3 ASSESSING STUDENT PROGRESS AND ADAPTING TEACHING**

During this period of rapid evolution in education systems across the globe, there is a clear understanding of the importance of evaluating the impact on learners and learning outcomes in moving from an in-person experience of learning to a distance and digital model. This has led to an extensive range of assessment methodologies being developed in Saudi Arabia.

The Madrasati platform includes a wide range of assessment tools to support formative and summative assessment practices in the virtual classrooms of elementary, intermediate, and secondary schools. This includes over 1 million test items to support the development of subject-based assessments. Online training for teachers has been developed and made available on the Madrasati platform and through MS Teams to support teachers in preparing class-based tests to evaluate digital learning.

Teachers are adapting to these new online assessment tools to perform live oral tests, and the use of students' video and audio recording of performance tasks. In the focus groups, teachers described the range of tools they can use on the Madrasati platform to assess students' performance and provide feedback on their learning. Some teachers use the e-homework and test tools on Madrasati to send students e-test forms, where answers are generated in the platform. The Madrasati platform also has a broad range of enrichment materials enabling teachers to design a range of extension activities, which can provide individual students with a direct link to a series of bespoke extension materials.

Teachers are now regularly sending out worksheets through e-mail, WhatsApp, or Telegram channels to parents. Parents have been encouraged to support their children with home experiments, and to use the learning games on the platforms. While most parents welcome the greater engagement in their children's education, feedback from the surveys suggests that, for a few, this additional commitment is felt to impinge of their working and family life.

*The Madrasati platform contains various tools needed to give feedback. I ask students to do a specific application and then I correct the work and provide them with feedback and Madrasati provides us with [means of] communication.*

**Intermediate teacher**

Most school principals view teachers' skills in online assessment and test creation during the COVID-19 pandemic as either advanced (58 percent) or satisfactory (40 percent). Feedback from school principals through the surveys and focus groups suggest that teachers in the intermediate sector require further development in the creation of valid assessment tools. This is an important message, indicating that it is now time to move from universal training to a more targeted approach. Building on the collaborative culture established at the start of the pandemic, it would be helpful to establish communities of practice to support teachers as they implement the new learning in assessment or parental engagement.

Teachers report that they systematically administer pre- and post-tests to their students to estimate gaps in learning. These results are then collated by the school principal (by subject and grade). Remedial and follow-up programs are then developed for individual students based on this information. School principals stated that, as parents are now more aware of their children's performance and learning needs as a result of their direct engagement with their children's online learning, their cooperation in supporting the learning needs of their children has increased.

In most of the virtual classroom observation lessons, supervisors reported that teachers used self-marking or peer-to-peer marking of tests, quizzes, and assignments. In several lessons, teachers asked students to use self-marking activities using digital tools, including Quizizz, Padlets, and WordWall. Students, particularly in the upper grades, are also accessing the Question Bank, which contains hundreds of thousands of structured questions from the Curriculum Development Center and the Department of Educational Supervision, to support learning and evaluate performance.

While most stakeholders presented a positive overview of the assessment culture across schools, this is not the view of all. Several important and common issues were identified by some survey respondents, which could impact on learning outcomes for students and the subsequent remediation programs.

*The important disadvantage [is] the difficulty of evaluating the student, a true evaluation that reflects their level*

**Supervisor**

It would be important that, on return to in-person education, teachers are equipped to meet the challenge of rapidly assessing students' knowledge to identify learning gaps. This knowledge should be used to plan for learning by creating appropriate learning pathways for all students, but particularly those students in transition or preparing for high-stakes examinations.

While the use of tests and quizzes help to assess knowledge, to capture deep understanding and the application of skills, "in-class" activities such as questioning and student feedback are important additions to the teacher's assessment portfolio.

In most of the lessons from the virtual classroom observations, supervisors reported that teachers made effective use of questioning and other strategies to check the level of students' understanding. In many lessons, teachers asked questions throughout the lesson and this provided opportunities to improve the quality of students' understanding. In one lesson:

*... the discussion revealed some students' lack of understanding of the skill which led the teacher to explain it again*

**Supervisor (virtual classroom observer)**

Helpfully, in a few lessons, teachers took care to ask progressively more challenging questions using Bloom's Taxonomy (Kastburg 2003) to ensure that the learning of higher-order skills was successfully taking place.

Teachers mentioned that feedback and communication with students is a constant feature of their online classes. Teachers give their students feedback directly in the chat box and individual feedback is given by email (Outlook) or directly to students' mobile phones. Other teachers formed WhatsApp groups for each class where students could send their questions and they could answer with explanations and feedback.

*I provide positive feedback directly during the lesson. If the performance [level] is good, or if they get bad grades, we can even schedule lessons to enhance capabilities and even repeat the lesson if there is a need as well, in coordination with parents at an appropriate time, in order to enhance students' knowledge and help them understand. There are WhatsApp groups for students, every class as a group, and we are always available to answer and help them*

**Teacher**

Teachers asserted that distance education has helped their students acquire a range of new skills, namely: a sense of initiative; self (independent) learning; critical thinking; logical analysis; problem-solving; communication and presentation skills; cooperation and cooperative learning (e.g., students overcame fears, being timid, play more online in groups, etc.); technical skills and digital skills (e.g.,

digital design); research skills; and 21st century skills. It is important to capture the development and progression of these new skills as part of a student's profile. Going forward consideration should be given to extending the range of assessment tools to capture these important skills for learning and life.

#### 4.4 DEVICES AND INTERNET ACCESSIBILITY

The interaction between teaching and learning practices and the ability to access the technology infrastructure on a regular and reliable manner is paramount to effective distance and digital education. Where the teaching and learning practices are strong, and the technology infrastructure is accessible to all, then new and exciting digital relationships are being developed between students, teachers, parents, and the wider community. These networks are strengthening teaching and promoting more effective communication and stronger parental engagement in the learning processes.

To increase access and reduce potential inequality, all Saudi children and young people need regular access to a device for educational use. This includes televisions, computers, laptops, tablets, and smartphones as well as connectivity to the internet.

*Distance education is a wonderful and effective experience, but the biggest obstacle to it is the communications infrastructure.*

**Principal**

From the analysis of the surveys, stakeholders including teachers, parents, and students report that even with the effective provision established by the MOE, digital and distance learning has a number of challenges related to the unavailability, instability, and interruption of the internet. Internet connectivity is a particular challenge in remote villages and developing areas across Saudi Arabia. While 80 percent of students found that learning at home was very easy or okay (suitable), over 86 percent reported that poor internet connectivity impacted on their learning a little or a lot. In addition, the costs associated with buying internet memberships and purchasing devices (especially for families with several children) were further constraints raised by stakeholders.

*It is comfortable psychologically, mentally and physically, and it is not expensive, and there is no psychological pressure and tension from some of the situations that occur in schools*

**Male student**

The accessibility of the Madrasati platform from any device has made it easier for students to access learning at anytime from anywhere. On average across all school levels, 87 percent of students report that they have their own device for home learning (74 percent among elementary school students). Most students (88 percent) use a smartphone to access their online lessons, with students in the early grades more often than those in the higher grades using a tablet. Most intermediate and secondary school students are very familiar with the functionality of their smartphone making the transition from in-person learning to digital and distance learning far smoother and enabling the focus to be on the learning rather than the interface with the Madrasati system. In the first few weeks of the move from in-person to distance and digital learning, there were a few challenges related to the lack of

availability of devices for all students and particularly in families where there were several children. Some families who also have less financial freedom may only have one device for their children. The MOE recognized that not all students had access to a device to support their learning and worked to increase access to digital learning for all, and in coordination with administrations and schools, it has provided devices to families in need, through the “Takaful” program, as well as other initiatives. In addition, the MOE separated the elementary school’s schedule from that of the intermediate and secondary’s schedule, which enabled families to share devices more easily.

*There is a difficulty in learning at home because of the lack of devices for large families like ours. Most of the time we had to take out my brother in the first class to send my sister’s assignments.*

**Female student**

A number of male students reported that, while they had initially used their smartphones to access distance education at home, they had found this challenging and reverted to a laptop or desktop computer to support their digital and distance learning. Both male and female students felt that the use of headphones had been helpful when they were working at home; it reduced environmental noise levels and helped them to focus.

*In the first semester I used the mobile phone and it was very difficult, so in the second semester I used the computer*

**Male student**

One of the most cited recommendations from stakeholder groups was to improve the infrastructure (internet connection and devices). All respondent groups included comments on the importance of providing better broadband coverage to ensure the provision, reliability, and stability of the internet connection if distance education continues, especially in remote and developing areas. Providing a lower cost subscription or covering the costs of the internet (e.g., providing charging cards), and providing devices to students, as well as devices for teachers, were also considered important.

# 5. Perceived Effects of the Pandemic on Student Learning and Teacher Skills

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The cumulative effect of ceasing regular in-person schooling in Saudi Arabia since March 2020 on student learning outcomes can only be assessed through understanding how effective the digital and distance education offering has been in continuing learning and mitigating any negative impacts. Understanding this is important as it will provide an idea of the degree to which the pandemic has affected student learning outcomes and what level of additional support and compensatory measures are needed to mitigate any negative impact.

One measure of the level of effectiveness of the digital and distance learning offerings would be to compare data on student learning outcomes during the pandemic compared to before the pandemic. However, these data are not available, therefore this study has used perceptions of effectiveness gathered through stakeholder reflections as a proxy measure.

In the questionnaires and focus groups, all stakeholders were asked about their views on the effectiveness of the digital and distance education during the 2020–21 school year in terms of academic achievement and skills such as creativity and problem solving and this chapter examines the findings. Perceptions related to teachers' skills are highlighted since improvements in those could have a long-lasting effect on future student learning.

## 5.1 ASSESSING STUDENT LEARNING

Assessment of student learning needs to take place on several levels. Most importantly, teachers need daily information on what their students can and cannot do in order to adjust the pace and content of their lessons. This is known as formative assessment. Students and parents also need regular summative assessment, which allows them to gauge how well they are progressing. At the district, regional, and central level, comparable information is needed over time and across geographic and other variables to determine how well the system is performing and where additional focus and resources are needed. This is often done through the use of national and international assessments of student achievement.

As part of the Madrasati platform, several interactive tools were provided to support teachers in implementing formative and summative assessment. For example, the E-Exams tool allowed teachers to assign electronic examinations to students. Teachers could build these examinations using their own devised questions or preprepared questions from the Questions Bank. Student progress could also be tracked using the Learning Paths tool, based on learning goals set by the teacher. Teachers, supervisors, and school principals were asked in the survey designed for this study about the levels of student achievement for this year's cohort compared to previous years for the same grades. These perceived effects of the pandemic on student learning are summarized in the next section.

Beginning in grade 3, students sit examinations at the end of each of the two school terms. These have been developed by individual schools and marked by teachers, so a wide range of content and marking criteria are likely to have been implemented. The predominantly school-based assessment system did not include a comprehensive approach toward moderation; that is, a mechanism for attempting to ensure that assessment judgments are consistent and comparable across different teachers and schools.<sup>4</sup> Therefore, the results of these examinations could not reliably determine changes over time in student learning achievement. In the 2020–21 school year, there were additional differences in the examination administration, adding to the lack of comparability across years. The 2020–21 examinations were developed centrally, including multiple choice questions that were marked automatically, and written response questions that were marked by students' own teachers. An analysis of the examination marks over four years (from 2018 to 2021) showed a jump from around 73–76 percent (on average across grades and subjects in public and private schools) in 2018 to 2020 to 90 percent in 2021. It is not known whether this is due to the change in examination design and implementation, or to a change in teacher allocated marking (possibly overly compensating for students' more difficult circumstances), or a real increase in learning achievement.

A robust assessment of changes in overall national levels of student learning achievement could be made through the use of standardized assessments such as the National Assessment of Learning Outcomes (NALO), which has assessed grades 3 and 6 or 4 and 8 in mathematics, science, and Arabic in Saudi Arabia over the past 5 years, or the Saudi Early Grade Reading Assessment (SEGRA) implemented for grades 1–3 in 2019. However, a NALO or SEGRA round has not yet been implemented since the COVID-19 pandemic. There is an urgent need to implement a comparable standardized and externally marked assessment to gain robust information on changes in student learning achievement levels since the need for distance education.

Given the lack of formally moderated school-based assessment results or a nationally administered and externally marked standardized assessment comparable to previous years, the study has relied on the perceptions of effectiveness of the digital and distance education provided during the COVID-19 pandemic as provided by teachers, supervisors, school principals, and parents through the study's surveys.

## 5.2 PERCEPTIONS OF EFFECTIVENESS

The study showed generally high confidence in the effectiveness of the digital and distance education offered in terms of students' academic achievement and skills development, with some variation indicating that the experience may have been better for some than for others.

### Academic achievement

When asked about students' academic progress in the 2020–21 school year compared to other cohorts in previous years, 68 percent of teachers felt that academic achievement was better this year. Among school principals, it was a little lower at 61 percent. More principals of girls' schools reported this compared to boys' schools (64 percent compared to 57 percent, respectively).

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<sup>4</sup> In many countries, school-based assessments rely on a system of examination moderation under which schools develop internal standards to establish the appropriateness of the marks awarded by different teachers. Countries also ensure consistency across schools using external moderation, often conducted by ministries of education or independent agencies. The external moderation can take different forms. Some education systems rely on school visits to conduct moderation. Other systems require schools to send students' work to an examining authority. A third option includes moderation of samples of students' work. After external practitioners mark students' work, moderators compare the marks with those awarded by teachers and decide whether to accept the school-based mark (if the difference is small), adjust school marks, or replace school marks with those awarded by the moderator.

Supervisors were less sure about learning gains during the digital and distance education: 46 percent thought there had been an increase in academic achievement, while 31 percent believed there had been a decline (with the remainder feeling it was about the same). Among supervisors, 59 percent felt there was an increase in academic achievement compared to previous years in girls' schools while only 33 percent felt that about boys' schools. At the other end, a decline in academic achievement was stated by 41 percent of supervisors of boys' schools compared to 20 percent for girls' schools.

In terms of the time needed to catch up upon return to in-person schooling, 73 percent of school principals thought that less than one semester would be needed for students to catch up with their learning. This was less for elementary school principals (65 percent) reflecting a greater need for support for the younger learners. Teachers were more likely to believe that less than one semester was needed for catch up—81 percent.

Students, however, were less confident about the effectiveness of their learning experiences during digital and distance education. Around a half of students (52 percent) felt that they would have learned more if they were in regular in-person school, while 40 percent felt that they learned around the same. Students in elementary school, and girls in intermediate and secondary school, were more likely than boys in intermediate and secondary education to say that they would have learned more in in-person education.

## Skills development

Students, of all ages and stages, experienced a range of difficulties as they “switched” from in-person to online learning. As well as the important access to devices and internet connectivity, they needed to quickly change mindset and learn new skills. For example, staying focused during the delivery of synchronous lessons, self-regulation, independent learning skills, and digital skills and knowledge. One student, in his survey response, summarized the challenges he managed to overcome as:

*Breaking the barrier of fear of participation and error*  
**Male student**

Social skills were particularly hard to foster during digital and distance education—72 percent of school principals felt that distance education led to a lack of opportunities for students to learn social skills. Supervisors were more likely to note this, at 87 percent.

Teachers were mixed on their views about distance education helping students develop other skills. For example, 57 percent thought it helped a lot with critical thinking while 38 percent felt it did not help at all. Among school principals, 73 percent thought that their students had increased skills such as creativity and problem solving compared to previous years, while 68 percent of teachers felt the same.

## 5.3 TEACHER SKILLS

The pandemic has challenged education systems to ensure learning continuity, substantially increasing the demands placed on teachers.

*Education systems, more than ever, require effective teachers that facilitate and support learning instead of delivering content; that use a*



*combination of in-person and digital methods to deliver lessons; that foster creative thinking, communication, and collaboration; and that instill a love of learning, how to persevere, and have self-control.*

**Jaime Saavedra, Global Director of Education, World Bank (Saavedra 2021)**

### **Approaches to developing teachers' digital skills**

There has been a global rush of education systems toward digital solutions in order to maintain continuity of student learning and progress. However, approaches to the development of teachers' skills to meet the changed learning environment have been more mixed. Teachers' skills in utilizing the tools and strategies required to make distance learning both engaging and successful vary across the world.

Saudi Arabia's teachers were comparatively well-prepared to take forward digital approaches. According to the 2018 results from the OECD's Teaching and Learning International Study (TALIS), 73 percent of teachers in Saudi Arabia reported that the use of information and communications technology (ICT) for teaching was included in their formal education or training, and 76 percent of teachers reported that ICT skills for teaching were included in their existing professional development activities (Mann et al. 2020). These figures are higher than the average of the OECD countries.

Educators in Saudi Arabia believe that a high proportion of the teachers could already demonstrate the skills necessary for distance education before the COVID-19 pandemic. The survey carried out in connection with this study established that 59 percent of supervisors and 81 percent of school principals rated a high proportion of teaching staff as having advanced or satisfactory skills for distance education prior to the COVID-19 pandemic. Among teachers, 91 percent indicated that they believed they already had advanced or satisfactory skills for distance education before the COVID-19 pandemic. Intermediary and secondary school teachers interviewed as part of the virtual classroom observations pointed out that there was a high level of preparation for e-learning in the country before the pandemic and so some felt that, from a technical standpoint, little had changed. These teachers had already practiced e-learning solutions and were implementing them in their classes before the pandemic; for example, the Google suite for homework and the flipped classroom model. Teachers had been trained on some of the tools through the MOE's partnership with Microsoft Corporation, which began in 2011, when several training classes on virtual education were delivered, as well as conferences on e-learning and distance learning, including inputs from experts from around the world.

*Being a high school teacher, the application was developed long before the start of the pandemic, it started with the ministry's experience within the Future Gate program, which is a program to implement distance education. Teachers were trained in the use of this technology and we had virtual classes, assignments and discussions on the e-wall. Therefore, the application of e-learning was in advance before the start of the pandemic and we are familiar with it, not only my school, but many schools in all regions. And on the first day when we were forced to stay at home, the education process continued without any interruption, and it was very*

*easy because we were prepared.*

**Teacher**

The initial transition to distance education was supported by an immediate teacher professional development training plan. The MOE and National Center for Educational Professional Development (NCEPD) offered online training programs to all school leaders and teachers to aid digital transformation. These programs were selected from training directorates throughout Saudi Arabia and focused on utilizing distance learning applications and basic online teaching practices. A further training plan was put in place during the summer of 2020. This included programs designed to support teachers' digital literacy and skills, and to raise educators' awareness of effective distance education strategies and pedagogy.

When Madrasati was launched at the beginning of the 2020 academic year, all users were provided with training to assist them to engage with it effectively. Subsequently, educators were provided with various professional development opportunities. Examples included training sessions on cyber security, digital assessment methods and tools, and student engagement techniques.

*The helpful tools and applications available on the Madrasati platform are helping teachers to succeed in meeting many students' learning styles and needs.*

**Teacher**

**Aspects of teachers' professional skills**

The main intended outcomes of the teacher professional development programs were clear from the outset. These were to support the transformation to distance education by enabling educators' digital skills, support teachers' online teaching performance, and ultimately decrease the impact of the ceasing of regular in-person schooling on learning outcomes. Survey responses indicate that school principals and supervisors believe that almost all teachers in Saudi Arabia now have advanced or satisfactory skills for digital education. This is an increase from over 75 percent before the COVID-19 pandemic closed. Thirty-seven (37) percent of school principals thought teachers in their school had advanced skills for distance learning before the pandemic, while 68 percent felt they had advanced skills by the end of the school year.

Almost all teachers (95 percent) believe that they would now be well or very well prepared if distance education returns. Teachers indicated that they had increased their professional skills *a lot* in a number of key areas. Supervisors believed that teachers' professional skills had increased a lot, though the percentage of supervisors was smaller in each case (table 5.2).

**Table 5.2 Reported Increase in Teachers' Skills (%)**

	Teachers who believe that their professional skills increased a lot	Supervisors who believe that teachers' professional skills increased a lot
Planning effective lessons	84	68
Delivering effective lessons	84	74
Classroom behavior management	79	63
Managing time	84	68
Engaging and motivating my students	76	55
Assessing my students' progress	75	58

Supervisors observing virtual lessons in urban and rural settings across Saudi Arabia were able to identify clearly a number of important professional skills being demonstrated by teachers. Around 94 percent of the teachers whose lessons were observed demonstrated a very good or good level of knowledge and skills of digital tools and learning materials.

In almost all of the observed lessons, supervisors reported very positively about the quality of pedagogical approaches used by teachers. In several lessons, supervisors noted that teachers had adapted their teaching methods successfully to take good account of the constraints and opportunities of distance learning. In many lessons, effective use was made of a wide range of interactive video clips, digital textbooks, and other virtual tools. For example, in a few lessons, teachers made good use of digital tools, such as *Nearpod* and *Padlet*, to display high-quality visual images of plants and animals and to demonstrate chemical processes and reactions.

### Delivering effective lessons

Teachers used their cameras in less than a quarter of all lessons observed by supervisors. In almost all lessons observed, teachers used a wide range of techniques to demonstrate their "presence" as leaders of learning. In many lessons, teachers engaged well with their students at the beginning of lessons, using friendly greetings and showing an interest in their students as individuals. Many supervisors reported how successful teachers had been in creating a safe and happy learning environment where students were enabled to participate and contribute. In most lessons, teachers made effective use of their voices, using a range of suitable and relevant tones. This provided students with variety in their lesson, allowed the teacher to emphasize key points and to acknowledge and praise the efforts of their students.

### Classroom behavior management

In almost all observed lessons, supervisors reported high levels of appropriate student behavior compatible with learning effectively. They reported, too, that almost all teachers acknowledged the positive behavior of their students. In several lessons, teachers referred to an "e-learning charter", which had been developed at an earlier stage of the school year. This highlighted student responsibilities; for example, lesson entry and exit arrangements, raising hands, and not interrupting classmates. Teachers made good use of the charters, ensuring that students' behavior and etiquette were conducive to effective digital learning. In almost all lessons, teachers used a range of methods to acknowledge and promote positive student behavior.

