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What did we learn from schooling practices during the COVID-19 lockdown?

Insights from five EU countries

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Executive summary

The unprecedented shift to remote schooling introduced in many countries in the spring of 2020 as one of the preventive measures to stop the spread of COVID-19 gave us the opportunity not only to analyse the strengths and weaknesses of remote schooling, but also to reflect on how education is being provided in general. We interviewed in total around 150 key stakeholders coming from five Member States that represent different degrees of readiness to use digital technologies in education. We aimed to obtain different perspectives about the remote schooling experience collecting insights from various groups, namely students, parents, teachers and school leaders. The topics discussed with study participants related to their experience and perceptions on: unequal access to education, learning tools and content available and put in place through urgent measures, digital and social and emotional competences to face and develop remote schooling, the assessment and certification of students' learning progress, as well as their psychological well-being.

The results of our study show that full-time remote education with the current state of infrastructure and accessibility of equipment would aggravate existing inequalities, especially for some groups of children who were prevented from attending classes delivered online. We also saw that parents played a key role in their children's learning process during remote schooling. This applies in particular to students in primary education or children with special education needs, who required more of their support. Parents played a double role of motivators and facilitators of learning, especially when teachers were not present. Yet, parents' level of preparedness to play these roles and the level of support received from schools were not always perceived as satisfactory and could contribute to increasing inequalities in access to education.

We also learnt that not all students equally benefitted from remote education and, for that reason, this form of schooling may complement in-person education only under certain conditions, e.g. synchronous learning organised in small groups or individual support offered to students with special education needs. Moreover, the role of remote educators requires adequate training for teachers, including the development of competence in digital pedagogy, to allow them to fully benefit from the potential of digital technology in teaching, which goes beyond the creation of digital content.

We also noted that it is urgent that all actors learn to be digitally competent. Moreover, schools need to provide IT assistance, and more attention needs to be put on awareness about how to ensure privacy and safety when using digital resources. In the case of students, they need to reach a level in digital competence that allows them to independently follow their lessons through digital means, without involving parents. Self-regulation is another relevant competence needed by students in remote schooling in order to help them better organise and be autonomous in their learning process. For these reasons, any form of blended or distance schooling appears to be more adequate for students in secondary education, while those in primary education would still require parents' and carers' support. We also observed that, during the period of remote schooling, the process of socialising does not take place in a natural way as when children attend classes in person. Therefore, teachers specifically would need to design activities that address the development of students' social and emotional competences.

We also noticed that during remote education, the monitoring of students' learning progress was more challenging for teachers. Also the delivery of feedback took teachers longer than usual, and this had negative effects on student's learning performance. Furthermore, self- and peer–assessment were poorly used as assessment tools.

Moreover, we also found out that teachers who received prior training promoting mental health and well-being were feeling more resilient. It seems that such competences together with peer support were very useful to help them coping better with this difficult situation. During the period of remote schooling, it was also more challenging to monitor students' well-being and address children's needs. Therefore, teachers' training needs to encompass techniques on how to better identify students' problems under these circumstances. In the specific cases of vulnerable students and families, individual approaches are needed to address the diversity of mental health needs that araised.

The reflection on the above findings led us to state the following nine policy implications:

— Access to good quality digital infrastructure and equipment is essential to guarantee effective participation in blended or full remote education for all students.

— Education systems should better exploit the full potential of blended learning.

— Schools would benefit from the development of digital education plans.

— Collaboration and exchange of good practices among educational staff should be encouraged.
— Greater investment in teachers' competences is required.
— Students should be equipped with both digital and social and emotional competences.
— Parents need guidance and support in order to help their learning remotely children.
— Digital safety during online learning should receive more attention.
— Promoting students' and teachers' well-being needs prioritising during blended or remote education.

1 Introduction

During the first wave of COVID-19 in spring 2020, many governments in the EU took the decision to close schools[1] and provide full-time remote schooling in order to reduce the spread of the virus. In the European Economic Area, up to 90% of countries closed their schools during the spring time depending on the week (European Centre for Disease Prevention and Control, 2020). With time, most EU governments decided to implement measures to allow schools for distance education with the support of digital technology, and other media such as TV and radio or paper–based approaches (UNESCO, 2020a; Gouëdard et al., 2020). Many even high income countries were challenged to new and unparalleled scales by this situation (Richardson et al. 2020). According to UNESCO[2,3], almost one billion learners in 142 countries worldwide (the 52.4% of total enrolled learners) and 63 million primary and secondary teachers in 165 countries were affected by schools' closure.

Although there were cases of schools well prepared for this situation, this sudden shift to remote schooling has created many challenges for education systems in the EU and has affected teachers, students and parents. Many schools and teachers were not entirely prepared to continuously teach in a remote and mostly digital way, with existing but sometimes much underused digital means. Subject to high pressure and sometimes lacking digital competence, some teachers also struggled to prepare digital content and deliver digital classes. Also, not all students were prepared to learn in the home environment, while being isolated from peers, and they struggled to stay motivated and regulate themselves to focus on study. Parents had to continue working as usual, sometimes tele-working from home, and at the same time, they suddenly became responsible to actively support their children in the remote schooling process.

Overall, European countries differ widely in their readiness to use digital learning technologies (European Commission 2019a). Prior to the pandemic, teachers indicated three main barriers which prevented them from using digital technologies in schools: a lack of equipment (or malfunctioning equipment), a lack of understanding on how to use digital technologies in education, and a lack of digital competence (European Commission, 2019b). The new EU Digital Education Action Plan[4] stresses that "*the potential of digitising education was not widely visible and understood*" in the EU. It is not the first time that external shocks have stimulated motivation for the adoption of highly innovative communication technologies and digital learning tools (Tull et al., 2017). Yet, in the new EU Digital Action Plan, next to teachers' competences, the investment in infrastructure, connectivity and digital equipment has been identified among the strategic priorities to foster the development of digital education.

Several lessons for the future can be drawn from schooling practices during the spring 2020 lockdown. The main aim of the study was to better understand the existing challenges all actors involved in remote education faced, but also to reflect on the reshaping of education systems and allow them to become more resilient for the future. The joint discussion presented in section 3 is based on the analysis of qualitative interviews conducted in five Member States (Belgium, Estonia, Greece, Italy and Poland), and covers topics in five areas, namely: inequalities in schooling, teaching and learning content and tools, competences, certification and assessment, and mental health. Discussion of recent research findings precedes each topical section. The methodology of this study is described in section 2. In the last section, we conclude with policy pointers based on our findings and sometimes evidence from other sources. The five country-specific reports are in Annex I.

[1] With some exceptions: Sweden did not close their primary schools, and in Belgium and Norway a few school facilities remained partially open for children whose parents are working in essential sectors (European Data Portal, 2020)

[2] Data were retrieved for 20 March 2020 from the UNESCO Global Monitoring of school closures by COVID-19: https://en.unesco.org/covid19/educationresponse

[3] https://unesdoc.unesco.org/ark:/48223/pf0000373322

[4] https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_en

2 Methodology

This report is based on the results of a qualitative study carried out between June and August 2020. Overall, 150 interviews were collected in five EU Member States, concretely: Belgium, Estonia, Greece, Italy and Poland. Interviews were carried out with key stakeholders involved in primary and secondary education, including teachers from rural and urban public schools, representatives of teachers' associations, school leaders, as well as students and parents (see Table 1 below for more detailed information). The objective of this study was to reach varied groups of stakeholders to gather evidence built on diverse views and perspectives. The selection of Member States allowed us to collect information about experiences of remote schooling from countries representing different levels of advancements in digital learning[5].

Table 1. Information about number of interviews collected by type of stakeholder and by country

	Belgium	**Estonia**	**Greece**	**Italy**	**Poland**
Target group					
Students	5	4	3	5	3
Parents	5	4	3	5	9
Teachers	10	11	13	13	7
School leaders or directors	6	4	5	6	3
EdTech companies	1	1			1
Others	Educator – Technological Pedagogical Coach for education, Trainer Digital Learning (1) Policy (2) Digital Development (2)	Professional support staff member (4)	Unionist (2) Director of education (1) Education Coordinator (2)		Regional education authority representative (1) NGO (1) Speech therapist (1)
Total	32	28	29	29	26

When interviewing participants, we followed a semi-structured scenario that was prepared in English and translated by experts into languages of their country. We collected information about stakeholders' experiences regarding five main topical areas (all detailed questions asked can be found in Annex II):

- ✓ Inequalities in schooling;
- ✓ Access and use of teaching and learning contents and tools;
- ✓ Digital, and social and emotional competences;
- ✓ Certification and assessment of students; and
- ✓ Mental health.

Interviews were conducted mainly via videoconference, while sometimes participants were contacted over the phone or even in person (following the social distancing rules).

Each country-specific report includes a more detailed description of the fieldwork and the analysis of collected information (in Annex I).

Some limitations should be mentioned when discussing the findings and conclusions of this qualitative study:

[5] The criterion was based on the percentage of schools with a virtual environment in ISCED-1, ISCED-2 and ISCED-3, according to the European Commission' s EU survey of ICT in schools (2019) published in the Final report Objective 1 – Benchmark progress in ICT in schools, available at https://ec.europa.eu/digital-single-market/en/news/2nd-survey-schools-ict-education

— We carried out a purposeful sampling aiming to obtain information from different stakeholders involved in remote schooling. As in any qualitative exploratory study, the findings about the nature of remote schooling can be generalised with some caution.

— We did not aim to identify if the age of students mattered for experiences during remote schooling. Yet, we see that some aspects of students' experiences varied depending on age which could be furthered researched quantitatively. In our results and conclusions, we will refer to primary and secondary students, respectively.

— As regards exclusion criteria, to follow social distancing rules, we decided to conduct interviews mainly via videoconferencing or phones, therefore it is possible that views of families without such means are underrepresented in our study. The same applies to stakeholders who are not native speakers, as the interviews were collected in the respective language of the involved country only. Finally, information about experiences of certain groups of students who due to e.g. disabilities are more challenging to be interviewed in-person was only collected indirectly e.g. from the interviews with their parents or teachers.

3 Insights from the shift to remote schooling in spring 2020

1.1 Inequalities in schooling

School closures during the COVID-19 crisis had a large impact on magnifying existing and raising novel concerns on inequalities in access to education, mainly because most schools had to rely on digital technologies to continue teaching full-time. Students from vulnerable groups were disproportionally affected as they are already more likely to face additional barriers (OECD, 2020a). Although the existing evidence on the impact of online education on students' outcomes is mixed (e.g. see Zimmer et al., 2012 or CREDO, 2015), a recent study of Bueno (2020) shows that participation in full-time virtual schooling can have negative effects on students' cognitive and behavioral outcomes. Indeed, this study shows that children learning in virtual schooling in primary and secondary education experienced significant learning losses and have a lower probability to graduate when compared to those who learn face-to-face.

The existing educational divide as an effect of socio-economic status was present already before the COVID-19 crisis (OECD, 2019). When coupled with digital exclusion, it is expected to result in an ever-widening learning gap (Darling-Hammond et al. 2020). Recent JRC studies (Di Pietro et al. 2020, Blasko and Schnepf 2020) pointed to a few ways through which the transition from in person to digital learning may further increase existing inequalities. Firstly, in vulnerable households, there is a lack of access to digital devices. Moreover, in large households, most often the same devices are shared among family members to address competing needs of tele-work and digital education, and frequently alongside limited bandwidth. Secondly, students in low-income households are more likely not to have access to an adequate learning environment in their homes (e.g. a quiet place to study or their own desk). Finally, those children may lack adequate parental support (Ibidem). Indeed, even when socio-economically disadvantaged families have access to the internet, the amount of time spent and resources available for learning are scarcer than in affluent families. A recent study carried out by Chetty et al. (2020) points out that when learning mathematics online, poorer students' performance remained 50% below baseline levels persistently, while their wealthier peers adapted to this mode of learning and, even losing some time at the beginning, they managed to level up to normal performance in a long-term perspective.

Initial results from studies carried out during the period covered by our analysis seem to confirm that digital learning can increase inequalities. A study during the eight weeks of school closure in the Netherlands confirms that students from disadvantaged homes were disproportionately affected, with learning losses of up to 55% larger than in the general population (Engzell et al., 2020). Larger learning losses during COVID-19 school closures in Flanders were observed for schools with a higher share of disadvantaged students (Maldonado and De Witte, 2020). Halterbeck and colleagues (2020) show that the differences in learning losses between children in the UK from high and low socio-economic groups due to this schools closure was of 13 percentage points.

The COVID-19 crisis has affected access to education for students with disabilities (United Nations, 2019; UNESCO, 2020b). For children with physical disabilities, it could have been easier to attend classes online as they were not required to travel to schools. Yet, for those students with disabilities and who have challenges processing information, or who struggle with concentration, the remote schooling experience may not have been beneficial (United Nations, 2020). Concretely, lack of prior experience with digital learning, lack of support from parents, lack or difficult access to the internet, inaccessible software, inadequate technology or lack of learning materials are likely to have widened the learning gap for students with disabilities (UNESCO, 2020b). Moreover, in the case of children with disabilities, remote education meant greater and more time-consuming involvement of parents (Centrum Cyfrowe, 2020). The participation of support teachers in all lessons was mentioned as a best practice to tackle exclusion from education for these children. Nevertheless, in the case of some children with disabilities e.g. with speech disorder, it sometimes turned out that remote education was beneficial and helped them to better fulfil their potential (Ibidem).

Digital inequality among students also creates a challenge for teachers to provide access to both basic and assistive technologies needed to support, in particular, students with individualised education plans. Potential of adapting learning online to individual student's needs is well acknowledged (Dhawan, 2020). Yet, students with individualised education plans may need adaptive equipment and special software. They will also require different kinds of instructional planning and preparation, including an ongoing evaluation to determine the appropriateness of particular online and hybrid approaches.

The **results of our study** confirm many of these insights in relation to equal access to education during remote education:

Remote schooling may aggravate inequalities in a multidimensional way. The participants in our study mentioned several barriers for students' participation in remote education, such as young age, lack of learning autonomy, simultaneous use of digital technologies by family members (e.g. parental tele-work), lack of adequate place at home to study, or lack of privacy. These barriers could widen existing educational inequalities that often affect students with special education needs, low socio-economic background or children with a migrant background (in particular ethnic minorities and refugees): "*Some kids don't have the means (e.g. smartphone, computer, broadband connection, Wi-Fi). Reaching kids in the asylum centre was very difficult…*", a school leader in Belgium said. When learning remotely these barriers may play even greater role in increasing inequalities than when in-person learning takes place (e.g. due to a lack of study room or parents' support).

Moreover, a high quality, fast and stable broadband connection is crucial to ensure that every student, especially in rural areas, has equal access to digital education. Our study shows that the lack of adequate broadband internet connection affected the provision of synchronous activities. Students found it annoying if they could not hear other classmates or teachers very well during the online sessions. The massive simultaneous use of tools for synchronous and asynchronous remote education was also a cause of their malfunctioning. For example, digital education platforms were not tested for being accessed by all students simultaneously. Furthermore, a weak digital connection made it difficult for students to get access to the digital content that teachers had prepared for them, e.g. watching a video or downloading a big file.

Digital equipment remains a cause of inequalities in remote schooling. Full geographical broadband coverage is only one prerequisite to guarantee equal access to digital education. Assuring that every child has necessary and adequate digital equipment is another important element. Some interviewed students felt limited and uncomfortable when participating in remote schooling. In some cases, this was because they needed to share their digital device with siblings or parents who were, respectively, also attending classes and working from home. In other cases, a cause of a limitation lied in types of devices students used as some features were not accessible on mobiles or small tablets. Additionally, the use of small screens for long periods could have been unhealthy (e.g. affecting students' vision). During the spring 2020 COVID-19 lockdown, some governments addressed the shortage of digital equipment by trying to provide equipment or financial support to those who needed them, but this sometimes failed due to the urgency and high demand. In fact, our study shows that several challenges arose, from delayed (Italy, Poland, Belgium) or missing delivery (Greece), insufficient and/or occasionally incompatible devices (Belgium), and uneven distribution (Belgium). A school leader in Belgium stated "*…I needed at least 30 laptops for every grade, we have a very high share of students with low socio-economic status here, and I think I got 13. And then we had to select ourselves, "Which child needs it most in 6th grade*?". In Poland, teachers organised support in an informal way: "*Only later there was such a proposal to lend school equipment to children. It was a ministerial decision. However, I did not wait and took my own actions - I published the request on my Facebook wall, then to NGOs and also an informal group, Visible Hand (Widzialna Ręka), helped me, so just before Easter every child had a tablet available*", a primary teacher from a rural public school voiced. In Greece, a school leader explained: "*we filled out the forms documenting the students' needs for equipment over and over again, but nothing ever came of it*".

Parents' and carers' support for students in early years of education is crucial. Children in the first years of primary education need specialised pedagogy and extensive care time. This is why the presence of a teacher plays an important role in their learning process. Besides, during the first COVID-19 lockdown, younger students seemed not to be autonomous enough in accessing digital technologies and using them. Therefore, parental support became crucial for them, even to start to attend classes, get access to the learning platforms and understand instructions provided by their teachers. Parents and carers also acted as motivators and teacher helpers in monitoring children's learning process. In our study, the teachers observed that the children who were supported by their parents in their learning process, with either time or knowledge, were performing better. This could also add to the difference in learning progress between students without parental support compared to their peers with systematic parental support.

Parents need guidance on how to support their children's learning. Full-time remote schooling puts families in a more active position for educating their children. Parents' availability and capacity to assist varied: some parents became more appreciative of professional teaching staff in supporting and educating their children, while others deepened critical attitudes. Parents were concerned about teachers focusing on the teacher-parent channel rather than on the teacher-student contact to follow student progress or ensure

engagement. A parent of primary and secondary school students in Estonia said: "*Teachers' personal communication directly to my child did not happen very often. It appeared that teachers felt it appropriate to talk to the parent instead*". Reliance on parental competence during remote schooling, in particular when parents are not prepared for such roles, may contribute to increase in educational inequalities. Our results point out that some parents struggled to understand the aims and goals of the role in the learning process of their children. Parents also felt that they need better guidance to support child's instructions, in particular at primary school level (see also Vuorikari et al., 2020).

Uneven levels of parents' digital competence widen inequalities. The first COVID-19 lockdown did not only test teachers' and students' preparedness to efficiently teach and learn online, but also the level of digital competence of parents and carers, who became more involved in the learning process of their children. Yet, the families are very diverse in their digital maturity, ranging from IT professionals who sometimes also offered their assistance to local schools, to those who had very low or no digital skills. For example, a parent in Poland struggling with zipping the file with child homework before sending it to the teachers commented: "*We were completely not ready for it. My wife and I work in the office but we use the computer for simple tasks. So we struggle with all these platforms, I don't have the skills … combining ten files into one, sending back materials that had to be sent back, it was a real challenge for us*".

Remote schooling was more burdensome for families with children with special educational needs and disabilities. The transition to remote schooling saw a substantial increase in work for parents with children with special needs, as their mediation in the learning process was essential to support their children from home. Results from other studies show that the number of hours devoted to help students do homework were significantly higher for parents with children with special needs (Baten, 2020a,b). When family engagement was lacking, the children were left behind. A teacher in Italy said: "*But for children with disabilities this experience was devastating. It was clear that therapeutic use of technologies for disability is limited, while there is a need for using the computer for communication purposes even in these cases. Indeed, despite the several words spent on accessibility, there's no commitment to remote inclusion*". The most common strategies that the interviewed stakeholders adopted to ensure family involvement and provide effective assistance were: individualised and differentiated learning activities, additional support from educators, device delivery, proximity and ongoing communication with families, at-home assistance and cooperation between specialised teachers and subject teachers.

Children with language barriers need targeted assistance when learning remotely. Teachers identified students with a mother tongue other than the language of instruction as a group needing special assistance during remote schooling. Students, especially at the primary level, struggled to access learning platforms. They did not always understand instructions and tasks, and were dependent on support from parents who most often also did not speak the language enough to help them. Those parents also struggled with communication with teachers via online platforms, which most often offered only one language option. In Greece, higher absenteeism among migrant students was related to lack of interpreting services that stopped working a few weeks before the lockdown due to a lack of funding. In Belgium, a school started to develop its own application: "(…) *You can put that app in the language of the parent. That costs a lot of money, but that way we can reach all parents. Because 99.9% of the parents have a smartphone here at school, that's not the problem. Downloading an app like this is still easy. Then we have contact with a parent within 3 seconds, it is with push messages and stuff on their screen*" as school leader explained.

1.2 Teaching and learning content and tools

Digital technology was at the centre of remote education in all Members States. The COVID-19 crisis started at a time when most education systems were unprepared to make the most of digital technologies. While these technologies can support remote education in many ways, digital learning support platforms greatly facilitate their use. However, according to PISA 2018 findings, on average across OECD countries, only about half of 15-year-olds were enrolled in schools whose principals reported that an effective online learning support platform was available (OECD, 2020b). Moreover, the results of the EU Survey of Schools on ICT in Education (referring to school year 2017-2018) show that in the EU only 32% of students in primary schools were familiar with online learning environments (European Commission, 2019a).

Despite all its positive features (e.g. easier accessibility, better affordability, learners' flexibility to schedule or plan their time for completion of courses), digital learning also has several drawbacks. One of them is the difficulty in monitoring students' understanding, which requires teachers to prepare very clear and well-structured instructions. Online learning requires much more personal attention and sometimes students may get discouraged if they have difficulties in understanding instructional goals (Dhawan, 2020). When starting

to teach online in this emergency setting, most teachers, based on instructions received from Ministries or school leaders, decided to reduce curriculum coverage to those components which they considered manageable for home learning. They avoided content that was difficult to teach remotely (either because it required more teacher guidance, or more interaction among pupils than teachers) or considered as less engaging for children (Lucas et al., 2020). Yet, in remote schooling, in particular when cameras are switched off, it is also difficult to control students' attention. Indeed, an online study carried out during remote schooling among students (both primary and secondary) in Poland, shows that during online synchronous classes almost one-third of 1,284 respondents admitted using social media, playing games, browsing the Internet for private purposes or communicating with someone not in relation to class activities (Ptaszek et al., 2020).

Against this background, the **results of our study** point at the following insights about teaching and learning content and tools during remote schooling:

Remote education may complement in-person teaching. All stakeholders doubted that remote education could replace full-time in-person teaching. In particular, due to its limits in enabling the relational and social dimensions of schooling as well as the essential role that the physical presence of a teacher plays in the learning process. In the words of a teacher from Greece: *"In-person teaching evolves, it occurs within a dynamic environment with many children. They are not passive receptors, their presence unequivocally affects the teaching process, they learn by working together, they test their interpersonal relationships, the teacher can see everything and subtly intervene with intricate pedagogical action in a situation. This cannot be replaced"*. However, emergency remote education and/or blended learning can be an effective solution to maintain a sense of belonging to the school, or to ensure access to education to students who must physically remain away from school for longer periods for reasons like sickness.

Synchronous digital learning sessions in smaller groups worked better than in larger groups. Most often, it was not technically possible to organise synchronous digital learning activities for large groups of students. Yet, even when the technology allowed teachers for it, it was found to be less effective as teachers could not focus on each student as they would do when physically present in the class. Learning in smaller groups seemed to augment the one-to-one (almost in-person) time teachers spent with each student, and increased students' attention and motivation. Synchronous teaching in smaller groups also allowed teachers and students for more active communication and exchange of information (e.g. to revise exercises, answer students' doubts, ask questions on the lesson, give feedback on students' work).

Remote teaching goes beyond making learning content digital. Since the beginning of the lockdown many teachers started to think "*what can our children continue to learn from home, practice and revise, and in other ways than in in-person teaching*?" as a school leader in Belgium voiced. Some teachers found it difficult to transform all content into digital material and decided to drop certain parts. Some decided to simply upload reading tasks to allow students to keep the same learning pace among groups of children with different digital access. Yet, teachers shared some links to various websites with digital educational resources and some good practices on digital education. This allowed teachers who started preparing digital content from scratch to take inspiration or re-use those resources. Some school leaders highlighted the importance of rethinking the pedagogy when dealing with transforming curricula topics into digital content: "*For me it was fundamental to make teachers understand that remote teaching was very different from in-person lessons and therefore it could not be done in the same way*", an Italian school leader said.