## Engaging and motivating students

Teachers used an effective range of approaches to praise and motivate their students. Appropriate words of praise and thanks were regularly used and small tokens and emojis were frequently used to acknowledge students' success. Supervisors also observed the use of the flipped classroom where the teacher assigned a student to be a "young teacher" for the duration of the lesson. This allowed the student to lead the lesson and was successful in encouraging discussion and facilitating other learning activities. This approach—if used regularly with a wide range of students—could help to build stronger relationships within classrooms and encourage greater numbers of students to actively participate in lessons.

# 6. Engagement and Well-being

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Well-being is a crucial aspect of school life and of the whole school community. Schools, and particularly teachers, play an important role in engaging with their students to encourage and motivate them in their learning and to help them to develop a wide range of positive attitudes and values. As part of this, schools have a key role to play in supporting students to make healthy lifestyle choices and to understand the effects of their choices on their health and well-being, particularly following the challenges of the pandemic. This chapter examines aspects of student, parent, and school community engagement with digital and distance education and student well-being.

## 6.1 SCHOOL COMMUNITY

All stakeholders—principals, supervisors, teachers, parents, and students themselves—contribute to the quality of learners’ experiences and to the development of their attitudes and values. The strength of the relationships between all these stakeholder partners within the school community helps to determine the levels of students’ engagement, their well-being, and the quality of their achievements.

There is a direct and two-way causal link between well-being and academic achievement. Well-being is a prerequisite for achievement. Equally, achievement is important for contributing to that sense of well-being. It will be important that ensuring student well-being is a key aspect of any plans for a return to in-person schooling. Students may have experienced family loss, anxiety, and social isolation from peers during the pandemic. Careful transition planning will be required to ensure that students are well supported as they return to in-person classes. Several countries have established well-being frameworks and formalized support for schools providing evidence-based intervention to guide practice.<sup>5</sup>

Despite the challenges of the pandemic, including the necessary removal of regular in-person schooling, several, sometimes unexpected, outcomes related to relationships between stakeholders were reported in this study through stakeholder surveys and focus groups. For example, most parents (79 percent), principals (86 percent), and teachers (82 percent) believed that the period of distance education had led to closer relationships between teachers and students and across the whole school community. Similarly, almost all principals (97 percent) and teachers (95 percent) and most parents (87 percent) reported that the period of distance education had provided better opportunities for parents to engage in their child’s learning. Clear and frequent communication between the MOE, schools, and families, along with tools for easy communication, may have contributed to this positive result.

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5 See, for example, the Australian Student Wellbeing Framework: <https://www.dese.gov.au/student-resilience-and-wellbeing/australian-student-wellbeing-framework>; New South Wales Student Wellbeing: <https://education.nsw.gov.au/student-wellbeing>; the Scottish Government <https://www.gov.scot/publications/developing-positive-whole-school-ethos-culture-relationships-learning-behaviour/>; and UK Wellbeing Framework for Schools: <https://www.mentallyhealthyschools.org.uk/resources/wellbeing-framework-for-schools/>.

## 6.2 PARENTAL ENGAGEMENT

As well as having access to high-quality and well-connected technology, other prerequisites for effective digital and distance learning include a supportive home environment that is conducive to high-quality learning. In Saudi Arabia, distance and digital education has helped to strengthen active parental and family participation in their children's learning.

*Distance learning has provided many advantages to the teacher, the student and the family, and it has consolidated the concepts of development and digital transformation, and the culture of family cooperation and involvement in the educational process*

**Supervisor**

Parental engagement in their children's learning is accepted as a key factor for effective student achievement in more traditional in-person school settings. The impact of parental involvement has also been shown to be a significant factor in the success of digital and distance learners (Woofter 2019).

Students valued the support that they received from their parents in their education, particularly at the beginning of the distance learning process when the arrangements for distance and digital education were new. In many cases, parents facilitated the interaction with the Madrasati system at the outset, helping their children to organize themselves to engage effectively with online learning.

*At first, I was confused and afraid, and we knew the news from my father; but over a quick period, things got organized; and my father explained to me the program clearly, provided me with the device, and gave me the necessary information*

**Student**

Encouragingly, evidence through stakeholder surveys and focus groups provides a strong picture of parental buy-in and support for the approach to digital and distance education.

Parents reported that communication across the education system was strong and timely. Over 93 percent of parents reported that they received helpful communication about the move to distance learning from the MOE, and 76 percent of parents had been in touch with their child's school. Parents now use a wide range of approaches to communicate with teachers regarding their children's learning. One of the most common means of communication between parents and teachers was WhatsApp, which was used by over 82 percent of parents.

Commendably, most parents had become actively engaged in their children's learning with 74 percent attending virtual lessons, and 90 percent following up on their children's homework, class activities, and assessment results. Parents have welcomed the establishment of a parents' account on the Madrasati platform, which enables them to track their children's progress, and to see their grades and their school attendance. Parental involvement in distance education has played an important role in encouraging high levels of student engagement. During the period of distance education, parents have paid greater attention to their children's attendance at virtual classes, and

to their interactions with teachers and peers. This positive outcome has enabled the level of active parental engagement in their child’s learning to increase, and the study data would suggest that there has been a significant improvement from the TALIS 2018 data.

Parents now communicate and cooperate more closely with teachers, which means that additional, individualized support can be provided at home in areas where teachers have identified specific weaknesses in individual students’ learning. For example:

*The mother knows the level of her son or daughter in a clear way, because she attends lessons with them, not like before during face-to-face education [where] she comes to school, the teacher tells her your daughter is good without going into the details, and that’s it; now the mother knows where her the son or the daughter has a problem—e.g., a certain letter that she did not master, or reading a specific thing—so the mother cooperates with the teacher to help her daughter.*

#### **Teacher**

Overall, parental comments about digital and distance learning and their enhanced role in helping to facilitate their children’s learning were very positive. Not unexpectedly, there were a few concerns raised regarding the increased demands on parents, particularly where there were several children learning at home in one family, or where there were issues regarding access to the internet or devices.

Teachers and principals were also very positive about how the period of distance learning had resulted in improved engagement with parents. Almost all teachers (95 percent) believe that distance education had provided better opportunities for parents to engage in their child’s learning and 66 percent of principals found that communicating with parents and updating them on their children’s performance was easier this year than in previous years. Some teachers expressed a note of concern over the extent to which some parents provided too much support for their child’s learning. For example, 64 percent of teachers expressed concerns that the extent to which parents themselves completed their child’s assigned work was an occasional or main problem.

As the MOE considers its plans for a return to in-person schooling, and explores the introduction of blended learning it will be important to build on the strong levels of parental participation demonstrated during COVID-19 and ensure that parents are fully included in future arrangements for the education of their children. It will be important, too, to ensure that professional development opportunities for school principals and teachers on effective practice in parental engagement, based on existing good practice, are provided in preparation for a return to in-person schooling.

### **6.3 STUDENT ENGAGEMENT**

A key feature of Saudi Arabia’s approach to digital and distance learning was the establishment of clear, timetabled school routines. This included a structured start to the school day and required students’ attendance in virtual classes with their regular teachers. Students followed a modified timetable, the duration of which was appropriately reduced in hours to minimize undue screen time. The timing of lessons for elementary school students was moved to later in the day to allow working parents and older siblings to support younger family members.

During the period of distance education, principals were expected to attend in-person school each school day, and teachers were expected to attend one day a week, at which time students could meet with their teacher as needed. In each school, a support team was put in place to help students and their parents if they had any trouble with accessing the online platform and the digital learning resources. However, in responding to the questionnaire, only 6 percent of teachers reported that they met regularly (every week) with students in the school building to give them additional help, and 63 percent reported never meeting students in the school building (the remaining met with students occasionally). In contrast, though, 19 percent of students reported that they had had at least one in-person meeting with their teacher(s) in school. Enhancing the arrangements for monitoring the occurrence of in-person meetings between teachers and students would be beneficial for the MOE to ensure that its policies are adhered to with a high level of consistency.

In surveys and focus groups, students expressed their views on learning at home: 88 percent of students reported that they enjoyed learning from home a lot (54 percent) or a little (34 percent), and only 12 percent did not enjoy it at all. More than half of students (57 percent) stated that when they learn from home they could focus more, and they had more options to learn new things at any time based on their own schedule. Students also stated that their parents could help them a lot (30 percent) or a little (42 percent). However, 75 percent reported that following classroom instructions or understanding lessons could be hard (a lot or a little). During distance learning, students also missed opportunities for social interactions. Around two-thirds (67 percent) of students reported that they miss seeing their friends and teachers a lot.

Poor internet connections presented some students with difficulties, with 41 percent reporting having a lot of trouble connecting and 45 percent having this problem a little. Most of the students managed to find a quiet space to study: 48 percent of students had no problem finding a quiet area to study and a further 34 percent said that they found it a little hard to find a quiet area.

In 80 percent of lesson observations, cameras were off in both male and female teachers' classrooms. A few teachers provided a rationale for having their cameras off, including privacy considerations (among girls' schools, for instance), the need and type of activity performed in class, teachers' preferences, and the quality of internet connection. As distance education approaches may become part of the routine education offer to Saudi Arabian children, it may be helpful to explore this area further and capture the range of issues influencing the preferred option of having cameras off during lessons.

Of the 20 percent of teachers who had their cameras on fully or partially during the observed lesson, almost all of those were teachers in the elementary sector. This may indicate that teachers are aware of the importance of active engagement and strong communication in the early years. In the virtual classroom observation sample, the subject being taught had no apparent link with whether cameras were or were not used. However, there is some evidence of an association between specific supervisors (and/or districts) and the use or non-use of cameras.

In line with the trend in teachers' practice, approximately 43 percent of students had their cameras off during the observed lessons. In some cases, teachers reported that they did not ask students to put on their cameras to protect the privacy of parents supporting their children. In several cases students put their cameras on to share work rather than show their face.

During the pandemic, practice regarding the use of the camera has been in most cases developed by teachers to suit their own individual circumstances, and the needs of their students and families. Going forward, it would be important to develop clear practice guidelines linked to effective learning and teaching approaches for teachers and supervisors so there is high-level consistency of practice



across the country that builds on existing best practices.

Regardless of whether teachers selected to use their cameras, supervisors positively evaluated teachers' abilities to foster a positive climate within a distance learning context. These approaches included motivational engagement with students, encouragement, fun, participation, student focused learning, skillful use of technology and building positive teacher-student relationships.

In most lessons, teachers made effective use of their voices, using a range of suitable and relevant tones. This provided students with a measure of variety in their lesson, allowed the teacher to emphasize key points and to acknowledge and praise the efforts of their students. In many lessons, teachers engaged well with their students at the beginning of lessons, using friendly greetings and emojis, showing an interest in their students as individuals. Many supervisors reported how successfully teachers had used friendly words and warm tones to create a safe and happy learning environment in which students were enabled to participate and contribute.

## 6.4 STUDENT WELL-BEING

In the surveys of parents, 83 percent believed that the impact of Saudi Arabia's approaches to distance education resulting from the pandemic had either a positive effect (33 percent) or neutral effect (50 percent) on their child's mental and/or physical health. Around one in six (17 percent) believed that distance learning had a negative impact on their child's mental and/or physical health.

The importance of students' well-being was raised, too, in each of the focus group meetings of principals, supervisors, teachers, parents and students. Principals and supervisors believed that any initial concerns or challenges to students' physical and mental health during the pandemic were now being more successfully addressed. A few students in focus groups had described how they were initially fearful and uncertain about arrangements for distance learning. They believed, however, that things had quickly improved with the guidance and support of their parents, teachers, and supervisors.

Based on their regular observations of lessons, supervisors in the focus group believed that the mental health of both teachers and students appeared to be positive and that anxiety levels seemed to be low. One supervisor (and some teachers) believed that distance learning was making a positive impact on students who may be shy or be otherwise reluctant to contribute during in-person lessons. On returning to in-person learning, it will be important for schools and teachers to consider how best they can create a similarly supportive and welcoming learning environment in which all students can flourish in the classroom as well as at home.

The MOE has issued practice advice related to mental health, which emphasizes the role of student guidance in supporting students online. The role of student guidance includes communicating directly with parents, helping parents to tackle issues such as stress and anxiety, and helping to reduce any feelings of social isolation.

The MOE guidance emphasizes the psychological and social well-being of all students. It aims to ensure that all support and aid services are provided to students with disabilities. The guidance provides information and expectations, including about:

1. Enabling programs and group meetings online.
2. Providing students with training workshops through electronic platforms.
3. Following up on students with psychological and behavioral problems.

4. Arranging the transfer of students with psychological and behavioral problems to the Extension Services Unit for further support. These services provide support for more specialized psychosocial, behavioral, and educational issues.

Students have a positive attitude toward going back to in-school learning: 92 percent look forward to seeing their friends again; 85 percent to doing better in their schoolwork; 83 percent to meeting their teachers; 76 percent to getting more help with their schoolwork; and 75 percent to participating in school activities. Nevertheless, more than 80 percent of students reported that when they go back to school, they will miss being with their family at home (84 percent) and learning at their own pace (82 percent). Many (57 percent) reported that they will miss the help they get from their parents.

In stakeholder surveys, around 80 percent of teachers and supervisors reported that their lessons at home took place in a calmer environment (than is their experience of in-school lessons). Both teachers and parents noted that distance education helped students to concentrate more effectively and offered students fewer distractions to their learning at home compared to school. The very positive behavior of students in a distance learning environment was also commented upon very favorably by supervisors after their observations of learning. However, these results might best be considered in the context of the regular classroom setting in Saudi Arabia, where evidence from TIMSS 2019 suggests that there is scope for improvement in the management of classroom behavior. Table 6.1 provides some evidence that there is scope for improvement in the behavior of students within the traditional classroom setting in Saudi Arabia.

**Table 6.1 Percentage of Grade 8 Students Reporting that their Teacher Has to Keep Telling them to Follow the Classroom Rules (%)**

	Saudi Arabia	International average
Every or almost every lesson	40.5	25.4
About half the lessons	18.5	16.2
Some lessons	20.7	30.9
Never	20.4	27.4

Source: IEA TIMSS 2019.

It will be important that the improvements in behavior, noted in Saudi Arabia, resulting from distance learning approaches are maintained and improved further once students return to in-school learning.

In surveys and focus groups, students have shown a commendable capacity to analyze and reflect upon the social and emotional challenges that they experienced in having to adapt to their new learning environments. It will be important to actively engage students in plans for a return to in-person schooling, and to listen to their concerns and support needs, particularly in light of any behavioral issues identified as a feature of in-person schooling by a number of students, and identified in other studies, including TIMSS and PIRLS.

# 7. Implications for Next Steps

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The experience of emergency system-wide distance education provision for over one school year in Saudi Arabia has led to the development of new systems, tools, content, and practices that stand to change K–12 education in profound ways in the future. This bodes well for any future emergency distance education requirements. However, the challenge now lies in safely reopening schools for essential in-person learning, particularly since Saudi Arabia’s children and young people have been away from in-person education for a significant amount of time, harnessing the most effective practices established to date, and reimagining education so that learning takes place for all children and young people, in accessible, affordable, and relevant ways.

## 7.1 SAFE REOPENING OF SCHOOLS

Across the globe, the closure of regular in-person schooling in response to the COVID-19 pandemic has created an unprecedented risk to the education, protection, and well-being of children and young people. To support a safe planned return to in-person learning, UNICEF, UNESCO, the World Bank, and the World Food Programme published a joint “Framework for Reopening Schools”, which provides high-level guidance to support countries in planning for a safe re-opening of schools, along with a supplement “From Reopening to Recovery.” The guidance highlights four areas of priority including: safe operations, identifying and reducing learning loss, meeting the needs of all children, including the most marginalized and those with special educational needs, and addressing the well-being of students and educators. Any decisions to reopen schools must ensure safety is a priority, in line with each country’s overall response to COVID-19.

While the “Framework for Reopening Schools” provides sound high-level guidance, it is also important at a national level to consider how plans to reopen schools will impact on school leaders, teachers, students, and their families. The MOE has appropriately identified key issues related to health and safety matters, and mental health and well-being, which need to be included in any strategic plan for the reopening of schools.

The study found that communication around the commencement of the emergency response to distance education, from the MOE to all stakeholders, was well managed. This included clear guidance for supervisors, school principals, and teachers on their roles and responsibilities. It will be important that the range of communication channels that were established at the onset of the COVID-19 pandemic are utilized to ensure that all stakeholders are aware of the decision-making process and rationale around the criteria for reopening of schools and the associated arrangements for high quality learning.

As schools plan to reopen, it would be particularly important to build on strengthening the relationship between parents and teachers established during digital and distance education. The development of a clear stakeholder communication and engagement strategy would be an important tool in the preparation for post-pandemic learning in Saudi Arabia.

While it is clear from the stakeholder surveys that there is a strong desire to return to in-person learning—as stated by 85 percent of supervisors, 75 percent of school principals, 72 percent of

parents, and 63 percent of teachers—it will be important to gain the trust and confidence of those stakeholders who are anxious or reluctant to return to in-person education.

## 7.2 OPTIONS FOR BLENDED LEARNING MODELS

In the longer term, beyond the need for alternative modes of education due to emergency situations such as the COVID-19 pandemic, new methods of delivering education that make the best use of new technologies and practices can be considered. The innovation that took place over the past school year indicates that the education system is ready and able to adapt, with the right conditions and practices in place. Most school principals and teachers (70 percent and 72 percent, respectively) would like to see a hybrid arrangement take place in the future (some days in school and some working from home). More than half of intermediate and secondary school principals believe that a blended education approach would be very effective (53 percent of intermediate school principals and 52 percent of secondary school principals). However, only a third (33 percent) of elementary school principals felt the same. This suggests that distance education is seen as being somewhat less suitable for the younger students at that level, or that additional support would be required to ensure effective implementation of blended learning in elementary schools.

### Blended learning models

Blended learning is a formal education program in which a student learns at least in part through online learning with some element of student control over time, place, path, and/or pace and at least in part at a supervised brick-and-mortar location away from home.<sup>6</sup> The modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience.

When adopting blended learning, it is important to first identify the goals that blended learning will help to accomplish. Educational goals, not technology, should guide blended learning design decisions. Possible goals that blended learning can support summarized in box 7.1.

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6 <https://www.blendedlearning.org/basics/>.

### Box 7.1 Goals that Blended Learning Can Support

1. To support students with inconsistent attendance
2. To adapt schooling to students' individual needs
3. To allow students to customize their education
4. To increase parent engagement in students' learning
5. To improve communication between stakeholders
6. To encourage peer-to-peer learning
7. To make classrooms less crowded
8. To make classrooms more manageable for teachers
9. To ensure excellent instruction across classrooms
10. To give teachers more time for tutoring students individually or in small groups; communicating and building relationships with students and their families; giving students feedback on their work; or designing projects and activities that deepen students' understanding
11. Other goals as determined by teachers, principals, supervisors, or education authorities.

Once goals have been identified, there are a variety of blended learning models that can be used as templates for designing blended learning experiences.<sup>7</sup> Among the various blended learning models, below are three that may be highly relevant to Saudi Arabia's context.

1. **Flipped Classroom:** This is a model that flips the traditional relationship between class time and homework.<sup>8</sup> Students learn at home via online coursework and lectures, and teachers use class time for teacher-guided practice or projects. This model enables teachers to use class time for more than delivering traditional lectures.
2. **Enriched Virtual:** This is an alternative to full-time online school that allows students to complete the majority of coursework online at home or outside of school, but attend school for required in-person learning sessions with a teacher.<sup>9</sup> Unlike the Flipped Classroom, Enriched Virtual programs usually do not require daily school attendance; some programs may only require twice-weekly attendance, for example.
3. **Flex:** This is a model that lets students move on fluid schedules among learning activities according to their needs.<sup>10</sup> Online learning is the backbone of student learning in a Flex model. Teachers provide support and instruction on a flexible, as-needed basis while students work through course curriculum and content. This model can give students a high degree of control over their learning.

Each model has advantages and disadvantages when it comes to accomplishing educational goals, as shown in table 7.1.

7 <https://www.blendedlearning.org/models/>.

8 <https://www.blendedlearning.org/models/#flip>.

9 <https://www.blendedlearning.org/models/#enrich>.

10 <https://www.blendedlearning.org/models/#flex>.

**Table 7.1 Relative Advantages of Three Blended Learning Models**

	Flipped Classroom	Enriched Virtual	Flex
Support students with inconsistent attendance	☆☆☆	★★★	★★☆
Adapt schooling to students' individual needs	☆☆☆	★★☆	★★★
Allow students to customize their education	☆☆☆	★★☆	★★☆
Increase parent engagement in students' learning	☆☆☆	★★☆	★★☆
Improve communication between stakeholders	☆☆☆	★★☆	★★☆
Encourage peer-to-peer learning	★★★	★★☆	★★★
Make classrooms less crowded	☆☆☆	★★★	☆☆☆
Make classrooms more manageable for teachers	☆☆☆	★★★	★★☆
Ensure excellent instruction across classrooms	★★☆	★★☆	★★☆
Give teachers more time for other educational activities	★★★	★★★	★★★

### Requirements of blended learning models

Blended learning models also vary in how much they require a shift in conventional educational practices. The greater the shifts, the more planning and effort are required for ensuring successful adoption (table 7.2).

**Table 7.2 Shifts Required for Three Blended Learning Models**

	Flipped Classroom	Enriched Virtual	Flex
Ensuring students have devices and internet connectivity needed to access online learning at home and/or school	X	X	X
Creating or curating online learning resources that adequately cover the scope of basic content for each course or subject	X	X	X
Creating structures to ensure students complete online learning assignments independently and engage with online learning materials	X	X	X
Developing schedules and structures for in-person learning that ensure students receive the support they need		X	X
Changing from whole-class pacing and conventional grading to individualized pacing and mastery-based grading			X
Shifting teachers' mindsets from providing direct instruction to supporting self-directed learning			X
Shifting students' mindsets from compliance and passive learning to self-directed active learning			X
Creating structures to ensure students do not fall behind with self-directed learning and individualized pacing			X

Effective implementations of the blended learning models tend to demonstrate the “winning moves” summarized in box 7.2.