Teachers benefitted from sharing good practices in the transition to remote education. In this short transitional time from in-person to full-time remote schooling, teachers experimented with various ways of teaching and judged their effectiveness by assessing students' learning progress. Self-organised communities of school leaders, teachers as well as informal individual contacts played a key role in supporting pedagogical innovation to make this change. The sharing of good practices, especially in digital teaching and learning inspired less prepared school leaders and teachers who eventually were able to improve their teaching practices and developed new skills. While top-down instructions to organise remote schooling were generally lacking, networked bottom-up processes allowed teachers not only to improve their knowledge to face the challenge, but also to overcome the feeling of abandonment and loneliness they felt at the beginning of the lockdown. Networking proved to be a successful strategy to cope with the emergency situation. It also involved external local actors, such as NGOs, ICT companies, pedagogy and psychology experts.

Abundance of digital learning environments may trigger confusion and frustration among users. In many cases, the lack of guidance at central level on the platforms to be used for teaching led to the adoption of a variety of digital solutions. "*Teachers tested multiple options before they could settle with a suitable*

solution that they saw fit for teaching goals and student learning patterns. Both teachers and students expressed that in the abundance of digital learning environments, they missed a digital environment that would converge organising functions (such as an e-diary), interactive functions and cross-subject teaching", as argued in the Estonian country-specific report. Students, teachers and parents were requested to navigate among different learning platforms, and this generated confusion and frustration. A single platform can be a way to reduce the unnecessary cognitive load generated by the effort to jump from one platform to another. It would also help to provide a set of predefined digital resources that teachers may readapt, reshape and reuse.

Remote schooling has an ambiguous impact on students' performance. Both high and low achieving students were impacted by remote schooling. For some students, who sometimes were performing very well in in-person learning, the shift to remote education had detrimental effects and some became learning 'at-risk' groups. By contrast, other students, who became more engaged during the remote schooling period, benefitted from this new situation. These positive effects on learning performance were mostly observed among introverted students, as well as those easily distracted, with learning difficulties, or even with special learning needs (e.g. autism and attention deficit hyperactivity disorder –ADHD-). In Greece, a teacher said: "*The child started to do well and flourished! This is not true for every child [...] but that was the case with some, and we saw it!*". Learning from home in a familiar and quiet environment, and with lack of peer pressure are factors that could explain why these students performed better. Nevertheless, the lack of support to families with children with other special educational needs, such as for speech therapy, negatively affected the performance of this group of students during remote schooling. For example, in Poland, a speech therapist from a town public school voiced "*Speech therapy requires high quality. It is a bit like rehabilitation, so you just must see the child and choose exercises on a regular basis assisting her/him".*

1.3 Competences

During the spring 2020 lockdown, remote schooling pushed students to adapt to an online learning setting and many children were not prepared. Although, in theory, young people are "digital natives" (Prensky, 2001), in practice exposure to technology does not imply the ability to use it (Margaryan et al., 2011; Kirschner and Bruyckere, 2017; Fraillon et al., 2019). Similarly to children, remote schooling tested also teachers' preparedness to distance teaching. The PISA 2018 study shows that, on average across OECD countries, only two out of three students were enrolled in schools whose principals considered that their staff had the necessary technical ability and pedagogical skills to integrate digital devices effectively in instruction (OECD, 2020b). Indeed, having an adequate level of digital competence was observed to be problematic even for the youngest generations of teachers during the first wave of the pandemic (Konig et al., 2020). Another study shows that teachers dealt with the lockdown in a mixed way, either demonstrating great resilience, creativity and perseverance, or struggling to adapt to the new reality (Livari et al., 2020). In some cases, they relied on their technology-savvy family members (Ibidem).

Williamson and colleagues (2020) explain that discussions on what constitutes teachers' "digital literacy", "digital competence", "digital fluency" had been taking place for at least 30 years before the pandemic. Some experts recommend that teacher training should cover few dimensions: instrumental, pragmatic, psychological and organisational on how to use digital technologies in education. The aim would be to allow teachers not only to produce and design content but also to innovate and lead digital transformation in education (Espino-Díaz et al., 2020). Other studies also identified a need to foster the development of teacher competence in digital-related teaching, both in initial teacher education and continuing professional development (e.g. Konig et al., 2020).

The European Commission already supports initiatives to encourage self-reflection and self-assessment within educational organisations, as they progressively deepen their engagement with digital learning and pedagogies (e.g. SELFIE tool[6], DigCompEdu[7]). Yet, the recent experience of remote schooling shows that teachers not only are expected to deal with digital technology but also with delicate social contexts and circumstances. Besides digital competence, they need to be well aware of the social, emotional and affective aspects of digital technology-based education (Williamson et al., 2020).

[6] https://ec.europa.eu/education/schools-go-digital_en
[7] https://ec.europa.eu/jrc/en/digcompedu

In line with this evidence, the **results of our study** point at the following insights about the competences needed during remote schooling:

Remote teaching requires an appropiate range and level of digital competence. Teachers' digital skills varied from those who had to start from the most basic tasks (e.g. some had to create an email account), to those who were already using digital content. Some teachers explained they benefitted from participation in previous trainings: "*Our educational technologist had provided training on Google Classroom and I am really happy that I was familiar with it. If I had to start learning from zero, then the learning curve would have been much slower and more difficult*", said a lower secondary school teacher in Estonia. Nevertheless, the tools for digital teaching are under constant development and for those reasons even teachers who feel tech-savvy needs to keep their level of digital competence up to date to learn about innovations.

Teachers' competence in digital pedagogy for remote education needs further development. Previous experience of teachers with digital technologies for educational purposes appeared to have made a difference in the delivery of remote schooling. However, even when some teachers considered their digital skills at least satisfactory, they also highlighted that they were not prepared for a situation in which digital technologies became essential for the study process. "*I am familiar with many digital environments and have used them in the study process before. However, I have not been in a situation in which I have to work the whole day with digital tools and rely mostly on digital environments to achieve study outcomes. There is a huge difference in using digital environments to diversify study process as opposed to having it as a central feature*", a teacher in Estonia declared. Remote education goes beyond the use of digital equipment, and should include other elements such as innovative and digital pedagogies that are suited for remote education. Schooling during the spring 2020 lockdown showed that many teachers did not have any particular skills in the pedagogical use of digital technologies. Teachers struggled to estimate well how much time they would need to plan remote teaching or students would need to do their homework. Developing such competence to deliver remote education is necessary to help teachers to better engage students, maintain their motivation, and better manage their time when teaching remotely.

IT assistance for schools during remote schooling is indispensable. Absence of IT teams at schools made educational staff rely on more digitally skillful colleagues. A teacher in Greece explained: "*when someone at school knows something, they inform their colleagues about it, and probably this model works best*". This probably also created more pressure on those staff with a high level of digital competence. Peer collaboration and exchange of experiences among teachers, and even sometimes students, played an important role in remote education. Nevertheless, assistance to compensate gaps in digital competence and requiring professional IT knowledge cannot rely predominantly on contingent help and additional workload by school staff. From this remote schooling experience, it became quite evident that "*we need for each school, or centre, one full time IT – specialist to help with material and connection, but also with a focus on distance learning. /.../ We used all the possibilities. That was sometimes confusing. It was more kind of window shopping without any clear goal*", a school leader in Belgium voiced.

Online privacy and safety are important topics, but they receive insufficient attention. During the classes prior to COVID-19 school closure, not much attention was paid to teach children about online privacy and safety. Even during the period of remote schooling, these topics seemed to be neglected: "*cybersecurity topic did not come through school but through media. Starting from home as your private sphere and what you show on camera. That schools cannot require you to create accounts in various digital environments. /.../ Teachers wanted to bring in interesting elements. I do not recall school focusing on these topics*", voiced a parent in Estonia. Some school leaders and teachers admitted not having sufficient competence to address students' knowledge gap comprehensively. In some schools, concerns regarding issues of personal data protection and internet safety were raised when episodes where strangers entered into online classes were reported. In other schools, these safety concerns led students to never switch on their cameras during the lessons, which some teachers found uncomfortable. Although some students at primary level knew about password strength, they had little knowledge about cyber safety and teachers had to show them how to use digital environments and manage their online accounts safely.

Digital competence of primary level students is still too low to participate in remote learning without parental support. Students at primary level needed greater assistance from parents or other carers to ensure educational continuity. Parents stressed that digital competence among primary level students does not allow them to learn on their own. For example, a parent of primary and secondary school students in Estonia explained: *"Remote education is more difficult for younger children. They are not so self-efficient. Older children have a sufficient level of digital competence to navigate through various digital*

environments. With younger children, what became an issue was that they had not practiced digital competence at school to a sufficient extent".

Students need both digital and social and emotional competences to take advantage of remote education. Teachers observed that students had developed a habit of using digital skills for communication and leisure, but not for learning. This sometimes happened despite attending computer science lessons. For example, a teacher in Estonia reported that "*There is a major difference between using the device for communication and leisure and as your main tool for studying*" and another one in the same country also explained that "*you would think that googling is rather simple, and you do not have to teach it, but it quickly became clear that yes, we need to teach it*". Digital competence, however, is not enough. As highlighted by some respondents, students also need to become equipped with social and emotional skills to be able to fully participate in remote schooling, especially in digital environments. These skills encompass flexibility, adaptability, patience, and empathy.

Students' self-regulation can help them be more successful in remote schooling. During remote schooling, while students have more freedom and autonomy to decide on their learning process, they are made more responsible for their own learning than in in-person education. Many students appreciated their own planning for learning time and less rigid day schedule and were able to develop self-regulation skill to focus on learning and not get distracted in the home environment. For example, a teacher in Estonia explained: *"In video lessons I noticed some development among very young students who had difficulties in self-regulation at school. Having to find their own way via screen connection without me pointing out with finger where and what increased their self-regulation skills, so they really did well".* Support through weekly individual synchronous meetings may help all students, in particular those with learning needs or less motivated, to better define their individual work plans and to teach them how to self-regulate. For example, special education teachers organised additional individual online lessons with their students, as a Greek primary teacher school observed: "*I believe that students with special education needs benefited from this situation. Besides my support, they also had online assistance from the integration class teacher and the class support teacher*". Yet, self-regulation is an individual competence of the learning process and does not usually receive large attention during the schooling process: *"We cannot presume self-regulation skills if we have not paid much attention to them previously at school",* a teacher in Estonia argued.

Developing students' social skills is more challenging during remote schooling. School staff indicated difficulties or not feeling competent to address social skills of students learning remotely. "*Many teachers do not have a clear understanding on how to develop social skills during remote education*", an Estonian teacher reported. But also some teachers did not perceive the development of such skills as a priority. As a result, some teachers noticed that after a few weeks of remote schooling, students experienced discomfort when communicating with other students during group work. The lack of the socialising aspect of schooling was challenging for students. A primary teacher from a city public school in Poland said: *"They were fed up, they wanted to see their friends."* A 13-year-old student in Belgium voiced: "*….yeah, it would be nice to go back to normal because then you can see your friends agai*n. [At first] *I was very happy because I didn´t have school anymore, but after a few weeks it became a bit harder because I lost contact with most of my friends*". This shows that development of social skills cannot be neglected, as it is key to ensuring well-being alongside academic achievement during remote schooling.

1.4 Certification and assessment

The COVID-19 pandemic has affected certification and assessment, as some countries decided to postpone, reschedule or even sometimes cancel examinations (UNESCO et al., 2020). Nevertheless, in order to prevent further inequalities, assessing student progress is necessary, even during emergency online learning (König et al. 2020). As prior to the COVID-19 crisis, most kinds of learning assessment required students' physical presence, teachers had to review their assessment processes during remote education. The three aims of evaluation remained the same: (i) to assess acquired knowledge, (ii) to help achieve goals or competencies, and (iii) to sum the learning outcomes (Gallardo-Cordova, 2020). What has changed was the way to assess students. Teachers had to understand that online assessment is not about replicating in-person procedures and methodologies through a camera (Gallardo-Cordova, 2020). For example, in a classroom setting, teachers are in a better position to identify reasons for students' low scores (e.g. absenteeism vs. lack of understanding) than when teaching remotely (Garcia and Weiss, 2020). Alongside, the challenge of rethinking evaluation methods, timeliness, in particular the lack of immediacy of feedback, also appears as relevant aspects of student evaluation when learning online (Gallardo-Cordova, 2020). The emergency shift to remote

schooling also showed the importance of training teachers in sound assessment practices and the use of digital assessment applications (Bazaldua et al., 2020; Middelton, 2020).

Another aspect that appeared in the discussion on how to organise assessment during online education is related to the use of learning analytics. Learning analytics involve the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs (Ferguson et al., 2016). Most of the educational platforms are designed the way to allow teachers to generate a large amount of data from different sources, which could be a useful tool for assessment of learner's progress. In general, learning analytics allow teachers for better assessment and predicting learner's performance helps in monitoring and motivating students and could even help monitor their emotional states (Hooda and Rana, 2020). Yet, during the closure of schools many private companies offered their platforms "for free" only to take advantage of the data generated by students (Teräs et al., 2020).

In this context, the **results of our study** point at the following insights about certification and assessment during remote schooling:

Monitoring students' performance in remote schooling is challenging. Generally, teachers and school leaders highlighted the complex nature of evaluating students' tasks, comprehension, and learning progression in distance schooling: *"When I'm with them in the classroom I can sort of tell what they understand, what they don't understand and I'm there to spontaneously give more explanation about things if I feel like the message isn't really getting through, whereas of course in written work they are very much sort of left to their own devices",* said a teacher in Belgium. Teachers explained that class management was somehow easier in a classroom setting, especially with respect to more challenging students or those who required greater attention or support (e.g. young children). For example, regular teachers' activities in in-person class such as asking students to focus, stop talking, etc. become more challenging in remote schooling. Moreover, the ability for online monitoring of classes was largely affected by digital connectivity, and sometimes teachers had to trust that students were still following mandatory sessions even without seeing their faces or not hearing them. As one teacher in Estonia explained: "*teachers do not really have measures to check how engaged students are behind the screens*". On some occasions, parental support was requested to ensure students' participation in online classes.

Delayed feedback can affect students' learning experiences. Feedback is a powerful instrument to ensure learning continuity, and it is also relevant for student performance. Providing real-time and targeted feedback was challenging for teachers during remote schooling. Despite their efforts to ensure their accessibility and availability for students via diverse channels, students' learning quality was affected. This happened mainly because the time between task submission or students' questions, and teachers' feedback was longer than in an in-person setting. Some teachers decided to use more creative and formative approaches to give feedback, such as structured real-time communication tools (e.g. school collaborative learning and communication platforms, social media). Sometimes familiarity with tools among students, teachers and especially parents, or low barriers to their adoption, were key in enabling their use in communication.

The use of self- and peer-assessment was underutilised. Overall, even when evaluations were moved from more traditional practices to digital learning mediums, they were well-received by students, enabling valuable feedback on learning. Various quiz software proved popular amongst interviewed teachers and students in the context of self-administered testing. However, teachers' lack of synchronisation in use or overuse of online quizzes (i.e. that led to the receipt of 5 quizzes per day, across one grade-level group) demotivated some students. In some cases, students also seemed to develop fatigue over time with the peer-reviewing process. Moreover, when it was not an integrated and mandatory task-component, students ultimately resorted to prioritising their own task completion. Furthermore, teachers voiced that this was more challenging with younger children, who based their judgements on likeability: "*I think children were not ready for this. They assessed according to their likes or dislikes: "I do not like you; I'll kick you*" (primary teacher in Poland). Further reflection on how to give feedback in online learning sessions would be appropriate, alongside targeted teacher training.

Evaluation is a complex task for teachers and school systems. The use of digital technologies for evaluation was challenging in remote schooling, particularly when technical problems with connection disrupted synchronous learning, as well as due to students' unequal levels of digital competence and access to remote education (see sub-section on inequalities). Schools sometimes resorted to paper solutions and phone calls in order to bring the most at-risk students back to the school. Occasionally, one-to-one and

synchronous sessions were used, as well as self-evaluation software (quizzes, polls and other task-comprehension tools). There was a consensus that the assessment methods used in in-person learning need to be revised altogether: "*the traditional assessment cannot work with remote teaching*", a school leader in Italy observed. Effective assessment methods for remote education have to ensure flexibility for alternative procedures and learner inclusion.

1.5 Mental health

Results of previous studies focusing on the impact of quarantine periods during epidemic events (e.g. SARS) on the mental health of the general population showed that individuals could develop several negative symptoms, such as depression, anxiety and stress (Gómez-Salgado et al., 2020). Mental health is indeed one of the four most important issues to address when teaching online (Martin, 2020). During the remote schooling period, in spring 2020, mental health problems among children occurred for many interrelated reasons, including isolation (e.g. lack of contacts with peers) and increase in screen exposure. Thomas and Rogers (2020) explain that periods of isolation may be particularly challenging for children and adolescents with special needs or disadvantages (e.g. disabilities, trauma experiences, already existing mental health problems, migrant background and low socioeconomic status). These students may struggle even more than their peers to learn alone, and they would require special provisions to cater for their needs. Although screen time and its effects on children and young people is highly debated (Blum-Ross and Livingstone, 2016), some studies have found that remote schooling could present risks linked to the extended use of digital technologies, such as screen addiction, sleep disruption (Thomas and Rogers, 2020), depression, and anxiety (Maras et al., 2015; Lissak, 2018; Twenge and Campbell, 2018). Nevertheless, other studies can also point to some benefits on exposure to digital technologies in remote education. For example, parents with children affected by ADHD noticed an improvement in their children's anxiety related to less school-related strain and flexible schedules that respect their children's rhythm (Bobo et al., 2020).

Parents' own mental health is important for children's development since they are their children's primary emotion regulators. In times of stress such the COVID-19 lockdown there are at least four stress sources through which the psychological well-being of parents could affect the childrens' mental health: (i) parental job loss, (ii) income loss, (iii) caregiving burden, and (iv) illness. The drop in parental income and/or a job loss are strongly associated with parents experiencing depressive symptoms, stress, diminished sense of hope, and negative interactions with children. The lack of childcare services may also negatively influence parent's mental health as they need to organise and share care responsibilities together with work obligations. Parents' sickness is associated with less positive parent-child interactions and more child behavioural problems. By contrast, kids may benefit from a situation when parents spend substantially more time caring for them because of the pandemic, as they report more positive parent-child interaction (Kalil et al., 2020). Nevertheless, it was observed that in general, both parents' and children's mental health was worse in families that have experienced multiple hardships (Gassman-Pines et al., 2020).

Teachers could suffer mental health problems too during remote schooling. Similarly to children, teachers spent long hours in front of a screen to teach, prepare content for their classes or evaluate students' work. They might have also been affected by the lockdown itself. A recent study among teachers shows that the general level of work-related anxiety was at the same level before and during the lockdown (Allen et al., 2020). However, female teachers suffered work-related anxiety slightly more often than male teachers. Having children in the household had a much bigger impact on work-related anxiety (irrespective of gender), indicating that lack of access to care services made it more difficult and thus more stressful in particular for teachers who had to combine tele-work with caring responsibilities. During the simultaneous tele-work and remote schooling periods, the well-being of teachers might have also suffered from the lack of boundaries between their social spheres. During the online classes delivered from their private environments, the physical context of their homes seeped into a virtual work context for teachers (e.g. home backgrounds in online conferences) and they became exposed to students' judgements and also sometimes to situations of banter (Buglass, 2020). A fear of being mocked by students or becoming victims of hate, were both reported by teachers as a reason for using only "safe" means, e.g. posting list of excercises instead of delivering online classes in real-time (Centrum Cyfrowe, 2020).

The **results of our study** point at the following insights about how to address the mental health of teachers, students and their parents during remote schooling:

Training in keeping good mental health helps teachers to deal with remote schooling. During the spring 2020 lockdown, only on rare occasions, school leaders addressed psychological wellbeing needs of teachers in a structured way, for instance, weekly or bi-weekly online meetings were organised to address the problem of anxiety setting up the rules for digital hygiene and behaviour, or scheduling calls to check teachers' emotional state. A school leader in Estonia explained: "*I called teachers a lot to find out how they were doing and I felt it provided teachers a lot of support. They were like, oh, how nice that someone calls me and is interested in how I am doing*". Overall, the search for specific psychological services or support measures was rather initiated by those in need for help. For teachers, remote schooling meant spending long hours in front of computer screens and navigating through digital environments. Such overstimulation from screens and digital environment exposure might have increased anxiety levels. A secondary teacher in Estonia said: *"For me, having to stay home was the toughest possible scenario; at work I was able to see some colleagues and I was able to switch from one environment to another. However, waking up and immediately starting working and meeting only one person throughout the day, it was not working well for me and at some point, I felt it started to affect my health".* To avoid burnout and long-term severe psychological consequences, some basic advice should be provided by school stakeholders or peer support be organised to help teachers in balancing between professional and private life. Some teachers admitted that training in mental health techniques supporting general wellbeing received prior to confinement helped them dealing relatively better with the remote teaching pressures.

Peer support plays a role in mitigating teachers' stress. When teaching occurs at school, teachers are surrounded by other colleagues whom they can ask for help whenever they might encounter a problem. They also have regular meetings where they share information and discuss problems. They may feel more secure and less stressed than during remote education, when they are responding to all problems they encounter almost on their own. In addition, problems with digital technology can be particularly stressful for teachers lacking digital skills. The support of colleagues proved to be very helpful in mitigating teachers' stress during the lockdown. Yet, schools varied in terms of readiness to provide teachers with psychological support. In some schools, teachers were offered to talk informally and discussed their problems in private. In other schools, where the institutional help for teachers was not organised, some teachers took the initiative and decided to provide mentoring for other colleagues: "*In the case of my school and my colleague teachers, we were totally left on our own. There was no sign of psychological help. We were looking for specific information from social media and other online sources, on how to deal with stress. I forwarded it later to other teachers and to my students*", explained a secondary teacher from a town public technical school in Poland. The simple contact and knowledge/problem sharing with other peers seemed to work well as a first-hand psychological support.

Addressing the diversity of mental health needs of vulnerable students and their families sometimes requires an individual approach. It is observed that the emotional state and the feeling of connection with the school community have a positive impact on students' learning success (Delahunty et al. 2014). During remote schooling, many families (e.g. single parents, parents of disabled or very young children) were struggling to deal with stress levels. These groups felt left alone or time-pressured when trying to reconcile tele-work and care responsibilities, which also required active participation in the learning process of their children. An example from Greece shows that individual treatment was used to support such families, as some children "*received [from school staff] assistance from two or three people*". In these cases, special attention was paid to the organisation of individual support, allowing for personal assistance to students, individual contacts or frequent telephone calls with peers/ management/ psychological services.

Monitoring of students' well-being is more difficult during remote schooling. Sometimes, in case of low motivation, parents were requested to support students in their learning. On the one hand, this could help solve a problem of lack of engagement, but, on the other hand, it might have been detrimental to student's self-efficacy, or even cause more tensions at home and, in extreme cases, could result in increased domestic issues or even violence. Lack of personal contact during remote schooling and the drawbacks related to the computer-mediated communication during the lockdown (e.g. internet fatigue, digital addiction, social loneliness, cyberbullying) substantially limited knowledge and satisfactory measures for ensuring students' psychological well-being Teachers focused first on lesson delivery, and rarely, have sufficient time, knowledge, or opportunities to address the individual psychological needs of their students. Moreover, online classes difficulted sometimes chances for direct monitoring and support as on many occasions, students preferred switched-off their cameras and muted microphones.

In the figure below, we can see a summary of the main insights obtained from the study.