### Box 7.2 “Winning Moves” from Successful Implementations of Blended Learning Models

#### 1. Flipped Classroom

##### *Online lesson*

- Clear and concise
- Accurate
- Extra quizzes

##### *In-person activities*

- Connected and aligned to the online lesson
- Application of the concepts from the online lesson
- Peer-to-peer coaching
- Planned by a team

#### 2. Enriched Virtual and Flex

##### *Group discussion* (synchronous; online or in-person)

- Friendship building
- Open-ended questions
- Productive social norms

##### *Independent work* (asynchronous and online [Enriched Virtual] or in-person [Flex])

- Easy to navigate
- Built like a game with points, rules, and goals
- Interesting and engaging

##### *1-on-1 Check-ins* (in-person, email, phone, video, platform)

- Frequent
- Quality feedback from the teacher
- Positive teacher-student relationship

##### *Collaborative Work*

- Exploring an open-ended question
- Productive social norms

##### *Other activities* (peer coaching, virtual and in-person events)

- Selected to meet specific student needs

All digital learning requires baseline infrastructure to be feasible. If this is not yet available, the infrastructure to support innovation would need to be created. The necessary baseline infrastructure required is:

1. Access to devices and internet in settings where students will learn.

## 2. Access to quality online learning resources.

Transforming an education system is a difficult undertaking. Even when stakeholders recognize a need or desire to do things differently, it makes no sense to completely tear down or abandon an existing system and replace it with a new system that is unproven and unrefined. Incumbent systems persist because they continue to provide value. However, the challenge when innovating within an incumbent system is that incumbent systems only foster innovations that enhance and improve upon the ways in which the system currently operates. Thus, a “dual transformation” strategy for innovation is recommended. Strategy 1 focuses on innovations that can be fostered within an existing system and produce short-term benefits. Strategy 2 focuses on innovations that need to be nurtured with a degree of independence from existing systems and have more long-term potential for broad transformation. These two potential strategies are detailed in box 7.3.

### Innovation principles

There are four important principles that need to be considered when embarking on innovative solutions such as blended learning. These are:

1. **Create a culture of innovation.** Educators who work on the front lines need to be involved in designing blended learning models because they are most familiar with the circumstances that a model must address. Encourage educators to be creative and flexible and to approach innovation with a growth mindset.
2. **Design innovations to align with local context.** Blended learning is not something that can be copied from the United States, for example, and transplanted into Saudi Arabia. Many of the details for successful implementation are not easily specified. Additionally, the models need to be adapted to align with Saudi Arabia’s unique context and goals. Examples of some of the differences in context, which may impact the successful implementation of blended learning models, are described in table 7.3.

**Table 7.3 An Example of Differences in Contexts for Education Innovations such as Blended Learning**

Saudi Arabia	United States
Single public education system administered by MOE	13,000 different public education systems administered by local districts
Larger families, on average, with stay-at-home parents and support from extended families	Smaller families, single-parent households, and working parents more common
Gender-separated schools	Schools typically combine genders, allowing greater system efficiencies
Most teachers hold a Bachelor degree and a small proportion hold a Masters degree	A greater proportion of teachers hold Masters degrees or higher
Madrasati platform	Many small competing platforms



### Box 7.3 A Proposed Dual Transformation Strategy for Blended Learning in Saudi Arabia

#### Strategy 1. Flipped Classroom

As existing schools continue with distance learning or start to reopen, the adoption of the Flipped Classroom model could be encouraged. The Flipped Classroom is a blended learning model more easily adopted by existing schools because it maintains many of the features of conventional schooling (e.g., age-based student groupings, single teacher classrooms, single-paced instruction).

- Train teachers on the benefits and techniques of the Flipped Classroom model.
- Provide online learning content that teachers can use to flip their classrooms (e.g., video lessons on Madrasati, lesson materials that teachers can use to easily create online lessons, etc.).
- Provide technologies that teachers can use to create their own flipped lessons and monitor students' engagement and progress with independent online learning (e.g., similar to edpuzzle<sup>11</sup> or Pear Deck.<sup>12</sup>)

#### Strategy 2. Flex and Enriched Virtual

Flex and Enriched Virtual models can be difficult to adopt into existing schools because they diverge significantly from the ways in which schools have learned to operate. Rather than trying to push these models into existing schools, create new programs that leverage these models to serve students who are not served well by existing schools (e.g. Enriched Virtual programs for students who live in remote locations or have inconsistent attendance; Flex programs for students who struggle with the uniform instruction or pacing of conventional schools).

- Recruit creative and entrepreneurial educators to develop these programs. Provide them with opportunities to study and visit these types of programs.
- Allow families to opt into these programs based on their particular needs and interests. (Do not force families or teachers who are satisfied with existing schools into these programs.)
- Expand access to these programs as they improve and become more attractive as alternatives to conventional schooling.

3. **Organize teams appropriate to the level of innovation.** Innovations will fail if the teams responsible for developing those innovations are not organized in a manner appropriate to the level of innovation. Table 7.4 illustrates examples of team structures appropriate for various levels of innovation
4. **Use discovery-driven innovation.** There are many factors affecting the success of an innovation that cannot be anticipated at the beginning of an innovation design and adoption effort. Teams could use a discovery-driven approach to innovation, as described by McGrath and Macmillan (2009) because many important aspects of an effective blended learning design are hard to anticipate.

11 <https://edpuzzle.com/>.

12 <https://www.peardeck.com/>.

**Table 7.4 Examples of Team Structures based on Level of Innovation**

Level of innovation	Team Structure
New resources (e.g., adopting a new curriculum)	<b>Lightweight team</b> — Managers shuttle back and forth among departments to ensure that everyone’s work fits together. Team members represent the interests of their departments.
New processes (e.g., changing teaching practices, teacher roles)	<b>Heavyweight team</b> — Members of the team leave behind departmental interests and instead work collectively to meet the project’s goal. A manager with significant clout needs to lead the team to settle differences in perspective among the team.
New priorities (e.g., engaging disengaged students with Flex or Enriched Virtual programs)	<b>Autonomous unit</b> — Members with different areas of expertise separate from an existing organization to create a new organization aligned with new priorities.

# 8. Conclusions and Recommendations

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Saudi Arabia's journey toward a virtual school model, rolled out at scale from the start of the 2020–21 school year in response to the requirement to cease in-person schooling due to the COVID-19 pandemic, has been remarkable. Innovation has taken place at all levels, particularly among teachers. There is now a greater awareness of how education technologies can support and enhance teachers' work and students' learning experiences. Beyond that, there are now new methods and styles of communication and better awareness of what is happening in classrooms across the country. The resultant innovations and disruption to business-as-usual in Saudi Arabia's schools will affect change in children's learning experiences well beyond the pandemic.

From an in-depth study of this journey, it is clear that Saudi Arabia succeeded in providing continued K–12 education during the COVID-19 pandemic, particularly from the start of the 2020–21 school year. This included multiple ways of engaging students and a host of new tools, providing teachers with a unique opportunity to experiment and innovate to meet their students' needs. In developing the digital and distance education, attention was rightly paid to both the technology aspects and the educational aspects, with the teacher and student interaction prioritized, along with the necessary communication aspects that were needed to bring about rapid and widespread change.

In terms of achieving continued K–12 education during the prolonged period of distance education, while it has not been possible to determine the proportion of students regularly engaged with virtual schooling throughout the 2020–21 school year, 98 percent of students were able to access the Madrasati platform at some point and at least 75–85 percent engaged with it on a regular basis (with more logging into virtual classes directly through MS Teams and others attending in-person school). This is an impressive achievement given the scale and speed of the rollout and the fact that alternative arrangements were made available such as in-person school visits, recorded lessons, and printed materials. Identifying and supporting those students who could not or did not regularly engage online or who found distance education difficult will be vitally important, with remedial education such as tutoring programs provided as a priority in the upcoming school year.

Many strengths within Saudi Arabia's response to the COVID-19 pandemic in K–12 education have been identified in this study and are summarized in this chapter. These will be important to build on and to share with other countries. In addition, this study identified several strategies, practices, and procedures arising from the emergency digital and distance education that could be further developed to bring about lasting improvements in children's schooling experiences and learning outcomes. These are also summarized in this chapter along with recommendations for next steps, organized around the World Bank's five key principles for education investments in EdTech (box 1.1). These strengths and areas for development cover strategic and operational levels, recognizing that change is required at both of these levels and, most importantly, in every classroom across the country. The recommendations extend beyond the EdTech and the distance education because improvements in other areas of education are critical for the success of digital and distance education as well as in-person learning in schools. To help organize the recommendations, a matrix is provided at the end of the chapter (table 8.1).

## 8.1 DRIVING PURPOSEFUL EDUCATIONAL CHANGE

The first principle in the World Bank's five key principles for EdTech investments is to "Ask Why." It is not uncommon around the world for EdTech investments to be less effective than expected or difficult to scale up. In many cases, those country investments would have been more effective if there had been an explicit and clear purpose, strategy, and vision for the desired educational change. In these cases, the "technology" has tended to be more of a focus than the "education." Or, the human and social aspects of education were not placed at the core of the initiatives so that the technology was focused on supporting and enabling those connections. In this case, with the pandemic, there was a clear need for technological solutions to allow millions of children across the country to continue their education during the period of distance education. In Saudi Arabia, the use of digital technologies to mitigate the effect of the need to cease regular in-person schooling due to the COVID-19 pandemic was clearly focused around the students' learning experiences.

### Strengths

The study found the following key strengths in the planning for purposeful educational change in Saudi Arabia's digital and distance education.

1. **Rapid provision of distance education at scale.** Education provision in the form of recorded lessons was made available through satellite television and YouTube channels for more than 6 million K–12 learners within one day of the announcement to cease regular in-person schooling. The speed with which this happened was commendable and made possible by previous investments in prerecorded lessons along with fast decision-making.
2. **Student-teacher connections prioritized.** In developing their distance and digital education system, Saudi Arabia put students at the center of the initiative. Regular opportunities for virtual live connections between students and teachers (synchronous learning) is a key element of the educational experience for students and their families, strengthening teacher-student and teacher-family engagement. The decision (over the summer of 2020) to mandate daily virtual classroom connections was a bold one, made for the benefit of students' learning, requiring infrastructure capable of hosting over 5 million students online at the same time.
3. **Wide range of tools and resources made available.** The Madrasati platform was further enhanced with an extensive range of teaching and learning tools, plus curriculum and enrichment resources, including open educational resources (OER) to support the learning needs of children and young people across K–12.
4. **Cycle of EdTech feedback and improvement led to high satisfaction.** Constant and close monitoring of students' and teachers' experiences with the Madrasati platform throughout the crisis, coupled with authentic responses to the issues identified, led to high rates of satisfaction. In addition, very clear and timely communication with all stakeholders through a variety of channels helped to make the Madrasati roll-out a success. For example, 75 percent of parents were satisfied or very satisfied with the quality of distance education over the last school year, 89 percent of teachers were able to deliver all or nearly all of the lessons that were expected from them, 94 percent of teachers found that accessing the information to implement distance learning was easy, and 97 percent of school principals said that their teachers had found it easy to adapt to the new arrangements.
5. **Apparent increase in student skills.** Encouragingly, there is a widespread perception that students have developed a range of new educational and global skills during their distance and digital

experience, including independent learning, self-reliance, a sense of responsibility, research skills, problem-solving, and digital skills. Among teachers, 68 percent felt that their students' progress in skills such as creativity and problem solving was better this year compared to previous years.

## Areas for development and recommendations

To further develop clarity in the purpose, strategy, and vision for educational change that utilizes digital technologies and can pivot to distance education when needed, the following would be needed.

1. More explicitly target policies and resources on disadvantaged and struggling students. The effective preparation, communication, monitoring, and responding exhibited during the emergency response should continue into the next phase of school reopening to help all children benefit from the best possible education. Saudi Arabia has had among the longest episodes of nationwide distance education in the world, and the lack of in-person education over this time is likely to have a long-term effect on students, particularly those who were not able to engage well in distance education. Countries around the world (including high-performing countries with good digital infrastructure and distance education experience) have started to document learning losses from emergency distance education provision, particularly in subjects such as mathematics, among the younger age cohorts, and for students lacking the devices, connections, or supports that are needed to fully engage in the distance education that was offered. Now that the Madrasati platform is well embedded in the education system, it will be important to turn more policy attention to those students who need additional support to meet minimum learning standards and reach their full potential. Raising the learning outcomes of underachieving students (those in the bottom levels of performance) will increase overall average learning levels and national human capital formation.
2. Plan for long-term purposeful blended learning models that best suit existing practices and conditions, such as the "Flipped Classroom" and "Flex and Enriched Virtual." In considering blended models of education for the longer term, there should be a clear statement of the educational purpose and vision for the changes, applying them only where they are needed or would be beneficial compared to existing practices. A proposed dual transformation strategy for blended learning that would be most suitable to Saudi Arabia's situation is detailed in box 7.3.

Strategy 1—the **Flipped Classroom** can more easily be adopted because it utilizes many of the features of conventional schooling. This model would be used useful for the following goals:

- a. To ensure all classes receive excellent instructional content (through online coursework and lectures).
- b. To increase the use of time in class with teacher and peers for active rather than passive learning activities such as teacher-guided practice or projects.
- c. To enable teachers to use some of the time saved on traditional instruction to gain a better understanding of their students' learning needs and provide additional support on specific content areas or with individuals or small groups of students who are struggling.

Strategy 2—**Flex and Enriched Virtual** models are further from traditional schooling and would be best applied as new programs and not in existing schools. They can be beneficial for students who live in remote locations or who have inconsistent attendance or who struggle with uniform instruction or pacing of conventional schools (see section 7.1 for further details).

3. **Continue to use and adapt the Madrasati platform and develop further digital content.** In the short-term, particularly the 2021–22 school year, the Madrasati platform should continue to be used and further developed as (a) an effective and efficient learning organizational platform, (b) a source of content and tools to support delivery of the curriculum, and (c) a communication method. Users clearly want to see the continued use of the platform past the pandemic. As seen in the nationally-representative surveys for this study, many users are also requesting for improvements to be made to the content and to the linking of Madrasati to other required platforms such as NOOR to streamline education information and services.
4. **Strengthen the quality of teaching as a priority to improve learning outcomes.** Now that “business-as-usual” has been disrupted in Saudi Arabia’s schools, it will be important to seize the opportunity to make lasting changes that improve student learning outcomes. This will mean focusing on the quality of teaching. Teachers have been asked to make many changes in their day-to-day work during the pandemic. Those changes that have improved student learning should continue. Further support to teachers, as they become familiar with the upcoming curriculum reform, should focus on improving their skills in providing a high-quality education for each student.

## 8.2 DESIGNING AND ACTING AT SCALE, FOR ALL

There is global recognition that digital learning initiatives can unintentionally promote inequality of access and engagement (World Bank 2020b). Therefore, the second key principle—“Design and Act at Scale, for All”—emphasizes the importance of flexibility, ensuring that student learning, and not solely the lure of technology, remains at the heart of all developments. In moving from the educational planning due to the COVID-19 pandemic to envisioning a state-of-the-art digital education system of the future, Saudi Arabia must ensure that the system fully meets the needs of all children and young people across at all stages of its development.

### Strengths

1. **Low-tech alternatives for students without internet access.** During the distance education, efforts were made to provide for students without access to Madrasati through dedicated iEN satellite TV channels and mandated regular visits to their school to receive printed materials and support from their teacher, with schools submitting weekly reports to ensure that this follow-up was happening.
2. **Provision of special distance education.** Satellite TV channels were put in place for students with disabilities and special educational needs, along with school visits as needed. While a detailed review of this type of education was beyond the scope of the study, the fact that multiple modes of education provision were offered can be seen as a strength.

### Areas for development and recommendations

There is a significant risk of widening disparities with continued distance education or blended models given that some students were not able to log-in consistently or were unable to engage fully for various reasons. Urgent attention is therefore needed on the following aspects.

1. **Provide additional targeted resources to students not regularly attending virtual classes.** Schools should identify and support these students through the regular in-person class schedules and, in some cases, with additional targeted tutoring. Where schools have large proportions of students in this situation, additional resources should be given to those schools to help them cater to these disadvantaged students. For any further digital and distance education provision, those children not attending virtual classes through the Madrasati platform should be monitored in terms of their

attendance and engagement, with this data made available at the district, region, and central levels.

2. **Set policies for long-term access of teachers and students to devices and connectivity for both distance and in-person schooling.** Efforts were made through charitable organizations to source devices and cards for internet access for students to support digital learning. However, data were not available to assess the level of need for these and the degree to which the need was met. A long-term plan will be needed to ensure all students and teachers have access at home and in school to devices and connectivity. Any future digital and distance education or blended learning models will require this, along with technical support within schools. These policies should include attention to online safety. Careful selection and prioritizing of the selected infrastructure and procedures will be needed to ensure all schools have the basic requirements for digital education both within and outside of school buildings.
3. **In the short-term, ensure that a plan for providing devices and connectivity to all students who do not have them is feasible and enacted as a matter of urgency.** If blended models such as the Flipped Classroom are expected in the next or future school years, all students should have access to the required devices and internet connections at home. A plan to make this happen should be developed or, if already developed, shared with stakeholders to ensure that it is feasible, and all parties are on board. One of the most cited areas for development raised by stakeholder groups in the nationally-representative surveys was to improve the infrastructure—internet connection and access to devices—to improve accessibility and reduce inequality. All respondent groups included comments on the importance of providing better broadband coverage to ensure the provision, reliability, and stability of the internet connection, especially in remote and developing areas.
4. **Promote policies and communications that emphasize high expectations for all students across all key skills.** In moving to the “post-pandemic” stage, if there is a further requirement to cease regular in-person schooling or limited attendance is required for health reasons, the MOE should ensure that all students, whether learning at home or in-school, continue to have the same opportunities to build on their new skills, including technical and social skills. This means setting policies and communications to schools and teachers that emphasize the need to set high expectations for each and every student across all key skills.

### 8.3 EMPOWERING TEACHERS

In preparation for a national move to digital and distance education in 2020, Saudi Arabia invested heavily in the professional development of teachers, extending their knowledge and understanding of the Madrasati platform and digital learning, and supporting new teaching and learning practices as they moved into distance education delivery. The third principle—“Empower Teachers”—looks at empowering teachers to better support student learning. Building on best practices to strengthen teaching and learning in all classrooms will be an important driver of sustained change in returning to in-person learning.

#### Strengths

Supervisors reported that, overall, digital learning has increased student motivation and engagement, and encouraged many teachers to use a more innovative range of resources creating higher-quality learning experiences for students. Overall, it is clear that there is high demand from supervisors and teachers for more digital content and for improvements in the quality of the available digital content.

1. **Significant investments in teacher professional development.** The investment in professional development for educators and leaders across all stages to support digital and distance education has been strong. Saudi Arabia worked at speed to roll out extensive professional learning at scale to empower and equip staff with the knowledge, skills, and understanding to interact with, and utilize, the many tools and resources of the Madrasati platform.
2. **High satisfaction with professional training and support.** There has been high and consistent satisfaction across all stakeholder groups with the training and support provided to access the tools and resources provided through the Madrasati platform.
3. **Good use of teacher communities of practice and coaching.** The use of in-school coaching with assigned school digital learning focal points, and the creation of professional communities of practice, have enabled teachers to share good practices. This has increased teachers' confidence to use new digital educational tools in their virtual classes.
4. **Apparent increase in teacher skills.** School principals noted an increase in teachers' skills related to distance education, with just 37 percent rating their teachers' skills as "advanced" before the pandemic, rising to 68 percent during the school year. More than 80 percent of teachers felt that their skills had increased "a lot" in planning and delivering effective lessons and managing their time.

## Areas for development and recommendations

Saudi Arabia has put in place an extensive range of professional learning opportunities to upskill teachers with the knowledge, skills, and practice to deliver high-quality digital and distance learning during the pandemic. The following are areas for further development.

1. **Reduce variability in teacher performance through targeted professional learning, and increase consistency of practice through clear guidelines for digital and distance education, for example on student engagement and use of cameras.** While many teachers have increased their professional skills to support student achievement, there is a need to reduce variability in teacher performance to effectively plan and deliver high-quality learning experiences for all students. For example, supervisors noted that lesson planning was not sufficient for some of the lessons they observed as part of this study. This means that professional learning should be targeted to where it is needed, especially for schools and teachers that have not yet reached good performance levels in digital and distance education. In addition, clear practice guidelines for digital and distance education, linked to effective learning and teaching approaches, should be shared with teachers and supervisors to achieve a high level of consistency of practice across the country, for example on issues of student engagement and camera use, where considerable variation of practice was found.
2. **Review and strengthen roles of school principals and supervisors to lead education improvement.** Supervisors and school principals developed a range of leadership skills throughout the pandemic to build capacity and quality assure teaching and learning in a digital and distance learning context. Post-pandemic, it will be important to ensure that all teachers are provided with a similar level of support and guidance from supervisors and school principals. More broadly, it will be important to review and strengthen the support and quality assurance roles of the school principals and supervisors as this will be a key driver for improving the effectiveness of the education system.
3. **Identify and promote innovative and evidence-based effective teaching and learning practices**



**in digital and distance education.** It would be important to disseminate examples of innovative practice developed by teachers across schools and districts, such as the “young teacher strategy” to promote and encourage active student engagement and collaboration, building student leadership for learning.

4. **Evaluate the impact of teachers’ learning to better understand which teacher professional development investments have been most impactful and should continue.** To determine the impact of the extensive range of professional learning activities developed by the MOE and partners, it will be important for the MOE to evaluate the quality of teachers’ and educational leaders’ professional learning activities to determine which aspects have made the biggest difference to the quality of learning and teaching in “classrooms” across the country. Going forward, it will be important for the MOE to collect and collate national impact data. This will allow the MOE to understand the overall level of effectiveness of the resources it has invested in, plus highlight which aspects of the program have worked well and which need amendment.