AREA	INSIGHTS
Inequality in schooling	• Remote learning may aggravate inequalities in a multidimensional way. • Digital equipment remains a cause of inequalities in remote schooling. • Parents' and carers' support for students in the early years of education is crucial. • Parents need guidance on how to support their children' learning. • Uneven levels of parents' digital competence widen inequalities. • Remote learning was more burdensome for families with children with special educational needs and disabilities. • Children with language barriers need targeted assistance when learning remotely.
Teaching, learning content and tools	• Remote education may complement in-person teaching. • Synchronous digital learning sessions in smaller groups worked better than in larger groups. • Remote teaching goes beyond making learning content digital. • Teachers benefited from sharing good practices in the transition to remote education. • Abundance of digital learning environments may trigger confusion and frustration among users. • Remote schooling has an ambiguous impact on students' performance.
Competences	• Remote teaching requires an appropriate range and level of digital competence. • Teachers' competence in digital pedagogy for remote education needs further development. • IT assistance for schools during remote learning is indispensable. • Online privacy and safety are important topics, but they receive insufficient attention. • Digital competence of primary level students is still too low to participate in remote learning without parental support. • Students need both digital and social and emotional competences to take advantage of remote education. • Students' self-regulation competence can help them to be more successful in remote schooling. • Developing students' social skills is more challenging during remote schooling.
Certification and assessment	• Monitoring students' performance in remote schooling is challenging. • Delayed feedback affects students' learning experiences. • The use of self and peer-assessment was underutilised. • Evaluation is a complex task for teachers and school systems.
Mental health	• Training in keeping good mental health helps teachers to deal with remote schooling. • Peer support plays a role in mitigating teachers' stress. • Addressing the diversity of mental health needs of vulnerable students and their families requires an individual approach. • Monitoring students'well-being is more difficult during remote schooling.

4 Conclusions and policy pointers

Researchers have concluded that when making decisions on next school closures and shift to remote schooling, the negative effects of this situation should be weighed against the positive indirect effects it might have on the mitigation of the COVID-19 pandemic (Public Health Agency of Sweden, 2020). In particular, last research results suggesting that child-to-child transmission of COVID-19 in schools appears to be uncommon and that the re-opening of schools in autumn 2020 does not seem to be associated with significant increases in community transmission (European Centre for Disease Prevention and Control, 2020) have put the focus on the negative effects of school closures on children learning outcomes (e.g. Di Pietro et al. 2020, Blasko and Schnepf 2020). Various studies have discussed the impact of school closures on school-aged children's social development and health (Dove et al., 2020; Masonbrink and Hurley, 2020; Christakis et al. 2020).

Leaving aside the discussions on the legitimacy of decisions about schools closures, the spring 2020 experience of an unprecedented shift to remote schooling provided a unique opportunity to collect useful information on how to reshape education systems and better address the education needs of future learners. The pandemic gave a "natural experiment" opportunity to observe experiences of people involved in remote schooling and teaching. This has offered the possibility to explore the strengths and weaknesses of remote education and under which conditions it could be paired with in-person education.

The insights presented in this report cover several topic areas related to inequalities, learning tools and content, competences, certification and assessment, and mental health. To sum up, **our study shows that**:

- In terms of **inequality**, a full-time remote education would aggravate existing inequalities. Access to digital technologies, including both infrastructure and equipment, is still unequal, which may lead to the exclusion of some groups of children (e.g. children with special education needs, disabilities or facing language barriers). During remote schooling, parents played a key role in children's learning process, and thus they would need to receive support and guidance, especially when helping the youngest students or students with low self-regulation. Moreover, parents' lack of digital competence could aggravate existing inequalities.
- In relation to **teaching and learning content and tools**, remote education may complement in-person education, in particular for older children as they become more independent in their school activities and use of digital technologies. However, teachers and in general educational staff also require to become equipped with competences to fully take advantage of potential of digital technology in teaching. This goes beyond the creation of digital content only. Sharing good practices and mutual learning among teachers also help them in improving the quality of remote teaching. We have observed, nevertheless, that students' performance can be affected when learning remotely.
- Reinforcing and upgrading the level of digital **competence** of all educational actors is therefore crucial. This also includes digital pedagogy for teachers and raising awareness about cybersecurity. The development of social and emotional competences is especially relevant for students, in particular self-regulation, social skills and self-care.
- Concerning **certification and assessment,** during remote education, monitoring students' performance is challenging and delivery of feedback takes longer, with negative effects on student's learning performance and possibilities for formative assessment. Moreover, self- and peer–assessment were poorly used. Overall, these elements make it difficult to evaluate students' learning progress properly.
- In the area of **mental health**, in general, remote schooling makes it difficult to monitor students' well-being and address their needs. Also, the well-being of teachers and school leaders are at stake and they need to learn how to cope with it. Still, support provided to them would need to be more institutionalised. Apart from peer support, training on how to keep good mental health would help them to become more resilient.

Even when the qualitative nature of this study calls for some caution when generalising its findings, we see some commonalities with other recent research results which allow us to draw the following general **policy-relevant implications**:

- **Access to good quality digital infrastructure and equipment is essential to guarantee effective participation in blended or full remote education for all students.** This is especially

relevant for those students from families in a precarious situation, those in rural or disconnected geographical areas, as well as for those with students in primary schools.

- **Education systems should better exploit the full potential of blended learning**. Blended learning should be based on high-quality digital pedagogy, well designed digital lessons, user-friendly platform to access the repository of digital resources, and clear instructional practice. It could be a viable option for some individuals, especially those who performed better in remote schooling than in in-person learning environment. Blended learning could also help address shortages of teachers, which are already present in some rural areas. Nevertheless, caution is needed with students in primary education because they require more parental support than students in secondary education. This could be addressed by introducing an assessment system of digital competence (e.g. using the European Digital Competence Framework –DigComp[8]-) to evaluate primary education students' preparadness for remote schooling. The development of social and emotional skills of children in remote or blended education would also need more attention as the socialising process is not occurring as much in a natural way as in in-person schools. The European Framework for Personal, Social and Learning to Learn Key Competence (LifeComp) could help to organise curricular and learning activities to develop a wide range of social and emotional skills. [9]
- **Schools would benefit from the development of digital education action plans.** These plans should ideally be co-created at the school level. The development of schools digital plans in collaborative ways can help building internal school staff networks and help taking into account teachers' and students views and inputs. Ideally, teachers could be supported by educational technology guidance teams. These teams could be composed of specialists capable to provide technical expertise, as well as pedagogically-robust blended and remote schooling scenarios. These specialists should ensure targeted pedagogical support for teachers. In that context, the SELFIE tool developed by the European Commission can help schools to develop their own action plans to enhance their digital capacity.
- **Collaboration and exchange of good practices among educational staff should be encouraged.** This could be done by introducing education exchange programmes - partnerships across classes, schools and regions, as well as international partnerships, to allow collective online learning. Sharing of good practices related to remote teaching may also be promoted through accessible portals (e.g. eTwinning).
- **Greater investment in teachers' competences is required**. Teachers need to be equipped with digital competence, as described in European Framework for the Digital Competence of Educators (DigCompEdu), including the technological, pedagogical and content dimensions. They should also receive training on how to use digital technology for assessment. Development of social and emotional skills by teachers is also necessary while in remote schooling. Those skills help them to motivate and engage their students, as well as to support their own mental well-being. Both initial teacher education and continuing professional development should include all those topics. School leaders also could also benefit from special training as they are at the forefront of school management and development.
- **Students need to be equipped with both digital and social and emotional competences**. Based on teachers' and parents' observations more attention could be paid on equipping students with specific digital competences. Students need to learn how to: collaborate with others when using digital technology; use digital technologies properly by respecting privacy and management of personal data; and solve technical problems. Moreover, students' should acquire appropriate social and emotional competences such as self-regulation in order to benefit from the increased autonomy that remote education requires.
- **Parents need guidance too in order to help their remotely learning children**. As in remote schooling, parents are active facilitators of learning, they would need to get necessary guidance to be able to use digital learning platforms and support their children when required. Specific information sessions and material for parents might be organised by schools and their parents' associations targeted in particular to those parents with children in the first years of obligatory schooling.
- **Digital safety during online learning should receive more attention.** Basic knowledge about safety in digital environments is essential for all students to understand potential threats of using online tools for learning. This applies even more to youngest children. Schools could create specific guidelines on how

[8] https://ec.europa.eu/jrc/en/digcomp
[9] https://ec.europa.eu/jrc/en/lifecomp

to treat personal data and content available during digital education. Moreover, training on digital safety should be available for teachers, school leaders, students and parents.

— **Promoting students' and teachers' well-being should be a key priority during blended or remote education.** It is true that the pandemic situation has added an additional level of stress which makes it more difficult to single it out from the real impact of remote schooling experience when making the assessment of well-being of students and teachers. Yet, flexibility was often mentioned as one of the positive aspects of remote education. However, maintaining mental health of all actors and preventing burnout of professional staff when spending long hours in front of the screen also requires setting time limits and establishing routine patterns. The remote schooling experience highlighted successful measures to be considered when implementing any kind of blended or remote education. These measures are defining specific time slots for online sessions and, task completions for students, outdoor activities for all actors as well as teacher-student and teacher-parent communication. Creating a psychological support desk in all schools to ensure the presence of qualified professionals would also help supporting school leaders, teachers, students and their families in any stressful situation while in remote or blended education.

References

Allen, R., Jerri, J., Sims, S. (2020). How did the early stages of the COVID-19 pandemic affect teacher wellbeing?, file:///U:/9.%20Future%20of%20Education%20and%20Work/Experts/Pool%20037260%20Coronavirus%20%20Education/Deliverables/Deliverable%201/Literature%20COVID%20education/Mental%20health/allen_jerrim_covid_final.pdf

Bazaldua, L., Armando, D.; Levin, V.; Liberman, J. (2020). Guidance Note on Using Learning Assessment in the Process of School Reopening (English). Washington, D.C.: World Bank Group.

Baten, E.A. (2020a). Thuisonderwijs tijdens de COVID-19 pandemie: de eerste resultaten [Teaching at home during the COVID-19 pandemic: First results – Phase 1 before the Easter holidays]. UGent: Onderzoeksgroep Ontwikkelingsstoornissen, April 2020. Available at https://www.ugent.be/nl/actueel/thuis-onderwijs-covid19.htm

Baten, E.A.. (2020b). Thuisonderwijs tijdens de COVID-19 pandemie [Teaching at home during the COVID-19 pandemic: Phase 2 after the Easter holidays]. UGent: Onderzoeksgroep Ontwikkelingsstoornissen. Available at https://www.ugent.be/nl/actueel/thuis-onderwijs-covid19.htm

Blasko, Z. and Schnepf, S. (2020). Educational inequalities in Europe and physical school closures during Covid-19. JRC Fairness Policy Brief https://ec.europa.eu/jrc/sites/jrcsh/files/fairness_pb2020_wave04_covid_education_jrc_i1_19jun2020.pdf

Blum-Ross, A. and Livingstone, S. (2016). Families and screen time: current advice and emerging research. Media Policy Brief 17. The London School of Economics and Political Science Department of Media and Communications. https://www.internetmatters.org/zh-CN/wp-content/uploads/2018/05/LSE_Policy-Brief-17-Families-Screen-Time.pdf

Bobo, E. ,Lin, L., Acquaviva, E., Caci, H., Franc, N., Gamon, L., Picot, M.-C., Pupier, F., Speranza, M., Falissard, B., Purper-Ouakil, D. (2020). Comment les enfants et adolescents avec le trouble déficit d'attention/hyperactivité (TDAH) vivent-ils le confinement durant la pandémie COVID-19 ?, L'Encéphale, Volume 46, Issue 3, Supplement, 2020, Pages S85-S92, ISSN 0013-7006, https://doi.org/10.1016/j.encep.2020.05.011

Buglass, S. (2020). Cyber collisions in a socially distant world, presentation delivered during FoSS/WIRC Event: Remote Work and Worker Well-Being in the Post-COVID-19 Era webinar, 12.11.2020

Bueno, C. 'Bricks and Mortar vs. Computers and Modems: The Impacts of Enrollment in K-12 Virtual Schools'. EdWorkingPaper: 20-250, 2020, Retrieved from Annenberg Institute at Brown University: https://doi.org/10.26300/kahb-5v62

Centrum Cyfrowe (2020). Edukacja zdalna w czasie pandemii. Raport z Badan. Kwiecien 2020. file:///C:/Users/napiejo/AppData/Local/Temp/1/Edukacja_zdalna_w_czasie_pandemii.pptx-2.pdf

Chetty, R., Friedman, J., Hendren, N., Stepner, M. (2020). The Economic Impacts of COVID-19: Evidence from a New Public Database Built Using Private Sector Data, NBER WORKING PAPER NO. 27431, November 2020, https://opportunityinsights.org/wp-content/uploads/2020/05/tracker_paper.pdf

Christakis, D.A., Van Cleve, W., Zimmerman, F.J. (2020). Estimation of US Children's Educational Attainment and Years of Life Lost Associated With Primary School Closures During the Coronavirus Disease 2019 Pandemic. *JAMA Netw Open.* 2020;3(11):e2028786. doi:10.1001/jamanetworkopen.2020.28786

Center for Research on Education Outcomes (CREDO) (2015). Online charter school study. Technical report. https://credo.stanford.edu/sites/g/files/sbiybj6481/f/online_charter_study_final.pdf

Darling-Hammond, L., Schachner, A., Edgerton, A. K. (with Badrinarayan, A., Cardichon, J., Cookson, P. W., Jr., Griffith, M., Klevan, S., Maier, A., Martinez, M., Melnick, H., Truong, N., Wojcikiewicz, S.). (2020). Restarting and reinventing school: Learning in the time of COVID and beyond. Palo Alto, CA: Learning Policy Institute

Delahunty, J., Verenikina, I., Jones, P. (2014). Socio-emotional connections: identity, belonging and learning in online interactions. A literature review. Technology, Pedagogy and Education, 23 (2), 243-265.

Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology Systems*, 49(1):5-22. doi:10.1177/0047239520934018

Di Pietro, G., Biagi, F., Costa, P., Karpiński Z., Mazza, J (2020). The likely impact of COVID-19 on education: Reflections based on the existing literature and international datasets, EUR30275 EN, Publications Office of the European Union, Luxembourg , 2020, ISBN 978-92-76-19937-3, doi:10.2760/126686, JRC121071

Dove, N., Wong, J., Gustafson, R., Corneil, T. (2020). Impact of School Closures on Learning, Child and Family Well-Being During the COVID-19 Pandemic. BC Centre for Disease Control & BC Children's Hospital. September 2020. http://www.bccdc.ca/Health-Info-Site/Documents/Public_health_COVID-19_reports/Impact_School_Closures_COVID-19.pdf

European Centre for Disease Prevention and Control (2020). COVID-19 in children and the role of school settings in COVID-19 transmission, European Centre for Disease Prevention and Control, Stockholm, 2020, https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-schools-transmission-August%202020.pdf

European Commission (2019a). Education and Training Monitor 2019, https://ec.europa.eu/education/sites/education/files/document-library-docs/volume-1-2019-education-and-training-monitor.pdf

European Commission (2019b). Final report Objective 1 – Benchmark progress in ICT in schools, https://ec.europa.eu/digital-single-market/en/news/2nd-survey-schools-ict-education

Engzell, P., Frey, A., & Verhagen, M. D. (2020, October 29). Learning Inequality During the Covid-19 Pandemic. https://doi.org/10.31235/osf.io/ve4z7

Espino-Díaz, L., Fernandez-Caminero, G., Hernandez-Lloret, C-M., Gonzalez-Gonzalez, H., Alvarez-Castillo, J-L. (2020). Analyzing the Impact of COVID-19 on Education Professionals. Toward a Paradigm Shift: ICT and Neuroeducation as a Binomial of Action, *Sustainability*, MDPI, Open Access Journal, vol. 12(14), pages 1-10, July.

Ferguson, R., Brasher, A., Clow, D., Cooper, A., Hillaire, G., Mittelmeier, J., Rienties, B., Ullmann, T., Vuorikari, R. (2016). Research Evidence on the Use of Learning Analytics -Implications for Education Policy. R. Vuorikari, J. Castaño Muñoz (Eds.). Joint Research Centre Science for Policy Report; EUR 28294 EN; doi:10.2791/955210.

Fraillon, J., Ainley, J., Schulz, W., Duckworth, D., Friedman, T. (2019). IEA International Computer and Information Literacy Study 2018. Assessment Framework ISBN 978-3-030-19388-1 ISBN 978-3-030 19389-8 (eBook), https://doi.org/10.1007/978-3-030-19389-8

Gallardo-Cordova, K. (2020). Toma de decisiones en torno a la evaluacion del aprendizaje: repensar nuestras practicas en tiempos de la contingencia sanitaria, webinar of Observatorio de Innovación Educativa del Tecnológico de Monterrey, https://www.facebook.com/watch/live/?v=955351284909834&ref=watch_permalink

Garcia, E., Weiss, E. (2020). COVID-19 and student performance, equity, and U.S. education policy. Lessons from pre-pandemic research to inform relief, recovery, and rebuilding. Economic Policy Institute, https://files.epi.org/pdf/205622.pdf

Gassman-Pines, A., Ananat, E.O., Fitz-Henley, J. (2020). COVID-19 and Parent-Child Psychological Well-being.Pediatrics.2020;146(4):e202000729

Gómez-Salgado, J., Andrés-Villas, M., Domínguez-Salas, S., Díaz-Milanés, D., Ruiz-Frutos, C. (2020) Related Health Factors of Psychological Distress During the COVID-19 Pandemic in Spain. Int J Environ Res Public Health. 17(11):3947. Published 2020 Jun 2. doi:10.3390/ijerph17113947

Gouëdard, P., Pont, B., Viennet, R. (2020). Education responses to Covid-19: implementing a way forward. OECD Working Paper No. 224, OECD (2020). http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=EDU/WKP(2020)12&docLanguage=En

Hartshorne, J. K., Huang, Y., Oppenheimer, K., Robbins, P. T., Molina, M. D. V., Aulestia, P. M. L. P. (2020). Screen time as an index of family distress. September 17, https://doi.org/10.31234/osf.io/zqc4t

Halterbeck, M., Conlon, G., Patrignani, P., Pritchard, A. (2020). Lost Learning, Lost Earnings, London Economics, Research Brief, https://www.suttontrust.com/wp-content/uploads/2020/10/Lost-Learning-Lost-Earnings-1.pdf

Hooda, M., Rana, C (2020). Learning Analytics: Transforming Higher Education and Learning Excellences. International Journal of Advanced Science and Technology, 29(9s), 218 - 230. Retrieved from http://sersc.org/journals/index.php/IJAST/article/view/13029

Kalil, A., Mayer, S., Shah, R. (2020). Impact of the COVID-19 crisis on family dynamics in economically vulnerable households, WORKING PAPER · NO. 2020-143

Kirschner, P. A., De Bruyckere, P. (2017). The myths of the digital native and the multitasker, Teaching and Teacher Education, Volume 67, 2017, Pages 135-142, ISSN 0742-051X, https://doi.org/10.1016/j.tate.2017.06.001.

König, J., Jäger-Biela, D. J., Glutsch, N. (2020). Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany, *European Journal of Teacher Education*, 43:4, 608-622, DOI: 10.1080/02619768.2020.1809650

Lissak, G. (2018) Adverse physiological and psychological effects of screen time on children and adolescents: Literature review and case study. Environ Res. 2018 Jul;164:149-157. doi: 10.1016/j.envres.2018.01.015. Epub 2018 Feb 27. PMID: 29499467.

Livari, N., Sharma, S., Ventä-Olkkonen, L. (2020). Digital transformation of everyday life – How COVID-19 pandemic transformed the basic education of the young generation and why information management research should care?, *International Journal of Information Management*, Volume 55, 2020, 102183, ISSN 0268-4012, https://doi.org/10.1016/j.ijinfomgt.2020.102183.

Lucas, M., Nelson, J., Sims, D. (2020). Schools' responses to Covid-19. Pupil engagement in remote learning, National Fundation for Education Research, Nuffield Foundation, https://www.nfer.ac.uk/media/4073/schools_responses_to_covid_19_pupil_engagement_in_remote_learning.pdf

Maldonado, J. E., De Witte, K. (2020). The effect of school closures on standardised student test outcomes, Ku Leuven DPS n. 17/2020, https://lirias.kuleuven.be/retrieve/588087

Maras, D., Flament, M.F., Murray, M., Buchholz, A., Henderson, K.A., Obeid, N., Goldfield, G.S. (2015). Screen time is associated with depression and anxiety in Canadian youth. Prev Med. 2015 Apr;73:133-8. doi: 10.1016/j.ypmed.2015.01.029. Epub 2015 Feb 2. PMID: 25657166.

Margaryan, A., Littlejohn, A. and Vojt, G. (2011) 'Are digital natives a myth or reality? University students' use of digital technologies,' Computers and Education, vol. 56, pp. 429-440.

Martin, A. (2020). How to Optimize Online Learning in the Age of Coronavirus (COVID-19): A 5-Point Guide for Educators, https://newsroom.unsw.edu.au/news/social-affairs/how-optimise-online-learning-age-coronavirus

Masonbrink, A.R., Hurley, E. (2020) Advocating for Children During the COVID-19 School Closures. Pediatrics. 2020:e20201440.

Middleton, K.V. (2020), The Longer-Term Impact of COVID-19 on K–12 Student Learning and Assessment. Educational Measurement: Issues and Practice, 39: 41-44. https://doi.org/10.1111/emip.12368

OECD (2019), *PISA 2018 Results (Volume II): Where All Students Can Succeed*, PISA, OECD Publishing, Paris, https://doi.org/10.1787/b5fd1b8f-en.

OECD (2020a). *The impact of COVID-19 on student equity and inclusion: supporting vulnerable students during school closures and school re-openings*. OECD Policy Responses to Coronavirus (COVID-19). http://www.oecd.org/coronavirus/policy-responses/the-impact-of-covid-19-on-student-equity-and-inclusion-supporting-vulnerable-students-during-school-closures-and-school-re-openings-d593b5c8/

OECD (2020b). *PISA 2018 Results (Volume V): Effective Policies, Successful Schools,* OECD Publishing, Paris

Prensky, M. (2001). "Digital Natives, Digital Immigrants." On the Horizon 9 (5): 1–6. doi:10.1108/10748120110424816.

Ptaszek, G., Stunża, G. D., Pyżalski, J., Dębski, M., Bigaj, M. (2020). Edukacja zdalna: co stało się z uczniami, ich rodzicami i nauczycielami? Gdańsk: Gdańskie Wydawnictwo Psychologiczne. https://zdalnenauczanie.org/wp-content/uploads/2020/10/ZDALNA-EDUKACJA_FINAL.pdf

Public Health Agency of Sweden (2020). Covid-19 in schoolchidren: A comparison between Finland and Sweden. https://www.folkhalsomyndigheten.se/contentassets/c1b78bffbfde4a7899eb0d8ffdb57b09/covid-19-school-aged-children.pdf

Richardson, D., Carraro, A., Cebotari, V., Gromada, A., Rees, G. (2020). Supporting Families and Children Beyond COVID-19: Social protection in high-income countries, UNICEF Office of Research – Innocenti, Florence. https://www.unicef-irc.org/publications/1165-supporting-families-and-children-beyond-covid-19-social-protection-in-high-income-countries.html

Teräs, M., Suoranta, J., Teräs, H., Curcher, M. (2020). Post-Covid-19 Education and Education Technology 'Solutionism': a Seller's Market. Postdigit Sci Educ 2, 863–878. https://doi.org/10.1007/s42438-020-00164-x

Thomas, M.S.C., Rogers, C. (2020) Education, the science of learning, and the COVID-19 crisis. Prospects 49, 87–90. https://doi.org/10.1007/s11125-020-09468-z

Tull, S., Dabner, N., Ayebi-Arthur, K. (2017). Social media and e-learning in response to seismic events: resilient practices. Journal of Open, Flexible and Distance Learning, 21, 63-76.

Twenge, J.M., Campbell, W.K. (2018). Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study, Preventive Medicine Reports, 12, 271–283

UNESCO (2020a). National education responses to COVID-19: summary report of UNESCO's online survey, https://unesdoc.unesco.org/ark:/48223/pf0000373322

UNESCO (2020b) Policy Brief: A Disability-Inclusive Response to COVID-19, May 2020, https://unsdg.un.org/sites/default/files/2020-05/Policy-Brief-A-Disability-Inclusive-Response-to-COVID-19.pdf

UNESCO, UNICEF and the World Bank (2020). What have we learnt? Overview of findings from a survey of ministries of education on national responses to COVID-19. Paris, New York, Washington D.C.: UNESCO, UNICEF, World Bank.