## 8.4 ENGAGING THE ECOSYSTEM

The adage that “*it takes a village to educate a child*” was never truer than in planning for post-COVID education. The fourth principle, “Engage the Ecosystem” outlines the importance of engaging the wider education community in providing a high-quality education experience for Saudi Arabia’s children and young people. The MOE has effectively engaged a wide range of actors in the development and delivery of their digital education system including wider governmental agencies, students, teachers, school principals, supervisors, curriculum specialist, EdTech and ICT specialists, parents, academia, and the private sector.

### Strengths

Saudi Arabia has successfully brought together voices from across the education, ICT and EdTech communities in developing a comprehensive response to the COVID-19 pandemic building on the previous investments in e-learning, significant accumulated experience in educational technologies, quick decision-making, and well-coordinated efforts across multiple entities. Specific strengths include the following.

1. **Frequent and clear communication with stakeholders.** Communication has been strong, with clear and timely guidance that allowed all stakeholders to understand their roles.
2. **Leading private sector providers engaged early with clarity on expected outcomes.** Based on previous EdTech experiences, Saudi Arabia was able to move quickly with an understanding of how to procure, develop, and locally enhance the digital tools. Working with experienced and world-leading companies was a key success feature of the journey.
3. **Enhanced parental engagement.** Distance education arrangements established through the Madrasati platform have significantly strengthened parental and family engagement in their children’s education. Teachers communicated most often with parents about students’ attendance and achievement, their welfare, and the technical problems of access and connectivity. This enhanced connection between schools and families, if continued, will be a powerful driver for educational improvement and stands to be one of the greatest outcomes of the digital and distance education experience in Saudi Arabia.

## Areas for development and recommendations

The engagement model used for the development and implementation of the Madrasati platform should similarly be used to address upcoming needs as schools recommence in-person learning. The socioemotional needs of children and young people will need to be addressed in addition to the academic learning. The following practices should be enacted across the country, not just in pockets of good practice only.

1. **Support and require teachers to recognize and meet the socioemotional needs of their students.** Distance learning challenges relating to students' physical and mental well-being were raised by stakeholders, including feelings of isolation, boredom, laziness, lack of physical activity, eye strain from too much time on a device, and concern over the lack of social interaction with their peers. Going forward, it will be important to support the knowledge and understanding of teachers to adapt their lessons and expectations to effectively meeting the socioemotional needs of students, particularly at the time of transition from distance to in-person learning. In addition, the MOE should ensure that the well-being of students is promoted, for example through stronger links to parents and the deployment of school counsellors focused on student welfare, to maintain the positive advantages created through the period of distance and digital education. Careful transition planning will be required to ensure that students are well supported as they return to in-person classes. Several countries have established well-being frameworks and formalized support for schools providing evidence-based intervention to guide practice.<sup>13</sup>
2. **Engage school communities in setting high behavioral standards and creating positive school cultures and climates.** It will be important to explore further the feedback from supervisors, school principals, teachers, parents and students regarding overcrowding, in-school bullying, and poor behavior that impedes learning. All schools should provide a supportive and nurturing environment for learning, and have in place clear behavioral expectations of all adults and children, addressing any behaviors that are felt to impede students' learning. Raising the skills of teachers and school principals in effective classroom management techniques would be one way to ensure appropriate practices across all schools.
3. **Employ strategies to gain the trust of stakeholders who may be anxious about a safe return to in-person schooling, for example by encouraging schools to incorporate student voices in return to school plans.** As schools and families prepare for a return to in-person schooling, there will be some who are anxious due to the continued threat of the virus and because it marks a significant change to the past 18 months, where many students and teachers felt very comfortable and safe. Therefore, it will also be important to actively engage students and their families in plans for a return to in-person schooling, and to listen to their concerns and support their needs. This is particularly true in light of behavioral issues identified as a feature of in-person schooling by a number of students, and identified in other studies, including TIMSS and PIRLS.

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13 See, for example, the Australian Student Wellbeing Framework: <https://www.dese.gov.au/student-resilience-and-wellbeing/australian-student-wellbeing-framework>; New South Wales Student Wellbeing: <https://education.nsw.gov.au/student-wellbeing>; the Scottish Government <https://www.gov.scot/publications/developing-positive-whole-school-ethos-culture-relationships-learning-behaviour/>; and UK Wellbeing Framework for Schools: <https://www.mentallyhealthyschools.org.uk/resources/wellbeing-framework-for-schools/>.

## 8.5 INCORPORATING DATA AND EVIDENCE FOR ONGOING IMPROVEMENT

The fifth principle, “Be Data-Driven”, highlights the importance of not only collecting data but analyzing it to form data-driven decisions that will improve the quality of learning and teaching, and importantly the learning outcomes for children.

### Strengths

There is evidence of a move toward the frequent collection and use of relevant data for decision-making, as follows.

1. **Regular monitoring of user data and feedback loops to improve tools and services.** Monitoring of Madrasati usage and user interaction with the platform was regular and resulted in proactive actions and decisions. In addition, feedback from users was regularly sought and acted upon.
2. **New tools and items to support student assessment.** The Madrasati platform includes an extensive range of assessment tools to support formative and summative assessment practices. This includes almost 94,000 test items to support the development of subject-based assessments. With the inclusion of these tools and items, clear signals were given to schools and teachers of the importance of assessing students’ progress and communicating that to students and their parents.

### Areas for development and recommendations

A number of areas within this study could not be examined in the necessary detail due to a lack of data or sufficiently robust data. Some stakeholder groups also highlighted areas of improvement that are needed in this area. The following would be considered priority areas for development.

1. **Ensure continuity in national assessments to provide crucial information on overall levels of student learning.** A stable system of externally marked, standardized national student assessments will allow valid monitoring over time. The National Assessment of Learning Outcomes (NALO) has been implemented for several years covering different subjects, but has not yet been implemented to allow a comparison over the COVID-19 pandemic phase against previous years. This meant that the effect of the pandemic on student learning could not be assessed directly. This should be a priority for the next school year, implemented at an appropriate time (after students have settled into the new school year), ensuring that the instrument used can be matched to a recent pre-COVID-19 baseline. As the NALO now moves to a census basis, it will be important to allow a significant period of stability in the national assessment (avoiding frequent design and methodology changes) to reap the benefits of monitoring changes in learning levels over time.
2. **Reexamine student assessment policies and consider developing a national assessment framework to coordinate and communicate intent.** Distance education challenges around measurement and evaluation of student achievement were frequently cited as areas for development by stakeholders in the nationally-representative surveys for this study. Respondents mentioned that it is difficult to know the accurate level of student performance and learning, while others questioned the credibility and fairness of assessments. Similar issues have been raised during regular in-person schooling (for example, in OECD 2020). Valid, consistent, and reliable monitoring of student learning by teachers, districts, and the center is necessary to identify those children needing additional support and to understand the overall levels of learning and progression. A national assessment framework (outlining the full suite of assessment instruments) would be one way to ensure coordination of the various student assessments—showing adequate coverage across

grades and purposes while limiting assessments that have no or limited educational value—and to communicate the intended purpose and rationale of each assessment to all stakeholders.

3. **Improve data on student attendance and engagement with distance education and in-person schooling.** More accurate monitoring of student attendance in virtual settings would be needed in the future. Schools had a clear mandate to follow-up on those students who did not have access to the digital learning. However, data is not centrally available to enable a judgment on the degree to which all students received an adequate education during the 2020–21 school year, whether online or in-person. Systems of central monitoring of student attendance in class—both in-person and at a distance—would benefit from review to ensure that students are not left behind and that there is a better understanding of the extent of attendance and engagement across the country.
4. **Assess and address learning losses on return to in-person schooling.** There is a need to identify and address learning loss across the student population, creating evidence-based interventions to ensure each student's achievement is appropriately on track. It would be important that, on return to in-person education, teachers are equipped to meet the challenge of rapidly assessing students' knowledge to identify learning gaps. This knowledge should be used to plan for learning by creating appropriate learning pathways for all students, but particularly those students in transition or preparing for high-stakes examinations.
5. **Revisit student assessment tools and practices, plus training of educational professionals, to better track students' development of critical cross-disciplinary and 21st century skills.** There is a need to strengthen and modernize formative and class-based assessment, including effective in-class questioning techniques, to realistically track and monitor students' progress using data trends, and enable high-quality feedback to be provided directly to students to bring about improvement. This will require targeted professional development for teachers, supervisors, and school principals. It would be particularly important to capture the development and progression of the new global skills, namely a sense of initiative; self (independent) learning; critical thinking; logical analysis; problem-solving; and communication and presentation skills as part of a student's profile. Going forward, consideration should be given to extending the range of assessment tools to capture these important skills for learning and life.

## 8.6 ADDITIONAL CONSIDERATIONS

In addition to the areas for development and recommendations captured under the above framework, as the MOE implements its new plans for education reforms, which stretch well beyond recovery from the COVID-19-pandemic distance education, there are a number of points that should be considered based on global research, experiences, and lessons learned.

1. **Curriculum and teacher assessment redesign to move away from predetermined lesson delivery to aligning instruction to students' current learning levels, skills, and goals.** In the new educational reforms, attention should be given to building skills based on where students are at with their learning and achievement, rather than delivering a set of lessons for students to absorb. This concept of skill building, starting from where children are, needs to permeate throughout the education system and be well understood by all of those involved in educating children and young people. It means re-examining how the curriculum is designed and communicated to teachers, and how teachers are assessed in supporting their students to gain these skills, ensuring that the curricular breadth and depth is re-established and further enhanced moving forward, particularly for the important foundational skills such as literacy and numeracy. Attention needs

to be given to how expected practices and standards are communicated to teachers and parents, and the types of teaching and learning materials and activities that are promoted.

2. **Time expectations for curricular reforms.** Embedding meaningful curricular reform into the daily teaching practices and learning experiences of all children and young people takes time when done well. In some cases, from international examples, around 5 to 10 years are necessary. Expectations related to the time needed to successfully implement the new curricular reforms should be set accordingly, particularly in the context of wide ranging and rapid change in teaching practices during the COVID-19 pandemic.
3. **Building on the successful communications and parental engagement strategies.** Finally, there is a rare opportunity now to build on the strengths created by the educational response to the COVID-19 pandemic, particularly in relation to the clear communication process between schools and families as the return to in-person learning is rolled out, which appears to have increased substantially, with parents now far more knowledgeable about school practices. This may be one of the biggest successes of the past year—opening up the classroom—and one that will have long-term benefits. It will be important, too, to ensure that professional development opportunities for school principals and teachers on effective practice in parental engagement, based on existing good practice, are provided in preparation for a return to in-person schooling.

**Table 8.1 Summary Matrix of Recommendations**

1. Driving Purposeful Educational Change	2. Designing and Acting at Scale, for All	3. Empowering Teachers	4. Engaging the Ecosystem	5. Incorporating Data and Evidence for Ongoing Improvement
<b>Recommendations specific to digital and distance education and COVID-19 pandemic response</b>				
<ul style="list-style-type: none"> <li>Continue to use and adapt the Madrasati platform and develop further digital content</li> </ul>	<ul style="list-style-type: none"> <li>In the short-term, ensure that a plan for providing devices and connectivity to all students who do not have them is feasible and enacted as a matter of urgency</li> </ul>	<ul style="list-style-type: none"> <li>Identify and promote innovative and evidence-based effective teaching and learning practices in digital and distance education</li> </ul>	<ul style="list-style-type: none"> <li>Employ strategies to gain the trust of stakeholders who may be anxious about a safe return to in-person schooling, for example by encouraging schools to incorporate student voices in return to school plans</li> </ul>	<ul style="list-style-type: none"> <li>Improve data on student attendance and engagement with distance education and in-person schooling</li> </ul>
<ul style="list-style-type: none"> <li>Plan for long-term purposeful blended learning models that best suit existing practices and conditions, such as the “Flipped Classroom” and “Flex and Enriched Virtual.”</li> </ul>	<ul style="list-style-type: none"> <li>Provide additional targeted resources to students not regularly attending virtual classes</li> </ul>			<ul style="list-style-type: none"> <li>Assess and address learning losses on return to in-person schooling</li> </ul>
<b>Recommendations related to broader areas of education reform including digital and distance education</b>				
<ul style="list-style-type: none"> <li>More explicitly target policies and resources on disadvantaged and struggling students</li> </ul>	<ul style="list-style-type: none"> <li>Set policies for long-term access of teachers and students to devices and connectivity for both distance and in-person schooling</li> </ul>	<ul style="list-style-type: none"> <li>Reduce variability in teacher performance through targeted professional learning, and increase consistency of practice through clear guidelines for digital and distance education, for example on student engagement and use of cameras</li> </ul>	<ul style="list-style-type: none"> <li>Support and require teachers to recognize and meet the socioemotional needs of their students</li> </ul>	<ul style="list-style-type: none"> <li>Ensure continuity in externally assessed, standardized national assessments to provide crucial information on overall levels of student learning</li> </ul>
	<ul style="list-style-type: none"> <li>Promote policies and communications that emphasize high expectations for all students across all key skills</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate the impact of teachers’ learning to better understand which teacher professional development investments have been most impactful and should continue</li> </ul>		<ul style="list-style-type: none"> <li>Revisit student assessment tools and practices, plus training of educational professionals, to better track students’ development of critical cross-disciplinary and 21st century skills</li> </ul>
<b>Recommendations specific to other areas of education reform</b>				
<ul style="list-style-type: none"> <li>Strengthen the quality of teaching as a priority to improve learning outcomes</li> </ul>		<ul style="list-style-type: none"> <li>Review and strengthen the roles of school principals and supervisors to lead education improvement</li> </ul>	<ul style="list-style-type: none"> <li>Engage school communities in setting high behavioral standards and creating positive school cultures and climates</li> </ul>	<ul style="list-style-type: none"> <li>Reexamine student assessment policies and consider developing a national assessment framework to coordinate and communicate intent</li> </ul>

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# Appendixes

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## APPENDIX A. DURATION OF SCHOOL CLOSURES BY COUNTRY

Number of weeks of full or partial school closings due to the COVID-19 pandemic (ordered by highest to lowest number of full closure weeks)

	Full closure	Partial closure		Full closure	Partial closure		Full closure	Partial closure		Full closure	Partial closure
Bangladesh	47	47	Poland	21	35	Somalia	15	15	Finland	8	23
Panama	46	46	Ethiopia	21	31	Eritrea	14	49	Seychelles	8	19
El Salvador	45	45	Turks and Caicos Island	21	21	Chile	14	44	Cameroon	8	18
Mexico	44	44	Bhutan	20	49	Qatar	14	41	Zambia	8	18
Myanmar	43	48	Indonesia	20	48	Kyrgyzstan	14	38	Belgium	8	15
Kuwait	42	42	North Macedonia	20	43	Jamaica	14	37	Aruba	8	13
Iraq	41	50	Gambia	20	28	Germany	14	28	Croatia	8	10
Saudi Arabia	41	41	Cabo Verde	20	20	Namibia	14	25	Palau	8	8
Bolivia (Plurinational State of)	39	47	Gibraltar	20	20	Yemen	14	19	Botswana	7	20
Costa Rica	39	46	Suriname	20	20	Cayman Islands	14	17	Cote d'Ivoire	7	13
Brazil	38	44	Bahamas	19	41	Maldives	14	16	Curaçao	7	9
Venezuela	38	38	Trinidad and Tobago	19	40	Canada	13	40	Mauritius	7	8
Uganda	37	50	Slovenia	19	34	Bosnia and Herzegovina	13	38	Djibouti	7	7
Honduras	37	46	Barbados	19	31	Latvia	13	36	Monaco	6	13
Ecuador	34	44	Equatorial Guinea	19	22	Italy	13	35	France	6	10
Guatemala	33	45	Montserrat	19	22	Thailand	13	25	Papua New Guinea	6	6
Jordan	33	42	Algeria	19	21	Central African republic	13	23	Switzerland	6	6
Philippines	33	34	Czechia	18	38	Grenada	12	45	Norway	5	19
Paraguay	32	40	Hungary	18	33	Slovakia	12	37	Svalbard	5	19
Dominican Republic	32	32	Haiti	18	31	Netherlands	12	22	Viet Nam	5	14
Bahrain	29	44	Saint Vincent and the Grenadines	18	28	Senegal	12	22	Liechtenstein	5	13
Saint Lucia	29	40	Sint Marteen	18	28	Portugal	12	21	Tuvalu	5	12
Lebanon	29	37	Malawi	18	26	Mali	12	17	Uruguay	4	27
Comoros	29	35	Nigeria	18	24	Fiji	12	13	Anguilla	4	16
Eswatini	28	49	Guinea-Bissau	18	23	Republic of Korea	11	41	Benin	4	15
South Sudan	28	49	Ukraine	18	19	Syrian Arab Republic	11	29	Singapore	4	11
Angola	28	46	Palestine	17	49	Cyprus	11	25	Faroe Islands	4	7
Sri Lanka	28	43	Bulgaria	17	32	Micronesia (Federated States of)	11	24	Solomon Islands	4	7
Kenya	28	37	Greece	17	32	São Tomé and Príncipe	11	19	Cook Islands	4	4
Democratic People's Republic of Korea	28	36	Cambodia	17	29	Estonia	11	16	Samoa	4	4
Rwanda	27	47	Morocco	17	21	United Republic of Tanzania	11	15	Madagascar	3	16
Guyana	27	45	Malta	17	19	Sierra Leone	11	14	Japan	3	11
Nepal	26	53	Dominica	17	17	Togo	11	14	New Zealand	3	9
Turkey	26	38	Iran (Islamic Republic of)	16	45	Uzbekistan	11	12	Greenland	3	4
India	25	51	Montenegro	16	36	Saint Kitts and Nevis	11	11	Vanuatu	3	4
Mozambique	25	45	Israel	16	33	Timor-Leste	11	11	Kiribati	3	3
Belize	25	38	Georgia	16	32	Ghana	10	40	Tonga	3	3
Malaysia	25	35	United Kingdom	16	27	Bermuda	10	29	Marshall Islands	1	2
Serbia	25	34	Gabon	16	21	Lithuania	10	29	Niue	1	1
Zimbabwe	25	34	Egypt	16	19	Congo	10	26	United States of America	0	47
Antigua and Barbuda	24	41	Niger	16	16	Spain	10	15	Australia	0	27
Democratic Republic of the Congo	24	33	Republic of Moldova	16	16	Lesotho	9	41	Sweden	0	23
Colombia	23	43	Peru	15	42	British Virgin Islands	9	40	Nicaragua	0	15
Azerbaijan	23	37	United Arab Emirates	15	42	Kazakhstan	9	36	Russian Federation	0	13
Pakistan	23	33	Libya	15	40	China	9	27	Iceland	0	6
Afghanistan	23	31	Liberia	15	37	Lao PDR	9	19	Tokelau	0	4
Chad	23	28	San Marino	15	33	Brunei Darussalam	9	17	Belarus	0	0
Mauritania	23	23	South Africa	15	29	Luxembourg	9	15	Burundi	0	0
Argentina	22	46	Tunisia	15	28	Burkina Faso	9	14	Nauru	0	0
Mongolia	22	34	Austria	15	27	Armenia	9	12	Tajikistan	0	0
Romania	22	32	Cuba	15	24	Oman	8	26	Turkmenistan	0	0
Ireland	22	26	Sudan	15	22	Albania	8	24			
Guinea	22	22	Andorra	15	16	Denmark	8	23			

Source: UNESCO global monitoring map of school closures (accessed on June 5, 2021): <https://en.unesco.org/covid19/educationresponse>. Data as of March 29, 2021.  
 Note: Full school closures refer to situations where all schools were closed at the nationwide level due to COVID-19. Partial school closures refer to school closures in some regions or for some grades, or with reduced in-person instruction.

## APPENDIX B. SURVEY WEIGHTING METHODOLOGY

Weights were calculated for the questionnaires given to school principals, teachers, students, parents, and supervisors to account for selection probability and non-response. Details of the methodology for calculating the weights are provided below.

### Principal Questionnaire Weights

Schools were selected using systematic sampling with probability proportional to size (PPS), with the measure of size (MOS) being the total school enrollment. The probability of a school being selected was:

$$\frac{MOS \times 200}{TOTMOS}$$

Where MOS is the total enrollment in the school, 200 is the number of schools selected, and TOTMOS is the total enrollment of all schools.

The school base weight is the inverse of the probability of selection, or

$$\frac{TOTMOS}{MOS \times 200}$$

A correction for non-response was added at the level of each of the 13 administrative regions. The correction was:

$$\frac{\text{Expected Number of Schools}}{\text{Number of Schools in the Achieved Sample}}$$

Finally, the weights were adjusted so that the weighted number equaled the size of the achieved sample:

$$\text{Sample } n \text{ in cell } \times \frac{\text{Number in the Achieved Sample}}{\text{Number of Schools in the Achieved Sample}}$$

### Teacher, Student, and Parent Questionnaire Weights

To calculate teacher, student, and parent questionnaire weights, the school principal questionnaire included questions on the number of classes for the selected subjects (Arabic, mathematics, science, and English), and the number of students in the class selected for the student and parent questionnaires. However, the quality of the data received for these questions were poor indicating a widespread misunderstanding of the questions. For this reason, weights for the teacher, student, and parent questionnaires were based on ensuring that the sample proportions matched the population proportions by splitting the sample and population into cells based on the 13 administrative regions, whether it was a boys' or girls' school, and type of school (regular, Qur'anic, etc.).

The weight per cell was:

$$\frac{\text{Percentage in Population}}{\text{Percentage in the Achieved Sample}}$$

### Supervisor Questionnaire Weights

Supervisor weights (as with the teacher, student and parent questionnaire weights) were based on

match sample and population proportions by splitting the sample and population into cells. For the supervisor questionnaire weights the cells were based on the 13 administrative regions and subject (Arabic, mathematics, science, and English).