United Nations (2019). Disability and Development Report, Realizing the Sustainable Development Goals by, for and with persons with disabilities, 2018, https://social.un.org/publications/UN-Flagship-Report-Disability-Final.pdf

United Nations (2020). Policy Brief: The Impact of COVID-19 on Children, April 2020, https://unsdg.un.org/sites/default/files/2020-04/160420_Covid_Children_Policy_Brief.pdf

Vuorikari, R., Velicu, A., Chaudron, S., Cachia, R .and DiGioia,R. (2020). How families handled emergency remote schooling during the Covid-19 lockdown in spring 2020-Summary of key findings from families with children in 11 European countries, EUR 30425 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN978-92-76-24519-3, doi:10.2760/31977, JRC122303

Williamson, B., Eynon, R., Potter, J. (2020). Pandemic politics, pedagogies and practices: digital technologies and distance education during the coronavirus emergency, *Learning, Media and Technology*, 45:2, 107-114, DOI:10.1080/17439884.2020.1761641

Zimmer, R., Gill, B., Booker, K., Lavertu, S., Witte, J. (2012). Examining charter student achievement effects across seven states, Economics of Education Review, Volume 31, Issue 2, 2012, Pages 213-224, ISSN 0272-7757, https://doi.org/10.1016/j.econedurev.2011.05.005.

Annexes

Annex 1. Country reports

Country report on impact of COVID-19 on schooling in primary and secondary education: Belgium. Authors: Karen Triquet and Koen Lombaerts

Contents

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Executive summary

In Belgium, lockdown measures were communicated on 16 March 2020. Two distinct policies were adopted in remote schooling. From initial shared remediation and revision only, Flemish community moved to pre-teaching after Easter, whilst the French community policy remained revision-only. The pandemic has also led to mobilisation of collaborative efforts, to equip students with digital devices and to support parents. School programmes were set up through ministry and TV network collaborations. Existing studies showed digital inequalities (Brotcorne & Mariën, 2020 with unavailability of digital equipment (Mediawijs, 2020; Teach for Belgium, 2020), and exacerbation of inequalities in general (Eurydice report, 2020). Insufficient technical and didactical support (Tondeur, 2020), and difficulties in introducing new content (Uit De Marge, 2020) have been found. Need for parent support (Mediawijs, 2020), challenge to students' motivation (SchoolIT, 2020; Baudoin et al, 2020), isolation and violence (Kinderrechtscommissie, 2020, 2020b), and increase in use of mental health services (Fondation Roi Baudouin, 2020) appeared also as effects of the remote schooling period.

This report presents the findings from interviewing 32 school-related stakeholders in Belgium, including students and parents, on how unexpected remote schooling imposed by the COVID-19 lockdown measures in primary and secondary education affected inequality in schooling, teaching tools and content, competences, students' certification and assessment, and stakeholders' mental health. The aim was to learn some lessons in view of a return to school or a new lockdown. The interviews took place in summer 2020.

The findings of this study show that the new reality was brought about following a short transition window, mostly a 2-3 day notice, to move to distance learning. Given the onset of Easter, and initial unknown severity of the pandemic, schools and educators provided more temporary 'quick-fix' supports, and educational actors mobilised some form of online supports. The first three weeks therefore can most aptly be described as "emergency remote teaching" (Hodges et al., 2020). Teacher absenteeism during lockdown, resistance to digitalisation, as well as large differences across teachers were also voiced. Re-allocation of school administrative staff to student follow-up and teacher teamwork ensured digital uptakes at grade and subject level through collaboration on lesson redesigns and in solving digital challenges. Students voiced the loss of school routines.

In terms of **inequality**, many actors mobilised to solve the shortage of digital equipment. Indeed, several actions to provide at-risk students with laptops were launched, although some were dysfunctional or arrived late. Internal school-led efforts in lending materials, and reopening school facilities for those most at-risk, as well as policy-level measures for connectivity and learning platform licenses were also visible. Systemic school inequalities due to different leadership and teacher preparedness were magnified as schools navigated the uncertainty. Conflicting federal and community-level policy decisions further led to a heavy weight being placed on schools, increasing inequality within and between schools. Novel learning demands placed on learners, alongside a number of home factors (noisy and/or shared spaces, conflict, frontline parents and support, financial risks) also put students at risk. Data collection and schools' attention to diverse forms of at-risk students served to mitigate inequalities.

In relation to **teaching tools and content**, content creation and provision, as well as professional development opportunities, drastically increased, in terms of the offer, diversity of content and uptake by teachers, and in some cases parents and carers. Teachers and school leaders voiced reliance on past digital training as well as familiarisation with new tools and digital ways of working and sought more internal help. Collaborative teams created formally and informally amongst colleagues or school leader networks were the first source to help cope with content redesign, digitalisation and conflicts. Cooperation of more traditional publishers was less visible, with instead the expansion and creation of digital ecosystems, freemium models and at times opportunistic edtech. Schools with existing digital learning policy plans and digital visions faced the move to distance learning much more smoothly due to infrastructure, technology familiarity and shared practices which translated into educational continuity.

In terms of **competences**, remote learning was seen to demand greater self-regulation for managing tasks, planning work and motivation. Students expressed a lack of motivation when it came to certain subjects, while other students and also teachers reported positive experiences and advantages from remote learning, as they experienced more flexibility and new more favourable teaching methods and lesson content and/or less distractions. However, other students with special needs reported online learning to be more challenging. Interviews also highlighted the digital push that the lockdown propagated. In this regard, the uptake reflected mostly an emergency shift approach and student skills development as a response to educators' methods. Teachers mentioned the lack of time as a key factor preventing them from participating in training.

Accessibility of ICT coordinators, as well as instructional design supports were seen to be essential to ensuring the digital push would enable sound educational continuity and help.

In relation to **certification and assessment**, student monitoring and feedback proved challenging for educators across grade-levels in Belgium. Students reported a general decrease in provision of instant feedback, with longer delays in help-seeking. Albeit both formative and summative evaluations were affected, teachers highlighted the adoption of new (and an increase in) formative methods. Reliance on summative methods was limited, due to possible cheating and parental assistance. The use of diverse polling and quizzing tools proved popular in this regard among both students and teachers. The elimination of final year examinations in most parts and greater leniency in grading were a cause for concern as well as a call for benchmarking and differentiating supports upon entry. The learning gaps that COVID-19 has incited was mentioned by teachers, school leaders as well pedagogical support staff as an important future consideration.

For mental health, interviews surfaced a number of instances in which students missed their school. Keeping the link between schools and students, online and offline, was a determining factor voiced by teachers for those most at-risk. Mental workload and wellbeing were reported differently by diverse groups. In large part, however, consensus on the inability to 'shut off' and the blurred realities of work/learning and social/private life was present across all stakeholders. A large increase in the uptake of children and youth helplines was visible, in order to address fears, social isolation, divorces or parental conflict. Although limited recounting of burnouts, teachers seemed to have developed fatigue over the course of lockdown. Parents highlighted several stress factors, from balancing work to supporting younger children and/or children with special needs, especially when the language of instruction was different than their own or they were less educated, or when they themselves were lacking digital competencies, financially at risk, and/or in full time work. Women seemed to hold a greater burden in this during the lockdown.

The **findings of this study** show that the unexpected and obliged remote schooling in Belgium due to the COVID-19 lockdown gave a potential opportunity to reshape education. This includes flexible pedagogies and digital learning environment, better digital access and use by those students at risk, and better stakeholders' cooperation and involvement of parents in schooling. Educators' adaptability and motivation, school and teacher communities and leadership, and existing centralised digital content, portals and platforms, among other factors, helped to face the challenge. Nevertheless, uncertainty, fragmentation in communication and digital learning ecosystems, high educational inequalities, stakeholders' workload, and need for self-regulation and resilience made the process of remote schooling more difficult. Moreover, some stakeholders had to face poor access to digital technology and content, low skills and unfavourable family conditions. Those issues affected primary school children and their parents more strongly.

These lessons learned from remote schooling in Belgium call for **policy actions** to close the digital divide especially in primary schools, invest in teachers, provide individual support for learning, prioritise self-regulation and social and emotional learning, support parental role, and promote a sound choice of educational technology providers.

1 Aim and scope of the report

The aim of this report is to learn lessons on how the unexpected, obligatory shift from face-to-face to remote schooling has affected primary and secondary education, as well as to evaluate the existing solutions in place for remote teaching and learning from the perspective of different school-related stakeholders. The report collects information in Belgium obtained by interviewing 32 stakeholders (5 students, 5 parents, 11 teachers, 6 school leaders, and 5 other educational actors) on the following topics: inequality; teaching, learning contents and tools; digital, and social and emotional competences; certification and assessment; and mental health. More information can be found in the Annex on the methodology of the study. The current report covers the Flemish Community (approximately 58% of students) and the French Community (approximately 37% of students) (OECD, 2017).

In order to set the scene, a general overview of national research covering the impact of the COVID-19 lockdown measures on schooling, as well as the educational policies for remote schooling developed during the lockdown in the country are presented in section 2. Section 3 presents the main findings of the interviews to stakeholders. Section 4 analyses the findings and draws some lessons from the lockdown in Belgium.

2 Current policy situation and national research on COVID-19 and remote schooling

2.1 Institutional context and policy situation at national level

In Belgium, educational decisions of the French, Flemish and German communities ensued federally communicated lockdown measures as of 16 March 2020 (see Appendix A). Two distinct policies were adopted: from initial shared remediation and revision only, the Flemish community moved to pre-teaching after Easter, whilst the French community policy remained largely revision-only, with post-lockdown grades and examinations largely cancelled. Crisis centres with a specific focus on educational continuity and digital pedagogical teams were also formed for each community.

School transitions followed three waves: (1) lockdown, emergency response and revision-only policy; (2) Easter lockdown extensions, internal re-organisation due to pre-teaching announcement (Flemish Community) and RCD (Remediation, Consolidation and Experience, French Community), and (3) lockdown relaxation, gradual returns to school, parent-teacher meetings and examinations. Lastly, a final transition was announced at the onset of the summer holidays, with efforts for remediation recognised at policy level. School programmes were set up through ministry and TV network (VRT and RTBF) collaborations, with the FlemishCommunity also setting up summer schools for at-risk students.

The pandemic has also led to a large mobilisation of collaborative efforts to equip students with digital devices. This has ranged from country-level campaigns to mobilise digital inclusion and infrastructural needs, to actionable device sourcing schemes at school, school network, organisational (private and non-profit), provincial and city-led levels. These initiatives have mainly prioritised secondary school. Support to parents came through the creation of Corona parental leave.

2.2 National research on the impact of COVID-19 on the school

The OECD COVID country notes (2020g) and TALIS results (OECD, 2019) show that Belgium is below the EU average in terms of existing preparedness for ICT. For example, 29% of teachers' reported use of ICT for classwork and projects compared to 53% of teachers in the EU. The barometer for digital inclusion in Belgium (Brotcorne & Mariën, 2020) highlighted digital inequality also at regional level. The latest Eurydice report (2020) also informed on exacerbating inequalities due to the pandemic, with students at risk having faced larger hardships, both in terms of their living/home learning conditions as well as their schools provisional capacities for learning continuation. More concretely, Tondeur (2020) highlighted that a majority of teachers in Belgium switched to online teaching during the COVID-19 lockdown, but reported insufficient technical (30%) and didactical support (50%). Mental health services across the country have reported large increases in their services uptake both the Flemish Community (Kinderechtscommissie, 2020; Uit de Marge, 2020) and in the French Community (Fondation Roi Baudouin, 2020) during the COVID onset and in its current prolongation.