## Percentage of school principals (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>2f. This year, I have been going into the school building:</b>												
Daily	92	94	92	89	87	88	92	98	95	91	93	92
4-5 times a week	8	6	8	11	5	8	7	2	5	9	4	7
2-3 times a week	-	-	-	-	4	2	-	-	-	-	2	1
One day a week	-	-	-	0	4	2	1	-	1	0	2	1
<b>3a. During distance education, I would rate the following aspects of my role as:</b>												
Reviewing the academic achievement indicators for my school:												
Very easy	33	33	32	40	27	35	24	41	32	33	34	33
Easy	58	65	58	52	64	57	70	49	59	59	58	58
Difficult	9	1	10	8	9	9	6	4	5	8	5	8
Very difficult	-	2	0	-	-	-	-	7	3	-	3	1
Monitoring virtual classes and giving feedback to teachers in my school:												
Very easy	37	54	44	46	41	44	43	44	43	42	45	44
Easy	57	45	48	50	56	53	51	43	48	53	48	49
Difficult	6	2	9	1	3	2	6	13	9	4	7	6
Very difficult	-	-	-	3	-	2	-	-	-	1	-	1
Communicating with parents and updating them on their children's performance:												
Very easy	24	20	27	32	25	29	21	44	33	26	32	30
Easy	38	46	37	47	53	50	67	26	45	49	40	44
Difficult	35	35	35	21	18	20	10	24	17	23	23	24
Very difficult	3	-	2	-	4	2	3	7	5	2	5	3
Preparing teachers' attendance schedules and making sure all classes have a teacher present:												
Very easy	70	52	45	54	51	52	49	64	57	48	57	52
Easy	56	46	52	38	49	43	48	27	37	47	39	44
Difficult	5	2	3	8	-	4	3	9	6	5	4	5
Very difficult	-	-	-	1	-	0	1	-	0	0	-	0
<b>4a. Overall, my teachers' skills in online assessment and test building are:</b>												
Advanced	41	59	43	56	77	65	58	66	63	51	69	58
Satisfactory	52	34	51	43	23	35	40	34	37	45	30	40
Needing improvement	7	8	6	2	-	1	2	-	1	4	2	3
<b>4b. When a teacher is absent, the class is usually:</b>												
Given another teacher to deliver their online class												
	50	58	49	51	50	50	31	34	32	45	45	44
Given independent (extracurricular) work to do												
	34	26	33	24	28	26	43	26	34	33	27	31
Given the time off												
	16	16	19	25	22	24	26	40	34	22	29	26
<b>4c. Following up on teachers' written plans for assigned classes is:</b>												
Very easy	25	38	32	44	46	45	33	61	47	35	51	42
Easy	68	59	59	51	54	52	65	24	45	60	42	52
Difficult	7	2	9	5	-	3	1	15	8	5	7	7
Very difficult	-	-	-	-	-	-	-	-	-	-	-	-
<b>5a. Compared to previous years, the academic progress (e.g., content knowledge and skills in subjects such as science, Arabic language, etc.) of students in my school this year has:</b>												
Increased	48	87	61	65	74	69	57	44	51	57	64	61
Not changed	10	9	9	21	16	19	32	39	35	20	24	21
Decreased	48	4	30	14	10	13	12	17	14	23	12	18
<b>5b. I know this because:</b>												
I have clear data to show this	18	20	18	32	18	26	18	33	26	23	25	23
It is my professional judgement	50	29	41	42	26	36	27	19	23	41	24	33
Both	32	51	42	26	56	38	56	48	51	36	52	44
<b>5c. Compared to previous years, my students' skill development (e.g., creativity, problem solving, etc.) this year has:</b>												
Increased	52	74	59	76	77	76	84	81	83	70	78	73
Not changed	32	23	30	18	19	19	12	12	12	8	17	20
Decreased	15	3	11	6	5	5	4	7	5	21	5	7
<b>5d. I know this because:</b>												
I have clear data to show this												
	12	19	14	27	10	20	13	23	18	18	17	17
It is my professional judgement												
	60	45	51	41	29	36	46	20	33	49	28	40
Both	28	36	36	32	61	44	41	57	49	33	55	43
<b>5e. In my school, I would rate distance education for:</b>												
Meeting the needs of students of different ability levels across the school												
Very effective	13	30	18	37	28	34	18	35	27	24	31	27
Effective	35	46	35	48	40	45	67	33	50	49	38	43
Partly effective	50	22	45	14	32	22	13	26	20	26	28	28
Not effective	3	2	3	0	-	0	1	7	4	1	3	2
Allowing me to keep an overview of students' progress across the school												
Very effective	8	27	16	30	27	29	24	42	34	21	33	26
Effective	69	65	64	46	42	45	63	36	48	59	44	52
Partly effective	22	6	20	23	31	26	9	13	11	19	18	19
Not effective	1	2	1	1	-	1	4	10	7	2	5	3

## Percentage of school principals (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
Promoting students' ability to become independent learners												
Very effective	6	29	16	46	33	40	21	52	37	26	40	32
Effective	41	54	42	39	38	39	49	32	41	43	38	41
Partly effective	49	15	39	14	24	18	28	10	18	30	16	24
Not effective	3	2	3	1	5	3	1	7	4	2	5	3
Delivering the curriculum												
Very effective	15	45	26	51	34	44	23	29	26	31	34	33
Effective	46	44	43	45	48	46	58	51	55	49	49	48
Partly effective	39	11	31	4	18	10	19	19	19	20	17	19
Not effective	-	-	-	0	-	0	-	1	1	0	1	0
<b>6a. Compared to previous years, I have found distance education makes:</b>												
Communicating with parents and updating them on their children's performance:												
Easier	49	64	51	80	69	76	67	67	67	66	67	66
No change	33	8	27	15	22	13	27	17	22	24	13	20
More difficult	17	28	22	5	9	12	6	16	11	9	20	15
Allowing my teachers to regularly provide students with feedback about the quality of their work												
Easier	48	63	58	80	88	83	81	84	83	70	82	76
No change	43	27	34	6	9	7	16	12	14	21	14	17
More difficult	9	10	82	14	3	10	3	4	3	9	5	7
Engaging students in their learning												
Easier	55	79	62	79	92	84	84	86	85	72	87	78
No change	33	16	29	17	4	12	13	10	11	21	9	17
More difficult	12	6	9	4	4	4	4	4	4	7	5	6
<b>7a. The impact of distance education on the mental and physical health of students in my school has been:</b>												
Positive	42	58	43	70	67	69	58	54	56	57	60	57
Neutral	40	28	32	13	19	16	25	24	24	25	23	23
Negative	18	14	26	17	14	16	17	22	20	17	17	20
<b>7b1. The impact of distance education on the mental and physical health of teachers in my school has been:</b>												
Positive	70	75	66	81	75	79	73	64	69	75	70	72
Neutral	21	19	19	16	10	14	17	24	20	18	18	18
Negative	9	5	15	3	14	8	9	13	11	7	12	11
<b>7b2. The impact of distance education on the mental and physical health of the principal my school has been:</b>												
Positive	35	77	45	74	57	67	66	70	68	58	66	61
Neutral	49	18	35	18	26	21	31	9	20	32	17	25
Negative	17	6	20	9	17	12	3	21	12	10	17	14
<b>7c. Compared to previous years, levels of teacher absence in my school during distance education have been:</b>												
Higher	4	17	7	8	9	8	7	9	8	6	11	8
About the same	5	4	4	3	2	3	7	-	3	4	2	3
Lower	91	80	89	90	89	90	87	91	89	89	88	89
<b>7d. Once schools open again, I think students will need this amount of time to catch up with their learning:</b>												
Less than one semes	63	76	65	83	72	78	75	73	75	74	73	73
One semester	30	23	29	6	19	11	20	14	16	18	17	18
Two semesters	5	2	4	11	10	11	5	5	5	7	6	7
12+ months	2	-	1	-	-	-	-	8	4	1	4	2
<b>7e. If schools have a hybrid or blended approach (combining face-to-face teaching and distance education) in the future, I think it will be:</b>												
Very effective	37	41	33	52	54	53	57	49	52	48	50	47
Effective	52	25	45	31	28	30	30	30	31	38	29	35
Partly effective	8	15	11	18	14	16	12	11	11	13	13	13
Not effective	3	19	11	0	4	2	2	10	6	2	9	6
<b>7f. I find that the benefits of distance education are:</b>												
It leads to a closer relationship between teacher and students in class												
Yes	87	77	76	90	94	92	90	89	90	89	89	86
No	13	23	24	10	6	9	10	11	10	11	11	14
It connects the school community as a whole (students/parents/teachers) together												
Yes	91	81	90	91	98	94	91	91	91	91	92	92
No	9	19	10	9	2	6	10	9	9	9	8	8
It results in a more efficient learning environment leading to better student learning												
Yes	81	94	84	85	83	84	87	87	87	84	87	85
No	19	7	16	15	18	16	13	13	13	16	14	15
It helps students to be more engaged in the lesson												
Yes	88	85	82	83	83	83	89	82	85	86	83	84
No	13	15	18	17	17	17	11	18	15	14	17	17

## Percentage of school principals (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
It provides better opportunities for personalized learning												
Yes	95	97	91	100	91	96	94	97	96	97	94	94
No	5	4	9	0	10	4	6	3	5	4	6	6
It provides better opportunities for parents to engage in their child's learning												
Yes	99	98	99	98	95	97	96	98	97	98	97	97
No	1	2	1	2	5	3	4	3	3	2	3	3
It reduces my overall workload												
Yes	95	81	84	96	90	94	90	89	89	94	88	90
No	5	19	16	4	10	6	10	11	11	6	12	10
It provides more choices for delivering lessons, making teaching more interesting												
Yes	92	94	93	89	87	88	86	85	85	89	87	89
No	8	6	7	11	13	12	14	15	15	11	13	11
<b>7g. I think that the constraints to distance education are:</b>												
A lack of opportunities for students to learn social skills												
Yes	93	68	86	65	64	65	74	61	68	77	64	72
No	8	32	14	35	36	35	26	39	32	23	36	28
It is difficult to engage students for the full lesson												
Yes	87	52	78	67	67	67	65	58	61	73	60	68
No	13	49	22	33	33	33	35	43	39	27	40	32
It restricts the teachers' ability to determine how well the students are following the lesson												
Yes	86	71	79	49	67	56	52	57	55	62	63	63
No	14	29	21	51	33	44	48	43	45	38	37	37
It creates more work for me												
Yes	84	57	77	55	77	65	58	45	49	65	60	64
No	16	43	23	45	23	36	42	55	51	35	40	36
It requires too much screen time												
Yes	96	98	97	99	94	97	96	95	96	97	95	97
No	4	2	3	1	6	3	4	5	5	3	5	4
The scheduled times for online classes affect my family life (prevents me from spending time with my family)												
Yes	66	53	59	59	42	42	14	32	23	42	61	41
No	35	47	41	41	58	59	86	68	77	58	40	60
It creates more opportunities for (cyber) bullying												
Yes	40	37	45	61	40	39	24	43	34	35	41	39
No	60	63	55	39	60	61	76	57	66	65	59	61
There is too much parental interruption												
Yes	45	80	58	58	43	52	30	42	36	46	49	48
No	55	20	42	52	57	48	70	58	64	54	51	52
<b>7h. What would you like to see happen in the future?</b>												
A return to in-person school as soon as possible												
Yes	82	85	85	75	70	73	70	68	69	76	72	75
No	18	15	16	25	30	27	30	32	31	24	28	25
Teachers and students continuing to use Madrasati and digital content in the classroom and for homework when schools reopen for in-person education												
Yes	87	76	82	90	91	90	94	81	88	90	84	87
No	13	24	19	10	9	10	6	18	12	10	16	13
Some days of the week in school and some days learning from home												
Yes	74	72	67	80	65	73	90	54	70	81	61	70
No	26	28	34	20	35	27	10	46	30	20	39	30
The option for students to learn full-time from home												
Yes	40	44	36	64	57	61	51	47	50	53	51	50
No	60	56	64	36	43	39	49	53	51	48	50	50
More digital content created for teachers and students to use												
Yes	97	99	98	99	100	99	96	92	94	98	96	97
No	3	1	2	1	0	1	4	8	6	2	4	3
Improvements in the quality of the digital content												
Yes	97	100	98	98	99	99	94	99	97	97	99	98
No	3	-	2	2	1	1	6	1	3	3	1	2



## APPENDIX D. TEACHER QUESTIONNAIRE RESPONSES

Percentage of teachers

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>1a. I am a:</b>												
Male teacher	100	-	52	100	-	50	100	-	49	100	-	50
Female teacher	-	100	48	-	100	50	-	100	51	-	100	50
<b>1a. I teach grade:</b>												
3 elementary	40	46	43	-	-	-	-	-	-	11	13	
6 elementary	60	54	57	-	-	-	-	-	-	18	15	
3 intermediate	-	-	-	100	100	100	-	-	-	32	32	
3 secondary	-	-	-	-	-	-	100	100	100	39	42	
<b>1b. I teach:</b>												
Arabic	44	37	41	32	27	30	17	23	20	30	28	29
Math	28	29	28	24	24	24	19	18	18	23	23	23
Science	18	21	20	24	27	25	49	46	47	32	33	33
English	10	13	11	20	22	21	16	13	15	15	16	16
<b>1c. I teach:</b>												
Male students	98	3	52	97	-	49	98	-	47	68	1	49
Female students	1	90	44	3	100	51	2	100	52	2	97	50
F+M students	<1	6	3	-	-	-	<1	<1	<1	<1	2	1
<b>1d. I have been teaching for:</b>												
Less than 1 year	-	<1	<1	-	-	-	-	<1	<1	-	<1	<1
1 to 5 years	9	5	7	18	8	13	12	13	13	13	9	11
6 to 10 years	13	22	17	25	30	27	15	33	24	18	29	23
More than 10 years	78	74	76	57	62	60	72	54	63	69	62	66
<b>2a. I would rate my skills for distance education before the COVID-19 pandemic as:</b>												
Advanced	36	53	44	32	39	35	32	42	37	33	44	39
Satisfactory	52	42	47	58	55	56	54	49	51	55	49	52
Needing improver	12	4	9	11	6	8	14	9	11	12	7	10
<b>2b. This year, my skills have increased in:</b>												
Planning effective lessons												
A lot	76	94	85	79	89	84	75	90	83	77	91	84
A little	3	3	3	1	-	1	4	1	2	3	1	2
Not at all	21	4	13	20	11	15	21	9	15	21	8	14
Delivering effective lessons												
A lot	77	92	85	81	89	85	76	88	82	78	90	84
A little	3	2	3	3	1	2	3	1	2	3	1	2
Not at all	20	6	13	16	9	13	21	11	15	19	9	14
Classroom behavioral management												
A lot	82	86	84	71	84	78	75	79	77	76	82	79
A little	2	3	3	5	2	3	8	3	5	6	3	4
Not at all	16	11	13	24	14	19	17	19	18	19	15	17
Managing my time												
A lot	83	85	84	80	85	83	79	89	84	81	87	84
A little	3	2	3	4	3	4	5	2	3	4	2	3
Not at all	14	13	14	16	11	14	14	9	12	15	11	13
Engaging and motivating my students												
A lot	78	88	83	68	82	75	65	21	73	70	83	76
A little	3	4	3	7	3	5	10	4	7	7	4	5
Not at all	19	8	14	25	15	21	26	15	20	24	13	18
Assessing my students' progress												
A lot	68	86	76	68	80	74	64	85	75	66	84	75
A little	5	4	5	7	2	4	9	4	6	7	3	5
Not at all	27	10	19	25	18	22	28	11	19	27	13	20
<b>2c. I would describe the level of communication and advice I received to help me prepare for distance education as:</b>												
Too much	33	44	38	26	38	32	25	36	31	28	39	33
About right	54	48	51	64	53	58	53	55	54	57	52	54
Too little	11	7	9	9	8	8	18	7	12	13	7	10
None	2	2	2	1	2	2	13	2	3	3	2	2
<b>2d. The following helped me during distance education:</b>												
Advice from MOE												
A lot	48	49	48	67	48	42	37	48	43	40	48	44
About right	26	36	31	37	34	35	29	35	32	30	35	32
A little	18	13	16	21	14	17	21	14	17	20	14	17
Not at all	8	3	5	6	4	5	13	3	8	9	3	6
Advice from Education departments												
A lot	40	42	1	33	41	37	33	35	34	35	39	37
About right	27	40	33	36	37	37	27	42	34	30	40	35
A little	25	13	19	20	16	18	23	16	19	22	15	19
Not at all	9	6	7	11	6	8	18	7	12	13	6	10

## Percentage of teachers (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
Advice from Education offices												
A lot	42	44	43	34	44	39	37	34	36	37	40	39
About right	31	37	34	38	36	37	26	45	36	31	40	36
A little	20	13	17	17	16	16	23	14	18	20	14	17
Not at all	8	6	7	11	4	8	14	7	10	11	6	9
Madrasati technical support (phone/ticketing/call center/chat bot/FAQ)												
A lot	36	39	38	28	35	32	34	35	34	33	36	34
About right	27	37	32	34	34	34	26	23	29	28	34	31
A little	22	16	19	22	18	20	21	18	20	22	18	20
Not at all	15	8	12	16	13	14	19	15	17	17	12	15
Advice from other teachers												
A lot	54	58	56	57	59	58	59	62	61	57	60	58
About right	22	29	25	26	27	26	24	29	26	24	28	26
A little	27	10	14	13	12	12	13	8	10	15	10	12
Not at all	7	3	5	4	3	3	4	2	3	5	2	4
Advice from my school principal												
A lot	73	65	69	71	60	66	69	60	64	71	61	66
About right	18	27	22	19	32	26	17	30	24	18	30	24
A little	7	6	7	7	7	7	12	8	10	9	7	8
Not at all	2	2	2	2	1	2	1	2	2	2	2	2
Advice from my supervisor												
A lot	46	54	50	51	52	51	47	48	47	48	51	49
About right	33	31	32	32	30	31	30	35	32	32	32	32
A little	15	10	13	10	14	12	14	12	13	13	12	13
Not at all	5	5	5	7	4	6	10	5	7	8	5	6
Professional development courses												
A lot	38	58	48	37	49	43	35	47	41	36	51	44
About right	32	29	31	36	39	37	29	40	34	32	37	34
A little	23	11	17	19	10	15	29	13	21	24	12	18
Not at all	7	2	4	8	2	5	8	<1	4	8	1	4
Educational Resources found through searching the Internet												
A lot	61	75	68	63	75	69	60	73	67	62	74	68
About right	20	17	19	23	20	22	23	23	23	22	20	21
A little	17	8	12	10	5	8	13	3	8	14	5	9
Not at all	1	1	1	3	-	2	3	<1	2	3	<1	2
Guidance from Back to School portal												
A lot	30	39	34	27	31	29	26	29	28	28	32	30
About right	26	35	30	31	37	34	26	41	34	28	38	33
A little	23	16	20	23	20	21	28	18	23	25	18	21
Not at all	21	10	16	19	12	16	19	12	16	20	12	16
Advice from professional learning communities												
A lot	35	42	39	32	45	38	33	41	37	33	43	38
About right	28	37	32	33	36	34	27	37	32	29	37	33
A little	26	13	20	21	13	17	25	16	21	24	14	19
Not at all	10	8	9	14	6	10	15	5	10	13	6	10
<b>2e. Overall, I find that accessing the information and support I need to implement distance education is:</b>												
Very easy	42	41	41	44	43	44	40	36	38	42	40	41
Easy	52	54	53	48	52	50	51	61	56	50	56	53
Difficult	4	4	4	6	5	6	8	3	6	6	4	5
Very difficult	2	1	2	2	<1	1	1	<1	1	2	<1	1
<b>3a. When I teach my lessons, I use:</b>												
Madrasati												
Always	80	91	86	83	93	88	88	92	90	84	92	88
Often	10	3	7	10	5	8	8	6	7	10	5	7
Sometimes	9	4	6	4	2	3	3	2	2	5	2	4
Never	1	1	1	2	-	2	1	-	1	1	<1	1
Microsoft Teams												
Always	76	74	80	80	87	84	86	85	86	81	85	83
Often	11	7	9	10	7	9	7	5	6	9	6	8
Sometimes	10	8	9	8	6	7	5	9	7	8	8	8
Never	2	1	2	1	1	1	1	1	1	2	1	1
Other Microsoft Office 365 products (e.g., OneNote, Forms, PowerPoint, Word)												
Always	39	65	52	44	70	57	38	73	56	40	70	55
Often	31	21	26	22	17	20	30	17	23	28	18	23
Sometimes	26	11	19	31	12	21	24	10	17	27	11	19
Never	3	3	3	3	1	2	9	<1	4	5	1	3

## Percentage of teachers (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
IEN National Education Portal												
Always	37	40	33	30	36	33	22	30	26	26	34	30
Often	23	21	22	19	29	24	24	22	23	22	24	23
Sometimes	39	35	37	41	32	36	39	42	41	40	37	38
Never	11	5	8	11	3	7	15	6	10	13	5	9
IENTV channels												
Always	12	22	17	11	16	13	10	12	11	11	16	13
Often	11	19	15	13	17	15	12	16	14	12	17	14
Sometimes	44	38	41	44	47	46	42	48	45	43	45	44
Never	33	21	27	32	20	26	36	24	30	34	22	28
YouTube channels												
Always	19	39	29	22	37	29	23	26	24	21	33	27
Often	20	18	19	23	23	23	20	24	22	21	22	22
Sometimes	46	33	40	39	36	38	44	43	43	43	38	40
Never	15	10	13	16	4	10	13	7	10	14	7	11
Hardcopy textbooks												
Always	38	45	41	34	40	37	30	38	34	34	41	37
Often	28	19	23	22	20	21	32	21	26	27	20	24
Sometimes	25	28	26	32	31	32	31	32	32	30	30	30
Never	10	8	9	12	8	10	6	10	8	9	9	9
Educational sites and apps (e.g., edu-games, platforms, quizzes, etc.)												
Always	33	49	41	14	47	30	22	41	32	23	45	34
Often	20	30	25	29	31	30	27	30	28	25	30	28
Sometimes	35	20	28	43	20	32	41	26	33	40	23	31
Never	12	1	7	14	2	8	10	3	6	12	2	7
E-books												
Always	52	62	57	52	54	53	43	50	46	48	55	52
Often	18	14	16	21	20	20	23	27	25	21	21	21
Sometimes	22	21	22	20	22	21	24	19	21	22	20	21
Never	8	3	5	7	4	5	10	5	8	8	4	6

**3b. Outside virtual classes, I ask my students to use (assignments/tasks homework):**

Madrasati												
Every day	43	65	54	35	64	50	32	56	44	36	61	49
Weekly	43	24	34	45	25	35	49	34	41	46	28	37
Occasionally	11	10	11	18	10	14	19	8	13	16	9	13
Never	2	1	1	2	<1	1	1	1	1	2	1	1
Microsoft Office 365 products (e.g., OneNote, Forms, PowerPoint, Word)												
Every day	24	33	29	24	34	29	20	29	25	22	32	27
Weekly	27	32	30	28	29	29	28	33	31	28	31	30
Occasionally	39	31	35	43	34	39	41	35	38	41	34	37
Never	10	4	7	5	3	4	12	3	7	9	3	6
IEN National Education Portal												
Every day	22	26	24	23	30	26	17	23	20	21	26	23
Weekly	11	22	16	20	14	17	20	12	16	17	16	16
Occasionally	54	40	47	35	46	41	49	50	49	46	46	46
Never	13	11	12	22	10	16	15	15	15	17	12	14
IENTV channels												
Every day	10	20	15	15	20	17	13	12	13	13	17	15
Weekly	13	15	14	9	11	10	12	46	11	12	11	11
Occasionally	51	42	47	44	48	46	45	9	46	46	45	46
Never	26	23	24	32	22	27	30	33	31	29	27	28
YouTube channels												
Every day	15	26	21	24	27	26	20	17	19	20	23	21
Weekly	12	16	14	17	16	16	17	12	14	15	14	15
Occasionally	57	45	51	38	47	42	48	56	52	47	50	49
Never	16	13	15	21	11	16	16	15	15	17	13	15
Hardcopy /electronic textbooks												
Every day	49	52	50	44	57	51	38	49	44	43	53	48
Weekly	16	19	17	16	9	12	19	13	14	17	13	15
Occasionally	29	26	28	30	30	30	35	31	33	32	30	31
Never	6	3	4	11	4	7	8	6	7	8	5	6
Educational games												
Every day	11	32	21	9	27	18	6	20	13	8	25	17
Weekly	19	24	21	13	23	18	9	23	16	13	23	18
Occasionally	54	38	46	50	42	46	49	47	48	50	43	47
Never	17	6	12	29	8	18	36	10	23	28	8	18

## Percentage of teachers (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>3c. When conducting lessons, I use:</b>												
A smartphone												
Always	37	31	34	24	21	23	26	19	23	29	23	26
Often	11	15	13	15	14	14	13	13	13	13	14	13
Sometimes	33	31	32	33	38	36	33	36	35	33	36	34
Never	19	23	21	28	27	27	28	32	30	25	28	27
A tablet												
Always	18	20	19	9	18	14	12	15	13	13	17	15
Often	6	10	8	9	9	9	8	19	8	8	9	8
Sometimes	22	20	21	22	24	23	22	8	21	22	21	22
Never	54	51	52	60	48	54	58	58	58	57	53	55
A laptop												
Always	55	69	61	61	80	70	58	82	70	58	78	68
Often	10	13	12	13	9	11	14	5	9	13	8	11
Sometimes	27	14	21	18	9	14	17	9	13	20	10	15
Never	8	4	6	8	2	5	10	5	7	9	4	6
A PC (desktop)												
Always	17	18	18	12	7	10	13	15	14	14	13	14
Often	3	6	4	7	5	6	8	14	6	6	5	6
Sometimes	15	16	16	16	17	17	16	4	15	16	16	16
Never	65	60	62	64	71	67	63	67	65	64	66	65
<b>4a. I conduct virtual classes:</b>												
Always	84	94	89	83	94	88	87	94	91	85	94	89
Often	7	1	4	9	3	6	7	2	5	7	3	5
Sometimes	9	5	7	8	3	5	6	4	5	8	3	6
Never	-	-	-	-	-	-	-	-	-	-	-	-
<b>4b. The teaching and learning materials I have used for my lessons this year have been different to the content I used in previous years:</b>												
I am using a mixture of	58	58	58	59	61	60	54	61	58	57	60	58
No, I am still mostly	19	15	17	22	16	19	25	15	20	23	15	19
Yes, my lessons incc	23	27	25	19	23	21	20	25	23	21	25	23
<b>4c. I set assignments and homework for my students to carry out between my live virtual classes:</b>												
Always	50	66	58	43	65	54	50	62	56	47	64	56
Often	32	21	26	30	25	27	26	21	23	29	22	25
Sometimes	16	10	13	22	8	15	21	12	16	20	10	15
Never	2	3	3	6	2	4	3	5	4	4	4	4
<b>4d. I create plans for students who are struggling and falling behind:</b>												
It hasn't been needec	32	39	35	36	29	33	39	41	40	36	37	36
For a few struggling :	28	24	26	33	27	30	31	20	25	31	23	27
For all struggling stuc	40	37	39	31	44	37	30	40	35	33	40	37
<b>4e. The individual feedback I give to my students is through:</b>												
Test or quiz scores												
Every day	21	31	26	17	26	21	15	16	16	18	23	20
Weekly	46	39	43	39	42	41	42	50	46	42	45	44
Occasionally	32	29	31	43	32	38	41	33	37	39	32	35
Never	1	-	<1	1	-	<1	1	1	1	1	<1	1
Written comments												
Every day	23	35	29	18	31	24	24	31	28	22	32	27
Weekly	29	22	26	25	23	24	25	20	22	26	22	24
Occasionally	43	39	42	52	44	48	44	43	44	46	42	44
Never	5	4	4	6	2	4	7	6	6	6	4	5
Verbal or voice comments												
Every day	58	66	62	57	74	66	54	67	61	56	69	63
Weekly	15	10	13	16	10	13	21	12	16	18	11	14
Occasionally	25	22	23	24	15	20	24	18	21	24	18	21
Never	2	2	2	2	1	2	1	3	2	2	2	2
<b>4f. I give individual feedback to my students:</b>												
Every day	26	32	29	16	24	20	19	28	24	20	28	24
Weekly	20	24	22	22	22	22	23	14	18	22	19	20
Occasionally	47	40	44	56	49	52	50	51	50	51	47	49
Never	7	4	5	6	5	6	9	8	8	7	6	7
<b>4g. I give individual feedback to my students using:</b>												
Email												
Every day	8	12	10	9	4	7	7	9	8	8	8	8
Weekly	13	12	12	8	13	10	10	12	11	10	12	11
Occasionally	31	29	30	34	45	39	40	44	42	35	40	38
Never	48	47	47	49	38	44	43	35	39	46	39	43

## Percentage of teachers (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
Phone												
Every day	19	22	20	11	15	13	11	9	10	13	14	14
Weekly	9	11	10	8	6	7	10	8	9	9	9	9
Occasionally	38	42	40	37	36	36	41	33	37	39	36	38
Never	34	24	29	44	43	44	38	50	44	39	41	40
In-person (student comes to school)												
Every day	8	10	9	9	3	6	8	3	5	8	5	6
Weekly	4	7	6	6	2	4	6	4	5	6	4	5
Occasionally	35	26	31	32	32	32	34	21	27	34	26	30
Never	52	57	54	53	63	58	52	73	63	52	66	59
Social media												
Every day	29	55	42	18	28	23	20	39	30	22	40	31
Weekly	15	13	14	11	15	13	9	15	12	11	14	13
Occasionally	34	25	30	38	38	38	45	33	39	39	32	36
Never	22	6	15	33	19	26	26	14	20	27	13	20
Madrasati												
Every day	62	72	67	58	71	65	57	60	59	59	67	63
Weekly	14	10	12	17	11	14	14	14	14	15	12	14
Occasionally	22	14	18	23	15	19	26	22	23	24	17	20
Never	2	4	3	2	3	2	3	5	4	2	4	3
Office 365												
Every day	23	25	24	21	29	25	18	31	25	20	29	25
Weekly	27	31	29	22	31	26	27	23	25	25	28	27
Occasionally	40	36	38	42	34	38	39	39	39	40	37	38
Never	11	7	9	14	6	10	16	7	11	14	7	10
<b>4h. I share teaching and learning resources with other teachers:</b>												
Every day	13	20	16	12	14	13	11	14	12	12	16	14
Weekly	14	22	18	19	17	18	15	15	15	16	18	17
Occasionally	57	54	55	55	64	60	57	62	60	57	61	59
Never	16	4	10	13	5	9	17	8	13	16	6	11
<b>5a. Distance education has helped my students develop skills in:</b>												
Creativity												
A lot	61	83	72	55	75	65	58	78	68	58	78	69
A little	5	2	3	6	1	4	7	2	4	6	2	4
Not at all	34	15	25	39	23	31	35	20	28	36	20	28
Collaboration and teamwork												
A lot	58	61	60	53	56	54	59	65	62	57	61	59
A little	7	6	7	8	7	7	8	6	7	8	6	7
Not at all	34	34	34	40	37	38	33	29	31	35	33	34
Critical thinking												
A lot	50	69	59	48	66	57	47	65	56	48	66	57
A little	5	2	3	6	3	5	12	2	7	8	2	5
Not at all	46	29	38	46	31	39	41	33	37	44	31	38
Problem solving												
A lot	57	71	64	57	72	64	55	72	64	56	72	64
A little	3	2	2	5	2	3	8	1	5	5	2	4
Not at all	40	28	34	38	27	32	37	26	31	38	27	32
Digital literacy												
A lot	78	83	80	79	86	82	72	89	80	76	86	81
A little	1	1	1	1	1	1	3	1	2	2	1	1
Not at all	21	16	19	20	13	17	25	11	18	22	13	18
Time management												
A lot	70	81	75	70	83	76	70	76	73	70	80	75
A little	2	2	2	4	2	3	4	1	2	4	2	3
Not at all	28	16	22	26	15	21	26	23	25	26	19	23
Independent learning												
A lot	66	79	72	75	85	80	74	86	80	72	74	78
A little	1	3	2	3	1	2	4	1	2	3	1	2
Not at all	33	18	26	21	14	18	23	13	18	25	15	20
Digital etiquette												
A lot	62	78	70	74	52	78	73	87	80	70	83	77
A little	4	1	3	2	1	2	3	1	2	3	1	2
Not at all	34	20	27	23	17	20	24	12	18	27	16	21
<b>5b. I have been able to deliver the lessons that were expected of me this year:</b>												
All or nearly all of the	88	93	90	82	96	89	85	95	90	85	95	89
Most of them	11	7	9	18	4	11	15	5	9	15	5	10
Only a few of them	1	-	1	-	-	-	<1	-	<1	<1	-	<1

## Percentage of teachers (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>5c. Compared to previous years, my students' academic progress (content knowledge) this year has been:</b>												
Higher/better	67	76	72	59	70	64	62	73	68	62	73	68
Did not change	22	18	20	26	23	24	20	20	20	22	20	21
Decreased	11	5	8	15	7	11	18	7	13	15	7	11
<b>5d. I know this because:</b>												
I have data to show it	24	23	24	19	21	20	24	22	23	22	22	22
It is my professional	41	34	37	45	40	43	41	37	39	42	37	40
Both	35	43	39	36	39	38	36	41	39	36	41	38
<b>5e. Compared to previous years, my students' skills (e.g., creativity, problems solving, etc.) this year are:</b>												
Higher/better	71	75	73	63	73	68	59	72	65	64	73	68
Did not change	21	19	20	20	20	20	24	22	23	22	20	21
Decreased	8	6	7	17	8	12	17	7	12	14	7	11
<b>5f. I know this because:</b>												
I have data to show it	20	20	20	19	17	18	24	19	22	22	19	20
It is my professional	47	38	43	46	44	45	41	37	39	44	40	42
Both	33	42	37	35	39	37	35	44	40	34	42	38
<b>5g. I have found distance education effective for:</b>												
Engaging my students												
Very effective	39	38	38	29	27	28	25	30	28	30	31	31
Effective	32	29	30	34	35	34	38	32	35	35	32	33
Partly effective	21	31	26	29	33	31	27	32	30	26	32	29
Not effective	9	3	6	8	6	7	10	5	8	9	5	7
Delivering the curriculum												
Very effective	42	54	48	40	49	44	38	47	43	40	50	45
Effective	41	31	36	42	35	38	42	38	40	41	35	38
Partly effective	11	14	13	18	14	16	15	14	14	15	14	14
Not effective	6	1	3	1	2	2	5	1	3	4	1	3
Meeting the needs of students of different ability levels in my class												
Very effective	31	34	33	27	34	31	26	33	30	28	34	31
Effective	40	40	40	39	37	38	41	42	42	40	40	40
Partly effective	25	24	25	31	28	29	23	22	22	26	25	25
Not effective	3	1	2	3	2	3	10	2	6	6	2	4
Allowing me to assess accurately my students' progress												
Very effective	36	36	36	29	37	33	29	34	31	31	35	33
Effective	38	39	38	41	33	37	29	37	38	39	37	38
Partly effective	19	22	21	23	27	25	24	24	24	22	25	23
Not effective	7	2	5	7	3	5	9	5	7	8	4	6
Allowing me to regularly provide students with feedback about the quality of their work												
Very effective	39	40	39	31	39	35	30	40	35	33	40	36
Effective	36	43	39	42	41	41	41	45	43	40	43	41
Partly effective	23	16	19	24	19	22	23	14	19	23	16	20
Not effective	3	<1	2	4	1	2	5	1	3	4	1	2
Promoting my students' ability to become independent learners (self-directed)												
Very effective	40	38	39	32	42	37	28	39	34	33	40	36
Effective	33	41	37	39	42	40	45	46	45	39	43	41
Partly effective	22	19	21	23	16	19	23	14	18	23	16	19
Not effective	5	2	3	7	1	4	5	1	2	5	1	3
<b>6a. I do the following to help engage my students</b>												
Vary my voice to gain attention (including changing tone of voice to express feelings)												
Always	67	85	76	60	79	69	57	76	67	61	80	70
Often	24	10	18	32	16	24	31	16	23	29	15	22
Sometimes	9	4	6	8	4	6	10	7	9	9	5	7
Never	1	<1	<1	1	1	1	1	<1	1	1	<1	1
Use student-centered discussions												
Always	46	63	54	42	65	53	41	60	51	43	62	53
Often	35	26	31	39	25	32	36	25	30	36	25	31
Sometimes	16	10	13	18	9	14	22	15	18	19	12	15
Never	4	<1	2	2	1	1	1	<1	<1	2	<1	1
Turn my camera on												
Always	14	12	13	9	4	6	8	4	6	10	6	8
Often	7	5	6	7	3	5	10	4	7	8	4	6
Sometimes	40	15	28	26	17	21	30	10	68	31	14	22
Never	39	68	53	58	76	67	52	82	19	50	77	63
Ask my students to turn their cameras on												
Always	7	7	7	3	1	2	2	3	3	4	3	4
Often	4	10	7	5	3	4	3	1	2	4	4	4
Sometimes	32	34	33	16	10	13	20	5	13	22	15	18
Never	57	50	54	76	86	81	74	90	82	70	78	74
Use avatars/Bitmojis												



## Percentage of teachers (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>7c. If schools had a hybrid or blended approach (combining face-to-face teaching and distance education) in the future, I think it would be:</b>												
Very effective	55	55	55	56	53	55	59	59	59	57	56	56
Effective	19	22	20	30	22	26	23	20	22	24	21	23
Partly effective	23	19	21	10	19	15	10	15	13	14	18	16
Not effective	3	4	4	5	5	5	7	5	6	5	5	5
<b>7d. The aspects of distance education that will be useful after the pandemic are:</b>												
Recorded lessons by the teacher												
Very useful	49	64	56	50	53	52	54	55	55	51	57	51
Useful	40	31	36	41	35	38	35	38	36	38	35	37
Not useful	11	5	8	9	13	11	11	7	9	10	8	9
Madrasati												
Very useful	71	79	75	75	75	75	71	77	74	72	77	75
Useful	27	20	24	24	23	23	23	21	22	25	21	23
Not useful	2	1	1	1	3	2	6	2	4	3	2	2
Microsoft Teams												
Very useful	68	79	73	79	80	79	79	86	83	76	81	79
Useful	30	20	25	20	19	20	19	13	16	23	17	20
Not useful	2	<1	1	1	1	1	1	1	1	1	1	1
Other Microsoft Office 365 products												
Very useful	52	72	62	62	73	68	64	76	70	60	74	67
Useful	41	26	34	35	23	29	30	23	26	35	24	29
Not useful	6	2	5	3	4	3	6	1	4	5	2	4
IEN National Education Portal												
Very useful	42	57	49	48	58	53	49	49	49	47	54	50
Useful	49	41	45	44	39	42	42	26	44	45	42	44
Not useful	9	2	5	7	4	6	9	5	7	8	4	6
IEN TV channels												
Very useful	34	50	42	36	46	41	38	44	41	36	46	41
Useful	51	41	47	47	40	44	45	46	45	48	43	45
Not useful	14	9	12	17	14	15	17	10	13	16	11	14
YouTube channels												
Very useful	45	57	51	52	62	57	54	56	55	51	58	54
Useful	48	40	44	42	33	38	41	42	41	44	39	41
Not useful	7	3	5	6	5	5	5	3	4	6	3	5
<b>7e. I find that the benefits of distance education are:</b>												
It leads to a closer relationship between teacher and students in class												
Yes	82	92	87	79	87	83	71	86	79	77	88	82
No	18	8	13	21	13	17	29	14	21	23	12	18
It connects the school community as a whole (students/parents/teachers)												
Yes	88	97	92	86	93	89	77	90	84	83	93	88
No	12	3	8	14	7	11	23	10	16	17	7	12
It results in a calmer classroom leading to better learning												
Yes	83	91	97	78	86	82	73	84	78	77	86	82
No	17	9	13	22	14	18	27	16	22	23	14	18
It helps students to be more engaged in the lesson												
Yes	82	89	85	77	80	78	73	81	77	77	83	80
No	18	11	15	23	20	22	27	19	23	23	17	20
It helps students concentrate better												
Yes	74	80	77	70	69	70	64	71	68	69	73	71
No	26	20	23	30	31	30	36	19	32	31	27	29
It provides better opportunities for self-directed learning												
Yes	92	96	94	95	96	95	92	96	94	93	96	94
No	8	4	6	5	4	5	8	4	6	7	4	6
It provides better opportunities for parents to engage in their child's learning												
Yes	97	98	97	96	96	96	91	96	93	94	97	95
No	3	2	3	4	4	4	9	4	7	6	3	5
It reduces my workload and required time												
Yes	83	85	85	85	86	85	87	85	86	85	85	85
No	17	15	15	15	14	15	13	15	14	15	15	15
It provides more choices, making teaching more interesting												
Yes	91	89	90	90	91	91	86	92	89	89	91	90
No	9	11	10	10	9	9	14	8	11	11	9	10
<b>7f. I think that the constraints to distance education are:</b>												
It gives a lack of opportunities for students to learn social skills												
Yes	72	75	73	72	78	75	77	78	78	74	77	76
No	28	25	27	28	22	25	23	22	22	26	23	24
It is difficult to engage students throughout the lesson's required time												
Yes	67	65	66	66	66	66	66	69	68	66	67	67
No	33	35	34	34	34	34	34	31	32	34	33	33



## Percentage of teachers (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
It is difficult to determine how well the students are understanding the lesson												
Yes	65	54	60	60	63	62	58	61	59	60	60	60
No	35	46	40	40	37	38	42	39	41	40	40	40
It creates more work for me												
Yes	46	56	51	45	51	48	39	53	46	43	53	48
No	54	44	49	55	49	52	61	47	54	57	47	52
It requires too much screen time												
Yes	80	85	82	79	84	81	77	88	82	78	86	82
No	20	15	18	21	16	19	23	12	18	22	14	18
The scheduled times for virtual classes affect my family life (prevent me from spending time with my family)												
Yes	48	64	56	29	38	34	26	40	33	33	46	40
No	52	36	44	71	62	66	74	60	67	67	54	60
It creates more opportunities for (cyber)bullying												
Yes	24	26	26	14	16	15	16	15	15	18	18	18
No	76	74	75	86	84	85	84	85	85	82	82	82
Parental interruption of virtual classes												
Yes	51	53	52	31	35	33	36	30	33	39	38	38
No	49	47	48	69	65	67	64	70	67	61	62	62
<b>7g. The impact of distance education approaches on my own mental and physical health has been:</b>												
Positive	38	44	41	51	50	50	45	43	44	45	45	45
Neutral	46	37	42	39	32	35	41	39	10	42	36	39
Negative	16	19	17	10	18	14	14	19	17	13	18	16
<b>7i. What would you like to see happen in the future?</b>												
A return to in-person school as soon as possible												
Yes	73	70	72	64	54	59	60	57	59	65	60	63
No	27	30	28	36	46	41	40	43	41	35	40	37
Teachers and students continuing to use Madrasati and digital content in the classroom and for homework when schools reopen for in-person ed												
Yes	79	75	77	83	76	79	84	77	80	82	76	79
No	21	25	23	17	24	21	16	23	20	18	24	21
Some days of the week in school and some days learning from home												
Yes	69	71	70	79	67	73	75	72	73	75	70	72
No	31	30	30	21	33	27	25	28	27	25	30	28
The option for students to learn full-time from home												
Yes	53	56	54	58	60	59	65	63	64	59	60	60
No	47	44	46	42	40	41	35	37	36	41	40	40
More digital content created for teachers and students to use												
Yes	86	88	87	90	87	89	90	87	89	89	87	88
No	14	12	13	10	13	11	10	13	11	11	13	12
Improvements in the quality of the digital content												
Yes	92	93	93	94	94	94	95	94	94	94	94	94
No	8	7	7	6	6	6	5	6	6	6	6	6

## APPENDIX E. STUDENT QUESTIONNAIRE RESPONSES

Percentage of students

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>1a. I am in grade:</b>												
Grade 3	49	51	50	-	-	-	-	-	-	11	14	13
Grade 6	51	49	50	-	-	-	-	-	-	11	14	13
Grade 9	-	-	-	100	100	100	-	-	-	34	35	34
Grade 12	-	-	-	-	-	-	100	100	100	44	37	40
<b>1a. I am a:</b>												
Male student	100	-	42	100	-	47	100	-	52	100	-	48
Female student	-	100	58	-	100	53	-	100	48	-	100	52
<b>2a. To learn at home, I use:</b>												
Smartphone												
Yes	82	81	81	89	90	90	91	91	91	89	88	88
No	18	19	19	11	10	10	9	9	9	12	12	88
Tablet												
Yes	33	37	35	24	33	29	24	28	26	26	32	29
No	68	63	65	76	67	71	76	72	74	74	68	71
Laptop												
Yes	31	33	32	39	45	42	42	47	44	38	42	41
No	69	67	68	61	55	58	58	53	56	62	58	60
PC (desktop)												
Yes	12	15	13	23	19	21	22	14	18	20	16	18
No	88	86	87	78	81	79	78	86	82	80	84	82
<b>2b. I have my own device:</b>												
Yes	75	74	74	91	90	90	92	92	92	88	86	87
No	25	26	26	9	10	10	8	8	8	12	14	13
<b>2c. I find that learning at home this way is:</b>												
Very easy	39	38	38	36	38	37	31	31	31	34	35	35
It is ok (fine/suitable)	43	42	42	50	41	45	51	44	48	49	42	46
It is sometimes hard	18	21	20	14	21	18	18	25	22	17	23	20
<b>3a. I communicate with my teacher(s) about my school work:</b>												
Often	51	60	56	37	48	42	39	48	43	41	51	46
Sometimes	44	37	40	56	49	52	55	51	53	53	46	50
Never	5	3	4	7	3	5	6	2	4	6	3	4
<b>3b. I communicate with my teacher(s) about my school work in this way:</b>												
Through Madrasati												
Yes	87	85	86	75	72	73	73	68	71	77	74	76
No	13	15	14	25	28	27	27	32	29	23	26	24
Office 365												
Yes	19	19	19	19	12	16	19	16	17	19	15	17
No	81	81	81	81	88	84	82	84	83	81	85	83
By email												
Yes	26	32	29	40	37	38	83	57	55	43	43	43
No	74	69	71	60	63	62	47	43	45	57	57	57
On the phone												
Yes	58	66	63	56	60	58	58	50	54	57	58	58
No	42	34	37	45	40	42	42	50	46	43	42	43
On Whatsapp/Instagram												
Yes	69	89	80	69	80	75	76	92	83	72	87	80
No	31	12	20	31	20	25	25	8	17	28	13	20
In person (at school)												
Yes	27	17	21	23	17	20	24	9	17	24	14	19
No	73	84	79	77	83	80	77	91	83	76	86	81
Other												
Yes	23	19	21	27	26	27	26	19	23	26	21	24
No	77	81	79	73	74	73	74	81	77	74	79	76
<b>3c. I know how well I am doing in class regarding my school work because:</b>												
My teacher talks with me or sends me voice comments												
Often	61	59	60	46	43	45	44	49	46	48	50	49
Sometimes	33	35	34	44	46	45	47	42	44	43	41	42
Never	6	6	6	10	11	11	9	10	9	9	9	9
My teachers gives me written comments												
Often	43	49	46	33	37	35	31	38	34	34	40	38
Sometimes	47	43	45	54	53	54	53	52	52	52	50	51
Never	10	8	9	13	10	12	16	11	14	14	10	12
My teacher sends me my tests' or quizzes' grades through Madrasati or by email												
Often	51	53	52	39	42	40	41	46	43	43	46	45
Sometimes	33	32	32	37	39	38	41	38	39	38	37	37
Never	16	15	16	24	19	22	18	17	17	20	17	18

## Percentage of students (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>3d. During this school year, I have met face-to-face with my teacher at school:</b>												
Yes	19	19	19	27	13	20	27	8	18	25	13	19
No	81	82	81	73	87	80	73	92	82	75	87	81
<b>4a. I talk to my friends from school:</b>												
Often	29	33	31	42	49	46	48	57	52	42	48	45
Sometimes	55	49	51	43	39	41	40	37	38	44	41	43
Never	17	18	17	16	12	13	13	7	10	15	11	13
<b>5a. I like learning at home:</b>												
A lot	53	50	51	63	53	57	60	45	53	59	49	54
A little	34	36	35	30	35	32	30	41	35	31	37	34
Not at all	13	15	14	8	13	11	11	14	13	10	14	12
<b>5b. When I am learning at home:</b>												
I can focus on my learning												
A lot	58	57	57	67	57	61	60	48	54	62	54	57
A little	36	37	36	29	35	32	33	42	37	32	38	35
Not at all	7	7	7	5	8	6	8	10	9	6	8	7
My parents can help me												
A lot	41	45	44	29	28	28	25	21	23	30	30	30
A little	50	44	47	39	49	44	35	39	36	40	44	42
Not at all	9	11	10	32	23	27	40	40	40	31	26	28
I have more time to spend on learning about the subjects I enjoy												
A lot	59	58	58	60	62	61	57	55	56	58	58	58
A little	34	35	34	32	31	31	34	35	34	34	33	33
Not at all	7	8	7	8	8	8	9	11	10	8	9	9
I can learn at any time I want												
A lot	63	58	60	64	63	63	64	60	62	64	61	62
A little	31	31	31	29	29	29	26	30	28	28	30	29
Not at all	7	11	9	8	9	8	10	10	10	9	10	9
<b>5c. Sometimes learning at home is hard because:</b>												
Following /understanding the lessons is hard												
A lot	20	24	22	23	24	23	26	27	27	23	25	24
A little	57	54	55	46	48	47	52	52	52	51	51	51
Not at all	24	22	23	32	28	30	22	20	21	26	23	25
Poor internet connection can make it hard to study												
A lot	38	39	38	36	41	39	1	47	43	38	43	41
A little	50	50	50	41	47	44	42	45	44	43	47	45
Not at all	13	11	12	23	12	17	17	8	13	18	10	14
It is hard to find a quiet area to study												
A lot	18	17	18	18	18	18	20	18	19	19	18	18
A little	42	37	39	29	29	29	36	36	36	35	34	34
Not at all	40	46	43	54	53	53	44	46	45	47	49	48
I miss seeing my friends and teachers in person												
A lot	76	80	78	53	71	62	54	75	64	58	75	67
A little	22	16	18	31	20	26	28	17	23	28	18	23
Not at all	2	4	3	16	9	12	18	8	14	14	7	11
<b>5d. My parents help me with my assigned work at home:</b>												
Often	37	37	37	22	23	23	18	16	17	23	25	24
Sometimes	53	53	53	45	51	48	39	41	40	44	48	46
Never	10	10	10	34	26	30	43	43	43	33	28	30
<b>6a. If I could have gone back into school last year I think I would have learned:</b>												
More	57	58	58	42	56	50	45	54	50	47	56	52
The same	38	38	38	44	37	40	41	38	40	42	38	40
Less	5	4	4	13	7	10	13	8	11	12	7	9
<b>7a. When my school goes back, I am looking forward to:</b>												
Seeing my friends again												
Yes	97	96	96	88	93	90	86	95	90	89	94	92
No	3	4	4	12	7	10	14	5	10	11	6	8
Meeting my teacher in person												
Yes	88	90	90	78	84	81	76	84	79	79	85	83
No	12	10	11	22	16	19	24	17	21	21	15	18
Studying better/Doing my schoolwork better												
Yes	93	90	91	84	88	86	79	85	82	83	87	85
No	7	10	9	16	12	14	21	15	18	17	13	17
Getting more help with my schoolwork												
Yes	88	82	85	75	77	76	71	72	72	76	77	76
No	12	18	16	25	23	24	29	28	28	24	23	24
Participating in at-school activities (e.g. sports)												
Yes	91	82	86	80	68	74	74	65	70	80	70	75
No	9	18	15	20	33	27	26	35	31	20	30	25

## Percentage of students (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>7b. When my school goes back, I will miss:</b>												
Being at home with my family												
Yes	90	87	88	88	84	86	82	78	80	86	82	84
No	10	13	12	12	16	14	18	22	20	14	18	16
Doing schoolwork in my own home												
Yes	88	81	84	86	83	84	79	77	78	83	80	82
No	12	19	16	14	18	16	21	23	22	17	20	18
Learning any time/way I want												
Yes	84	77	80	82	84	83.2	81	82	82	82	82	82
No	16	23	20	18	16	17	19	18	19	18	19	18
Having my parents help me with my school work												
Yes	73	74	73	60	58	59	46	42	44	43	56	57
No	27	27	27	40	42	41	54	58	56	57	44	43

## APPENDIX F. PARENT QUESTIONNAIRE RESPONSES

Percentage of parents

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>1a. My child is a:</b>												
Boy	100	-	50	100	-	45	100	-	47	100	-	48
Girl	-	100	50	-	100	55	-	100	53	-	100	52
<b>1b. My child is in grade:</b>												
Grade 3	63	54	58	-	-	-	-	-	-	28	22	25
Grade 6	37	46	42	-	-	-	-	-	-	17	19	18
Grade 9	-	-	-	100	100	100	-	-	-	31	35	33
Grade 12	-	-	-	-	-	-	100	100	100	24	24	24
<b>1c. My child is in:</b>												
Regular classes	98	96	97	97	94	95	96	96	96	97	96	96
Talented classes	2	4	3	3	6	4	3	3	3	3	4	4
Special education clc	0	0	0	-	0	0	0	0	0	0	0	0
<b>2a. I would describe the level of communication and advice I received to help my child and I prepare for distance education as:</b>												
Too much	30	37	34	32	32	32	34	25	29	32	33	32
About right	61	57	59	62	61	62	60	66	63	61	61	61
Too little	7	4	6	5	4	5	5	7	6	6	5	5
None	2	2	2	2	2	2	2	2	2	2	2	2
<b>2b. The following helped my child(ren) and I to prepare for during distance education:</b>												
Advice from MOE												
A lot	65	74	69	68	73	71	67	63	65	66	71	69
A little	30	21	26	27	22	24	28	30	29	29	24	26
Not at all	5	5	5	6	5	5	4	7	6	5	6	5
Advice from education departments/administrations												
A lot	51	61	56	58	65	62	58	54	56	55	60	58
A little	37	28	33	33	28	30	32	35	33	34	30	32
Not at all	12	11	12	10	8	9	10	11	11	11	10	10
Advice from education offices												
A lot	40	48	44	47	52	50	50	44	47	45	49	47
A little	39	36	37	36	34	35	35	41	38	37	36	37
Not at all	21	16	19	17	14	15	15	15	15	18	15	17
Advice from school												
A lot	73	78	75	74	77	75	70	67	68	72	75	74
A little	24	19	21	22	20	21	26	26	26	24	21	22
Not at all	4	4	4	4	3	4	5	7	6	4	5	4
Guidance from "Back-to-School portal"												
A lot	44	52	48	48	54	52	51	46	48	47	51	49
A little	40	35	37	40	33	36	39	40	39	39	35	37
Not at all	16	14	15	12	13	12	11	14	12	13	13	13
Madrasati technical support (phone/ticketing/call center/chat bot/FAQ)												
A lot	39	46	43	45	49	47	48	40	44	43	46	45
A little	40	35	37	38	33	35	34	37	36	38	35	36
Not at all	21	19	20	16	19	18	17	23	20	19	20	19
<b>3a. For their distance learning at home, my child uses:</b>												
A smartphone												
Yes	79	83	81	88	88	88	86	91	89	84	87	85
No	21	17	19	13	12	12	14	9	11	16	13	15
A tablet												
Yes	39	41	40	31	33	32	30	29	30	34	35	35
No	62	59	61	69	67	68	70	71	71	66	65	66
A laptop												
Yes	36	34	35	43	40	41	50	47	49	42	40	41
No	64	66	65	57	60	59	50	53	51	58	61	59
A P C (desktop)												
Yes	12	15	14	22	15	18	24	17	20	18	15	17
No	88	85	86	78	85	82	77	83	80	82	85	83

## Percentage of parents (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>3b. I have personally used the Madrasati platform to:</b>												
Follow up on my child's class schedule												
Yes	97	96	96	92	90	92	85	74	79	92	88	90
No	4	4	4	8	10	9	15	27	21	8	12	10
Attend my child's virtual classes												
Yes	84	86	85	74	72	73	67	52	59	77	72	74
No	16	15	15	26	29	27	33	48	41	23	28	26
Follow up on my child's online homework, educational activities, and exams												
Yes	97	97	97	90	90	90	87	72	79	92	88	90
No	3	3	3	10	11	10	13	28	21	8	12	10
Monitor my child's data reports (attendance, grades, etc.)												
Yes	95	95	95	93	93	93	90	81	85	93	91	92
No	5	5	5	7	7	7	10	19	15	7	9	8
Communicate with my child's teacher												
Yes	84	86	85	74	76	75	66	55	60	76	75	76
No	16	14	15	26	24	25	34	45	40	24	25	24
Communicate with my child's school												
Yes	78	77	77	79	78	78	77	64	70	78	74	76
No	22	23	23	21	22	22	23	36	30	22	26	24
Help my child to find enrichment materials for independent learning												
Yes	77	85	81	77	80	79	74	65	69	76	78	77
No	23	15	19	23	20	21	26	35	31	24	22	23
<b>4a. My child has assignments and homework to complete outside online class time:</b>												
Weekly	57	67	62	56	61	59	54	56	55	56	62	59
Occasionally	40	30	35	40	34	37	43	37	40	41	33	37
Never	3	3	3	4	5	5	3	7	5	3	5	4
<b>4b. The amount of work provided by teachers is appropriate for my child:</b>												
Agree	89	91	90	88	89	89	86	81	83	88	88	88
Neutral	10	7	8	11	9	10	14	16	15	11	10	10
Disagree	2	2	2	1	2	2	1	3	2	1	2	2
<b>4c. My child receives feedback from their teacher on their learning:</b>												
Weekly	58	67	63	42	55	54	53	49	51	55	58	57
Occasionally	34	29	31	53	40	41	42	45	44	38	37	37
Never	9	4	6	5	6	5	5	6	6	7	5	6
<b>4d1. I think the feedback my child receives about their learning is adequate:</b>												
Agree	71	83	77	72	81	77	72	72	72	71	80	76
Neutral	22	15	18	23	15	18	25	23	24	23	17	20
Disagree	7	3	5	6	4	5	3	5	4	6	4	5
<b>4d2. I think the feedback my child receives about their learning is timely:</b>												
Agree	71	81	76	71	80	76	69	73	71	70	79	75
Neutral	24	15	20	23	16	19	28	23	25	25	17	21
Disagree	6	4	5	5	4	5	3	5	4	5	4	5
<b>4e. I receive feedback regarding my child's learning and progress through:</b>												
Email												
Yes	39	48	44	45	58	53	51	48	50	44	52	48
No	61	52	56	55	42	48	49	52	51	56	48	52
I speak with my child's teacher on the phone												
Yes	84	87	85	75	79	77	67	61	64	77	78	77
No	17	13	15	25	21	23	33	39	36	23	22	23
WhatsApp messages/voice notes												
Yes	87	95	91	79	81	80	77	66	71	82	83	82
No	13	5	9	22	20	20	23	34	29	18	18	18
Virtual meetings												
Yes	54	72	63	59	75	68	62	57	59	58	70	64
No	46	28	37	41	25	32	39	43	41	43	30	36
In-person												
Yes	23	17	20	25	14	19	32	12	21	26	15	20
No	77	83	80	75	86	81	68	88	79	74	85	80
<b>5a. Compared to previous years my child's academic progress (content knowledge) this year has been:</b>												
Faster	53	60	57	61	68	65	72	67	70	61	65	63
About the same	28	14	27	24	20	21	15	25	21	23	24	23
Slower	19	26	16	15	12	14	12	7	10	16	12	14
<b>5b. I think the digital tools available for my child's distance education have been:</b>												
Very useful	46	50	48	48	55	52	58	52	55	49	53	51
Useful	45	43	44	46	39	42	39	44	41	44	42	43
Not useful	10	7	8	6	6	6	3	4	4	7	6	6
<b>5c. What is your level of satisfaction with the quality of distance education this year?</b>												
Very satisfied	47	47	47	48	54	51	57	49	53	50	50	50
Satisfied	25	27	26	24	23	23	23	26	25	24	25	25
Somewhat satisfied	21	21	21	20	17	18	15	19	17	19	19	19
Not satisfied	7	6	7	8	7	7	5	7	6	7	6	7

## Percentage of parents (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>6a. In general, my child is engaged in distance education</b>												
Always	77	75	76	72	75	73	72	71	72	74	74	74
Often	18	19	18	21	20	20	21	24	22	20	20	20
Rarely	4	5	5	6	5	6	6	4	5	5	5	5
Never	1	1	1	1	1	1	1	1	1	1	1	1
<b>6b. I follow up with my child to see how well they are coping with their learning:</b>												
Daily	79	79	79	56	54	55	46	39	42	64	60	62
Weekly	12	10	11	21	20	21	28	20	24	19	16	17
Occasionally	9	9	9	21	25	23	25	36	30	17	21	19
Never	1	1	1	1	2	1	2	5	3	1	2	2
<b>6c. I connect with my child's teachers regarding my child's learning:</b>												
Daily	29	43	36	14	17	16	15	11	13	21	26	23
Weekly	15	16	15	18	17	17	21	10	15	17	15	16
Occasionally	52	38	45	54	56	55	50	47	48	53	47	49
Never	4	3	3	14	11	12	14	33	24	10	13	11
<b>6d. Overall, I find that accessing the information I need to support my child learning is:</b>												
Very easy	43	49	46	42	45	44	43	40	41	43	45	44
Easy	47	45	46	49	49	49	50	51	51	48	48	48
Difficult	8	5	7	7	5	6	7	7	7	8	5	7
Very difficult	2	2	2	1	1	1	0	2	1	1	1	1
<b>6e. This year, my child has met with his/her teachers in the school building to get additional help:</b>												
Weekly	14	16	15	13	14	14	19	10	14	15	14	15
Occasionally	21	16	19	27	24	26	33	21	27	26	20	23
Never	65	68	66	59	61	60	48	69	59	59	66	62
<b>6f. I feel I have to step in and help my child with their schoolwork during distance education:</b>												
Often	28	26	27	18	21	19	18	11	14	23	20	21
Sometimes	59	57	58	57	50	53	49	41	45	56	50	53
Never	13	17	15	25	30	28	32	49	41	21	29	26
<b>7a. When schools open again, I think my child will need this time to catch up:</b>												
Less than one semester	59	68	64	63	66	64	67	65	66	62	67	65
One semester	26	22	24	25	23	24	20	23	22	24	23	23
Two semesters	12	9	10	10	10	10	11	8	9	11	9	10
12+ months	3	1	2	3	2	2	2	4	3	3	2	2
<b>7b. I find that the benefits of distance education are:</b>												
It provides the parent with better opportunities to engage in my child(ren)'s learning												
Yes	87	89	88	85	90	87	89	81	85	87	87	87
No	13	11	12	15	10	13	11	19	16	13	13	13
It leads to closer relationships between teachers and children												
Yes	78	80	79	78	82	80	79	77	78	78	80	79
No	22	20	21	22	18	20	21	23	22	22	20	21
The virtual lessons encourage children to participate more												
Yes	74	76	75	77	79	78	79	76	78	76	77	77
No	26	24	25	24	21	22	21	24	23	24	23	23
Children are less distracted at home												
Yes	62	64	63	67	67	67	69	63	66	65	65	65
No	38	36	37	33	33	33	31	38	34	35	35	35
It provides more personalized learning activities												
Yes	73	80	76	78	82	80	82	81	81	77	81	79
No	27	20	24	22	18	20	18	19	19	23	19	21
It offers opportunities for children to gain more skills (e.g. digital/ICT, problem-solving, critical thinking, etc.)												
Yes	86	88	87	89	89	89	88	90	89	87	89	88
No	14	12	13	11	11	11	12	10	11	13	11	12
It allows for more individual feedback to children												
Yes	76	81	79	80	83	82	82	81	81	79	82	80
No	24	19	21	20	17	19	18	19	19	21	18	20
It helps connect the school community as a whole (children/parents/teachers)												
Yes	84	90	87	83	88	86	82	82	82	83	87	85
No	16	11	13	17	12	14	18	18	18	17	13	15

## Percentage of parents (cont.)

	Elementary			Intermediate			Secondary			All levels		
	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall	Male	Female	Overall
<b>7c. I think that the constraints to distance education are:</b>												
The scheduled times for online classes are not convenient for my family life												
Yes	48	55	51	43	46	45	44	38	41	45	47	46
No	52	45	49	57	54	56	56	62	59	55	53	54
There is a lack of opportunities for children to learn social skills												
Yes	61	58	59	60	55	57	58	51	54	60	55	57
No	39	42	41	40	45	43	42	50	46	40	45	43
Children spend too much time in front of the screen												
Yes	76	76	76	78	76	77	79	78	78	77	76	77
No	24	24	24	22	24	23	21	23	22	23	24	23
It adds more required tasks and homework for children												
Yes	57	65	61	64	71	67	62	70	66	60	68	65
No	43	35	39	37	29	33	38	30	34	40	32	36
I have to spend more time to follow up with my child on their school work												
Yes	79	79	79	74	74	74	69	61	65	75	73	74
No	21	21	21	26	26	26	31	39	35	25	27	26
It creates more opportunities for (cyber)bullying												
Yes	43	37	40	42	35	38	39	29	34	42	34	38
No	57	63	60	58	65	62	61	72	66	58	66	62
It makes the school community feel less connected together (children/parents/teachers)												
Yes	61	55	58	64	57	60	63	57	60	62	56	59
No	39	45	42	37	43	40	37	43	40	38	44	41
Lack of internet or devices												
Yes	81	79	80	79	77	78	78	74	76	80	77	79
No	19	21	20	21	23	22	22	26	24	20	23	22
Device or connection problems can present challenges for children's engagement												
Yes	86	86	86	85	84	84	83	85	84	85	85	85
No	14	14	14	15	16	16	17	15	16	15	15	15
<b>7d. The impact of distance education approaches on my child's mental and physical health has been:</b>												
Positive	34	34	34	31	32	31	35	33	34	33	33	33
Neutral	51	48	50	50	51	51	52	47	49	51	49	50
Negative	15	18	17	19	18	18	14	20	17	16	18	17
<b>7e. The impact of distance education approaches on the parent's mental and physical health has been:</b>												
Positive	33	33	33	29	31	30	31	31	31	31	31	31
Neutral	50	47	48	54	53	53	59	54	56	53	51	52
Negative	18	20	19	17	17	17	10	15	13	16	18	17
<b>7f. What would you like to see happen in the future?</b>												
A return to in-person school as soon as possible												
Yes	73	77	75	68	70	69	69	73	71	71	74	72
No	27	23	25	32	30	31	31	27	29	30	26	28
Teachers and students should continue to use Madrasati and digital content when schools reopen for in-person education (face-to-face)												
Yes	73	69	71	77	72	74	77	67	72	75	70	72
No	27	32	29	23	28	26	23	33	28	25	31	28
Some days of the week in school and some days learning from home												
Yes	62	61	61	65	62	63	69	66	67	65	62	64
No	38	39	39	35	38	37	31	34	33	35	38	37
The option for students to learn full-time from home												
Yes	59	60	59	65	65	65	65	64	64	62	63	63
No	41	40	41	35	35	35	35	37	36	38	37	37
More digital content created for teachers and students to use												
Yes	81	78	80	85	79	82	87	80	83	84	79	81
No	19	22	20	15	21	18	13	20	17	16	21	19
Improvements in the quality of the digital content												
Yes	88	84	86	89	85	87	93	87	90	89	85	87
No	12	16	14	12	15	13	7	13	10	11	15	13



## APPENDIX G. SUPERVISOR QUESTIONNAIRE RESPONSES

Percentage of supervisors

	All levels		
	Male	Female	Overall
<b>1a. I am a:</b>			
Male	100	-	51
Female	-	100	49
<b>1b. My subject is</b>			
Arabic	12	13	12
Mathematics	11	12	12
Science	65	64	65
English	12	11	11
<b>2a. I have used the following to help me support teachers during distance education:</b>			
Advice from MOE			
A lot	52	60	56
About right/satisfactory	26	31	28
A little	20	7	14
Not at all	3	2	2
Advice from education departments/administrations			
A lot	49	53	51
About right/satisfactory	26	36	30
A little	24	10	17
Not at all	2	2	2
Advice from education offices			
A lot	63	60	61
About right/satisfactory	19	22	20
A little	16	15	15
Not at all	2	3	3
Advice from professional learning networks			
A lot	38	49	43
About right/satisfactory	24	29	26
A little	27	16	22
Not at all	11	6	8
Madrasati technical support			
A lot	40	49	44
About right/satisfactory	27	23	25
A little	23	15	19
Not at all	10	14	12
Online professional development courses and materials			
A lot	50	69	59
About right/satisfactory	25	24	25
A little	22	5	14
Not at all	3	1	2
Guidance from Back to School portal			
A lot	23	34	28
About right/satisfactory	30	25	27
A little	33	19	26
Not at all	15	22	19
<b>2b. I would rate the skills of the teachers in the schools I link with for distance education before the COVID-19 pandemic as:</b>			
Advanced	14	25	19
Satisfactory	41	39	40
Needing improvement	45	37	41
<b>2c. I would rate the skills of the teachers in the schools I link with for distance education now as:</b>			
Advanced	32	65	48
Satisfactory	53	31	42
Needing improvement	16	4	10
<b>2d. This year, the skills of the teachers in the schools I work with have increased in:</b>			
Planning effective lessons			
A lot	59	78	68
A little	37	19	28
Not at all	5	3	4
Delivering effective lessons (explaining)			
A lot	62	87	74
A little	34	12	24
Not at all	4	1	3

## Percentage of supervisors (cont.)

	All levels		
	Male	Female	Overall
Classroom behavioral management			
A lot	55	71	63
A little	39	27	33
Not at all	6	2	4
Time management			
A lot	60	77	68
A little	35	21	28
Not at all	6	3	4
Engaging and motivating their students			
A lot	49	62	55
A little	41	34	38
Not at all	10	4	7
Assessing their students' progress			
A lot	47	69	58
A little	44	25	35
Not at all	9	5	7
<b>3a. When teachers in the schools I work with deliver lessons, they use:</b>			
Madrasati			
Yes	99	99	99
No	1	1	1
IEN National Education Portal			
Yes	81	93	87
No	19	7	13
IEN TV channels			
Yes	39	63	51
No	61	37	49
Youtube channels			
Yes	70	89	79
No	30	11	21
Hardcopy textbooks			
Yes	68	81	74
No	32	19	26
Other websites			
Yes	60	89	74
No	40	11	26
Office 365 applications			
Yes	80	97	89
No	20	3	11
E-books			
Yes	86	93	89
No	14	7	11
Other			
Yes	49	76	62
No	51	24	38
<b>4a. The teaching and learning materials which my teachers have used for lessons this year has been different to the content</b>			
No, they are still mostly using teaching and learning materials that they previously used	37	23	30
Yes, lessons incorporate completely different content than previous years	12	20	16
They are using a mixture of previous teaching and learning materials and new resources	50	56	53
<b>4b. Effective arrangements are in place whenever a teacher is absent:</b>			
Yes, lessons continue with another teacher and students continue to learn effectively.	10	24	17
No, students' ability to learn effectively is reduced if their teacher is absent.	48	17	33
Partly. Arrangements are made which allow students to continue with some aspects of their learning	42	59	50
<b>4c. Teachers set work for students to carry out between virtual classes:</b>			
Always	10	18	14
Often	22	23	22
Sometimes	39	31	35
Never	9	14	11
Not sure	20	14	17
<b>4d. Teachers create plans for students who are struggling and falling behind:</b>			
No, it hasn't been needed (no struggling students)	19	14	17
Yes, for a few students	55	31	43
Yes, for all struggling students	26	55	40

## Percentage of supervisors (cont.)

	All levels		
	Male	Female	Overall
<b>4e. Teachers share teaching and learning resources with other teachers:</b>			
Every day	8	13	11
Weekly	7	17	12
Occasionally	66	64	65
Never	18	6	12
Not sure	-	-	-
<b>4g. After observing lessons I provide feedback to the teacher who has delivered the lesson:</b>			
Always	67	91	79
Often	27	7	17
Rarely	7	2	4
Never	-	-	-
<b>4h. When I speak to teachers, I regularly enquire about their wellbeing:</b>			
Always	68	80	73
Often	25	18	22
Rarely	7	2	4
Never	<1	<1	<1
<b>5a. Digital learning tools have made my job as a supervisor:</b>			
Easier	66	63	64
About the same	10	8	9
Harder	24	29	27
<b>5b. Digital learning tools have made the job of teachers in the schools I link with</b>			
Easier	79	73	76
About the same	4	5	5
Harder	17	22	19
<b>5g. Distance education has helped students in in the classes I observe develop skills in:</b>			
Creativity			
A lot	42	67	54
A little	51	28	40
Not at all	8	4	6
Collaboration and teamwork			
A lot	32	39	36
A little	52	42	47
Not at all	16	19	17
Critical thinking			
A lot	32	59	45
A little	56	37	46
Not at all	12	4	8
Problem solving			
A lot	33	64	48
A little	59	33	47
Not at all	8	3	5
Digital literacy			
A lot	82	91	86
A little	17	9	13
Not at all	1	<1	1
Time management			
A lot	60	73	67
A little	33	23	28
Not at all	7	4	5
Independent (self-directed) learning			
A lot	72	84	78
A little	26	14	20
Not at all	2	2	2
Digital etiquette			
A lot	70	86	78
A little	26	14	20
Not at all	4	<1	2
<b>5h. Compared to previous years, this year the academic progress (content knowledge) of students in the classes I observe has</b>			
Increased	33	59	46
Did not change	26	21	24
Decreased	41	20	31
<b>5i. I know this because:</b>			
I have data to show this	14	24	19
It is my professional judgement	52	34	44
Both	33	42	37

## Percentage of supervisors (cont.)

	All levels		
	Male	Female	Overall
<b>5j. Compared to previous years, students' skills in the classes I observe schools has (e.g. creativity, problem solving etc):</b>			
Increased	41	64	52
Did not change	36	26	31
Decreased	23	10	17
<b>5k. I know this because:</b>			
I have data to show this	10	14	12
It is my professional judgement	64	45	55
Both	26	41	33
<b>5-5s. I believe distance education is effective for:</b>			
Engaging students in the educational process			
Very effective	21	39	30
Effective	35	32	33
Partly effective	39	27	33
Not effective	6	2	4
Delivering the curriculum			
Very effective	17	40	28
Effective	49	40	44
Partly effective	30	18	24
Not effective	5	3	4
Meeting the educational needs of students of different ability levels			
Very effective	14	21	17
Effective	30	35	32
Partly effective	48	40	44
Not effective	9	4	6
Allowing teachers the ability to accurately assess their students' progress/performance			
Very effective	13	26	19
Effective	25	32	28
Partly effective	44	32	38
Not effective	18	10	14
Allowing teachers to regularly provide students with feedback about the quality of their work			
Very effective	17	35	26
Effective	38	41	39
Partly effective	40	21	31
Not effective	5	2	4
Promoting students' ability to become independent learners (self-directed)			
Very effective	25	41	33
Effective	37	39	38
Partly effective	35	17	26
Not effective	3	3	3
Allowing supervisors to track and monitor students' and teachers' progress and performance			
Very effective	25	38	31
Effective	35	37	36
Partly effective	32	23	27
Not effective	9	2	6
Allowing supervisors to identify which teachers and schools require additional support e			
Very effective	33	53	43
Effective	41	36	38
Partly effective	22	11	17
Not effective	4	1	2
<b>6a. In schools I work with, teachers do the following to help engage their students</b>			
Vary their voices to gain attention			
Always	18	40	29
Often	40	36	38
Sometimes	37	23	30
Never	5	1	3
Use student-centered discussions			
Always	15	47	31
Often	42	35	38
Sometimes	40	18	29
Never	3	<1	2
Turn their own camera on			
Always	5	7	6
Often	11	12	12
Sometimes	51	35	43
Never	33	46	40

## Percentage of supervisors (cont.)

	All levels		
	Male	Female	Overall
Ask their students to turn their cameras on			
Always	1	5	3
Often	4	4	4
Sometimes	32	47	39
Never	62	44	54
Use avatars/Bitmojis			
Always	8	39	23
Often	23	29	26
Sometimes	51	29	40
Never	18	3	11
<b>6b. Teachers use digital tools to meet with parents concerning child's performance</b>			
Always	6	9	8
Often	40	23	32
Sometimes	47	66	56
Never	6	2	4
<b>6c. Teachers use digital tools to contact individual students to give them feedback about their learning</b>			
Always	18	40	29
Often	22	16	19
Sometimes	53	43	48
Never	7	2	4
<b>6d. Most students engage effectively in classes</b>			
Always	18	32	25
Often	61	61	61
Rarely	21	7	14
Never	1	<1	<1
<b>6f. When students are not engaging well in classes, it's usually because:</b>			
Lack of availability of digital devices they need			
Major problem	27	35	31
Occasional problem	51	45	48
Not a problem	22	20	21
Their internet connection is poor			
Major problem	52	62	57
Occasional problem	43	36	40
Not a problem	4	2	3
Lack of a quiet study area in their home			
Major problem	22	33	27
Occasional problem	53	57	55
Not a problem	25	10	17
Lack of encouragement from parents			
Major problem	27	26	27
Occasional problem	47	53	50
Not a problem	25	21	23
Feeling shy			
Major problem	17	26	51
Occasional problem	52	56	54
Not a problem	31	17	25
Feeling bored or lack of focus/concentration			
Major problem	52	47	50
Occasional problem	41	48	44
Not a problem	7	5	6
Lack of understanding of the information presented in the lesson			
Major problem	26	33	30
Occasional problem	61	53	57
Not a problem	13	14	14
<b>7a. I think the following time will be needed for students to catch up with their learning:</b>			
Less than one semester	54	54	54
1 semester	31	31	31
2 semesters	13	13	13
12+ months	2	3	2
<b>7b. If schools have to close in the future, I feel that schools will be:</b>			
Very well prepared	58	73	65
Well prepared	30	17	23
Partly prepared	12	6	9
Not well prepared	1	4	2

## Percentage of supervisors (cont.)

	All levels		
	Male	Female	Overall
<b>7c. If schools had a hybrid or blended approach (combining face-to-face teaching and distance education) in the future, I think</b>			
Very effective	49	57	53
Effective	24	22	23
Partly effective	23	17	20
Not effective	4	5	4
<b>7d. I find the benefits of distance education are:</b>			
Closer relationships between teacher and students			
Yes	68	70	69
No	32	30	31
It connects the school community as a whole ( students, parents, teachers			
Yes	80	90	85
No	20	10	15
It results in a calmer classroom learning environment leading to better student learning			
Yes	77	83	80
No	23	17	20
Fewer behavioral problems and bullying in schools			
Yes	97	96	96
No	3	4	4
It helps students to be more engaged in lessons			
Yes	70	67	68
No	30	33	32
It provides better opportunities for independent learning for students (self-directed)			
Yes	92	94	93
No	8	6	7
It provides better opportunities for parents to engage in their child's learning			
Yes	92	95	93
No	8	5	7
It reduces teachers' workload			
Yes	78	76	77
No	22	24	23
It reduces supervisors' work load			
Yes	56	52	54
No	44	48	46
It provides teachers with more choices for delivering lessons, making teaching more interesting			
Yes	81	86	84
No	19	14	16
<b>7e. I think the constraints to distance education are :</b>			
Lack of opportunities for students to learn social skills			
Yes	87	87	87
No	13	13	13
It is difficult to engage students for the full lesson			
Yes	83	77	80
No	17	23	20
It restricts the teachers' ability to determine how well the students are following the lesson			
Yes	82	84	83
No	18	16	17
It creates more work for teachers			
Yes	31	50	40
No	69	50	60
It creates more work for supervisors			
Yes	44	69	56
No	56	31	44
It required too much screen time			
Yes	89	97	93
No	11	3	7
<b>7f. The impact of distance education approaches on students' mental and physical health has been:</b>			
Positive	29	28	29
Neutral	28	23	26
Negative	43	49	46
<b>7g. The impact of distance education approaches on teachers' mental and physical health has been:</b>			
Positive	45	46	46
Neutral	35	29	32
Negative	20	25	23
<b>7g. The impact of distance education approaches on supervisors' mental and physical health has been:</b>			
Positive	31	32	32
Neutral	45	29	37
Negative	24	39	32

## Percentage of supervisors (cont.)

	All levels		
	Male	Female	Overall
<b>7i. What would you like to see happen in the future?</b>			
A return to in-person school as soon as possible			
Yes	88	82	85
No	12	18	15
Teachers and students continuing to use Madrasati and digital content in the classroom and for homework when schools reopen for in-person education			
Yes	85	89	86
No	15	12	14
Some days of the week in school and some days learning from home			
Yes	67	73	70
No	33	27	30
The option for students to learn full-time from home			
Yes	47	47	47
No	53	53	53
More digital content created for teachers and students to use			
Yes	90	94	92
No	10	6	8
Improvements in the quality of the digital content			
Yes	95	92	94
No	5	8	6

## APPENDIX H. VIRTUAL CLASSROOM OBSERVATION TOOL



Name of observer: \_\_\_\_\_

Date and time: \_\_\_\_\_

School stage: Grades 1–3 \_\_\_\_\_ Grades 4–6 \_\_\_\_\_ Intermediate \_\_\_\_\_ Secondary \_\_\_\_\_

School type: Boys \_\_\_\_\_ Girls \_\_\_\_\_

District: \_\_\_\_\_

Number of students online: \_\_\_\_\_

School period (1st, 2nd, ...): \_\_\_\_\_

Length of observation (in minutes): \_\_\_\_\_

Subject: \_\_\_\_\_

Observation theme	Description/comments
Use of digital teaching and learning resources	
1. Is the teacher's camera on or off?	<input type="checkbox"/> On <input type="checkbox"/> Off <input type="checkbox"/> On for part of the lesson <input type="checkbox"/> It was not possible to tell during the observation <input type="checkbox"/> Other: _____
2. Are students' cameras on or off?	<input type="checkbox"/> On for the whole lesson <input type="checkbox"/> On for some of the lesson <input type="checkbox"/> On when requested by the teacher <input type="checkbox"/> Off for the whole lesson <input type="checkbox"/> It was not possible to tell during the lesson observation
3. Are parents / caregivers attending the lesson?	<input type="checkbox"/> Yes, some parents are present <input type="checkbox"/> It is not possible to tell <input type="checkbox"/> No parents are present



Observation theme	Description/comments
<p>4. What digital tools and learning materials are being used for this lesson?</p> <p>(check all that apply)</p>	<p><input type="checkbox"/> Madrasati: identify which tool(s) and program(s):            Madrasati platform (to access the lesson), Madrasati homework, Madrasati exam etc.            _____</p> <p><input type="checkbox"/> IEN portal   <input type="checkbox"/> IEN TV channels   <input type="checkbox"/> YouTube</p> <p><input type="checkbox"/> Microsoft 365 applications: identify which program(s):            MS Teams, OneNote, OneDrive, Forms, Sway, etc. _____</p> <p><input type="checkbox"/> Online educational games: _____</p> <p><input type="checkbox"/> Textbooks (online)   <input type="checkbox"/> Textbooks (hard copy)</p> <p><input type="checkbox"/> Other: e.g. Classpoint _____</p>

### Planning the learning

5. How well has the lesson been planned for distance learning—is there a clear structure to the lesson?

For example, is there evidence of the teacher setting the scene, reviewing previous learning, setting learning intentions and success criteria

### Establishing a positive climate for learning

6. If using their camera, is there a high level of teacher “presence” in the lesson; for example, maintaining appropriate eye contact, being animated, showing enthusiasm, making learning interesting and fun?

Describe the evidence for your answer

Observation theme	Description/comments
<p>7. If the teacher is NOT using her/his camera what technique(s) do they use to demonstrate a high level of “presence”, encouraging engagement and interaction?</p> <p>For example, using a friendly greeting / morning chat/ humor /emoji, etc.</p>	
<p>8. Does the teacher speak using a clear voice, with strong projection and proper enunciation?</p>	
<p>9. How successful is the teacher in ensuring that students’ behavior is compatible with their effective learning and does she/he acknowledge positive student behavior?</p>	
<h3>Teaching and learning</h3>	
<p>10. How well does the teacher demonstrate their knowledge and understanding of their subject?</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Very good knowledge and understanding</li> <li><input type="checkbox"/> Good knowledge and understanding</li> <li><input type="checkbox"/> Adequate knowledge and understanding</li> <li><input type="checkbox"/> Poor knowledge and understanding</li> </ul>
<p>11. How knowledgeable and familiar is the <b>teacher</b> with the digital tools and learning materials used in this lesson?</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Very good knowledge and skills</li> <li><input type="checkbox"/> Good knowledge and skills</li> <li><input type="checkbox"/> Adequate knowledge and skills</li> <li><input type="checkbox"/> Poor knowledge and skills</li> </ul>

Observation theme	Description/comments
<p>12. How knowledgeable and familiar are the <b>students</b> with the digital tools and learning materials used in this lesson?</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Very good knowledge and skills</li> <li><input type="checkbox"/> Good knowledge and skills</li> <li><input type="checkbox"/> Adequate knowledge and skills</li> <li><input type="checkbox"/> Poor knowledge and skills</li> </ul>
<p>13. To what extent are the teacher's pedagogical approaches effective for this subject and grade?</p> <p>Does the teacher demonstrate a variety of teaching techniques and aids (visual, listening, doing etc.) to support the learning needs of all students?</p>	
<p>14. Do students get the opportunity to collaborate through working in pairs or small groups online?</p> <p>For example, using breakout groups?</p> <p>Are students encouraged to share/show the teacher their work on screen using their camera?</p>	
<p>15. How successfully does the teacher encourage students to develop strong thinking and learning skills, including:</p> <ul style="list-style-type: none"> <li>• Promoting the use of higher order thinking skills in her/his lesson?</li> </ul>	

Observation theme	Description/comments
<ul style="list-style-type: none"> <li>• Encouraging debate and discussion during the lesson?</li> <li>• Ensuring students have the opportunity to engage in meaningful thinking tasks that require them to actively analyze content?</li> <li>• Supporting student autonomy by providing students with opportunities to make choices and take on meaningful roles in the lesson?</li> </ul>	
<b>Feedback and assessment</b>	
<p>16. How effectively does the teacher use questions, prompts, or other strategies to determine students' level of understanding in the lesson?</p>	
<p>17. In the lesson does the teacher use self-marking or peer-to-peer activities with her/his students, such as tests, quizzes, and assignments?</p>	
<p>18. How effectively does the teacher provide feedback and praise to the class or individual students to help them in their learning?</p>	
<b>Other:</b>	
Any other comments?	



**WORLD BANK GROUP**  
Education