More specifically for the Flemish Community, Demeulenaere et al. (2020) and Digimeter Vandendriessche & De Marez (2020) showed that during the pandemic help seeking for digital learning was more necessary for younger children. Mediawijs (2020) found a mixed use of devices between social media and schoolwork in households with children between 0 and 18 years old, as well as parents (76%) reported lack of school enquiry as to children's home learning digital situation. 40% of parents reported that they had to find agreements of use for devices to be shared amongst siblings for work, and 83% had to support their children's learning. This supportive dimension and parental workload were also highlighted in another study covering the reality of learning from home during the various lockdown phases in the context of the Flemish Community (Batens et al., 2020a,b). Uit De Marge (2020) highlighted the largely voiced (81.2%) difficulties with the introduction of new content (pre-teaching) and homework in the post-Easter period. Kinderrechtscommissie (2020, 2020b) also echoed the lack of face-to-face contacts with friends and school, boredom and an increase in fighting and violence. SchoolIT (2020) found an increase in frequency of teaching platform daily use (from 9 to 41%)and challenges in motivating students (61%) and in teaching (74%).

For the French Community, a survey on uses and digital needs of 25 961 students (Wallonie-Bruxelles Enseignement, 2020) highlighted that more than 90% of students had access to internet across secondary and primary education, with 69% of primary students reporting having a device other than a smartphone accessible, compared with 82% of secondary students. The Roi Baudouin Foundation (2020), through

interviews and focus groups, confirmed the efforts made across schools to document existing digital needs, from devices to digital competences. Findings displayed an enhanced negative effect of the lockdown on educational inequality. Baudoin et al, (2020) surveyed 6 015 secondary students and found a majority of them reported being less stressed by school work as well as sentiments of boredom. In general, the majority of students (80%) were actively engaged in their school work, but challenges in contact and feedback had negative effects on motivation. Teach for Belgium (2020) highlighted the need for digital devices for secondary students, with 35% of students not having access to a computer or being limited to 2 hours of access per day.

More recently, both communities have also started collecting in more real time a number of figures on school closures, absenteeism and teacher shortages resulting from the prolongation of the pandemic effects (See Appendix B).

3 Results

3.1 General information

General uncertainty, country pressures for educational action, concern for student educational continuity and personal coping capacity sum up some of the diverse sensations upon first hearing of the school lockdown . Most interviewed students saw the school lockdown as an early start of the Easter holidays. "At the beginning, it was only 5 weeks, and yes you could do it all, that is enjoy a long sleep with a little work for school and then go downstairs to eat a lot, and cook a lot, and all of those kind of things, and then I thought, ok I can also meet up with friends in the meantime" (Student, 15, NL). The teachers also perceived this line of thought for students. Alongside happiness, and surprise, some students also stated feeling stressed about incoming exams and the lack of student contact that would result. Moreover, the transitions of initial joy, were compounded by novel working expectations and the isolated and socially restrictive nature that the full lockdown entailed, with sentiments of boredom, longing for school and friends, declared by younger and older students. Teachers and school leaders also highlighted their frustration with the situation, "I really thought, we will start again after the holiday. So that was the feeling" (Veteran Teacher, NL).

Teachers and school leaders highlighted concern for students in more unfavourable conditions "It would be very difficult to reach the pupils, to get in contact with them. We were not prepared with the staff" (School leadership, NL). With the reality of lockdown severity being felt most during the Easter break, a sense of apprehension was met with slight panic in teachers, as teachers and school leaders expressed the emerging need to fully re-design and rethink courses. In the case of parents, the school lockdown produced mixed emotions, from questioning its necessity to relief.

The initial responses that followed the announcement of the lockdown highlighted 'quick-fix' immediate needs identified by pedagogical actors and leadership to enable teacher online connectivity and tool accessibility. School leaders highlighted addressing the basic essentials, including how to ensure their staff could continue collaborating online. "Just before the lockdown I called them (teachers) all together, at a safe distance, in a large hall. I told them then "look, I am now going to train you in how to undertake online meetings, and to have online parental contact if necessary" and then I explained Google Meet, because I had to do that in person before we continued from home. Because yes, there were many teachers who had never called online. For the rest we had not yet received many guidelines. Then I just said "this is what I know, I don't know anything else" and "we are going to do it like this, we will do what is best for our children" and "for ourselves as a team" (School leader, NL).

The formation of crisis teams was also described by school leaders: "we had to start with a core team, a crisis core team, to collect all the parents email addresses. That was priority number one, because, well yes, I had to communicate with those people" (School leader, NL).ICT educational communities and educational actors described the further reinforcing and team mobilisation approach of existing educational community platforms.

Regarding preliminary educational instructions, teachers and school leaders highlighted the largely unclear, conflicting and fragmented nature of communication "Our director also said, the rules they got, she had to read them over 10 times, and then she still had a lot of questions unanswered" (School teacher, NL). On average, teacher's preparation time ranged from 2- to 3-day pre-lockdown notice. The extra provisions of time for transitions was also visible, with one school leader highlighting the use of a 'free week' so as to give both students and teachers time to adapt to the new online learning reality.

Primary and secondary school leaders approached this lack of clarity by relying on a number of channels (school leadership teams, crisis committees and existing educational networks/affiliations). Other school leaders relied "We did not receive any instructions for this. In such situations, I just do that in my own way because I also think that it depends on how your team is put together and how you normally communicate with parents. And it is especially important that you do not make extreme changes to your approach, that there is still some familiarity" (school leader, NL).

On the receiving end, some school leaders reported that teachers had very clear and consistent communication being provided: "A weekly newsletter and later on by conference calls with TEAMS, Zoom, Cisco, Google meets and WhatsApp" (School leader, NL). Some teachers expressed a different opinion: "concerning the actual content and structure of the online learning we received some very general guidelines which I think were the same as in the entire country. It was basically that we should not give new material because disadvantaged children had less computer access at home but it was still fairly vague. I think that this was also maybe intentional to leave a lot of sort of freedom in what we wanted to do" (School teacher,

FR). Moreover, some school leaders highlighted the use of coordinated communication through multi-actor teams: “many teachers formed teams in order to head the crisis; this ensured a better and faster management of the crisis and it enhanced the communication flows and cooperation between teachers. Many teachers appreciated the better and more frequent communication between them and want to maintain this change in a structural way” (School network, NL).

These differences in communication were equally reflected in methods to communicate with students and parents. For many schools this was the first time they had to reach all families online. Some teachers in more under resourced and heterogeneous schools highlighted the challenge that retrieving all contacts entailed. Social media were therefore also used, alongside WhatsApp and more structural school platforms (i.e. smartschool, ISIS, dojo, when present in schools existing practices). In some cases, the use of social media for formal communications was met with mixed reviews by parents, but this was argued by schools as being the only way to reach some parents. “We also have to admit that there are parents who only receive information through Facebook, and yeah, we had a great need for information at the very beginning of COVID, and so yes we use the tools we have in place” (Pedagogical coach, FR).

The general lack of existing infrastructure also further seemed to affect communication possibilities. In some cases teachers and school leaders highlighted how more centralised and structural mechanisms to reach students were put in place, such as school-led helplines, and in the French Community the set-up of centralised email addresses. However, teachers mentioned that set-up delays, combined with no existing contact mechanism and large groups of at-risk students in some schools, had consequences on learning.

3.2 Inequality

Educational actors, school leaders, teachers and parents mentioned inequality in digital access (infrastructure and connectivity gaps). "Some kids don’t have the means…, and reaching kids in the asylum centre was very difficult…" (school leader, NL). The differences between primary and secondary school were expressed by teachers and ICT coordinators: “We are still well equipped in secondary education, but it really resembles to nothing in primary education” (ICT coordinator, NL).

Teachers and school leaders described that efforts for reaching at-risk students used multiple communication channels. Schools in some cases resorted to phone calls and school-centralised helpline. Other times teachers made greater efforts for direct parental inclusion when students were not responsive. Teachers and school leaders highlighted door-to-door visits and adapted one-to-one online synchronous sessions, as well as printed school packs for school pick up. School leaders also mentioned that in worst-case scenarios, they resorted to bringing students back into school, in safe and guideline-respectful manners.

In lockdown, some teachers also voiced the loss of students. This happened to teachers who lacked centralised support and had large portions of their class that was offline/inaccessible, or in the older age groups, no longer under full parental supervision. This lack of student participation was also voiced by students, who brought to light that some friends were completely absent during and after the lockdown. Pedagogical support actors shed further light on these students, with large surveys having demonstrated that these students mainly came from groups and areas considered most at risk, but were also facing challenging living situations.

The initiative from DigitalForYouth.be and the Koning Boudewijnstichting to distribute 15 000 devices to secondary school pupils, on the basis of population socio-economic profile was mentioned by school leaders, ICT coordinators and teachers. They highlighted instances in which they never received any laptops, received much less than requested, and/or experienced large delays. "That (school support) was awful. They promised laptops and I ended up having to get them from our school group, that didn't come from the government. So I was very disappointed…I needed at least 30 laptops for every grade, we have a very high SES percentage here, and I think I got 13. Thirteen and then we had to select ourselves, "Which child needs it most in 6th grade?". I thought it was awful. Because in the news they say the government is also thinking about laptops in primary education. No, I think they have seriously failed to do so." (School leader, NL)”. Those who did receive devices encountered a number of problems from incompatible to dysfunctional devices to even the delivery of empty boxes. “There is a Facebook group of ICT coordinators, where there are schools who received empty boxes. They couldn't do anything with that” (ICT coordinator, NL). Nonetheless, one school leader recalled a more positive experience: “we had 36 laptops from a support organisation ‘Digital 4 Youth’, a volunteer organisation financially supported by the Flemish government” (school leader, NL). School leaders and teachers viewed other smaller or privately-led and city-led initiatives more positively.

Various challenges also appeared in relation to the devices provided. School leaders highlighted the demand placed on ICT coordinators to programme the various devices or problems in case of households with multiple siblings attending other schools with no laptops ""We also borrowed a laptop for someone in a very challenging/poor situation. But yeah, in the end it turned out that the three other children who went to another school also needed a laptop. That's also someone we then allowed to come to school" (school leader, NL). Teachers also said that in some instances older models and/or different devices were not always compatible with the students' existing digital competence: "Yes, in recent years we have focused on, from kindergarten already, to learn how to work with iPads. By the time they are in sixth year, they have already acquired a lot of ICT skills. Our students then got old laptops, which was a problem, because they have not learned how to work with them. They have learned to work with the latest iPads from Apple." (primary school teacher, NL).

Teacher and pedagogical supports highlighted the various ways in which educational technology companies mobilised software and a variety of freemiums to answer diverse technological pedagogical content needs. Learning management and content management platforms became much more popular, due in part to their capacity and reactiveness in offering help. "Microsoft is very active, they have their communication channels through Facebook. They did not go hunting for schools, but on the other hand all the schools asked them "we need help with this, and that" (Pedagogical support, FR).

School leaders and teachers highlighted collective and diverse societal efforts to provide solutions for those at-risk and/or excluded from educational continuity opportunities. These ranged from reinforcing children and youth helplines and child wellbeing centres, to teacher trainers and online schooling institutes, digital training centres, and purely voluntarily crowdsourced skilled citizens who contributed with their support and efforts, as well as parents mentioning their own supportive initiatives. Media actors collaborated and contributed to educational delivery. The VRT (national television) offered additional educational programs across diverse channels (Eén, Canvas, Ketnet en VRT NU) with the Flemish ministry of education. The RTBF proposed new educational offers for children aged 6 to 12 to review mathematics, French and early learning in collaboration with the Wallonia-Brussels Federation.

Teachers and school leaders also highlighted the need for non-digital material supports. "We have a student background of high deprivation here, so that had to be without too much material. And then we worked both digitally and on paper. So every week parents could come and collect bundles at the school gate, because yes, not every parent had a PC available or the possibility to print. Printing, that also costs a lot of money for the parent" (school leader, NL).

According to teachers, online learning was problematic for special needs students, whose diverse range of needs could not always be accounted for. "Special education is teaching for children with specific needs so they are classified by type and form, but it is very variable, that goes from the person who has a profound mental handicap to someone who is dyslexic. It's quite different, there is the autism spectrum for example too." (Pedagogical Support, FR). One interviewed student who faced dyslexia issues highlighted this too.

3.3 Teaching, learning content and tools

Although teachers and school leaders emphasised the need for digital technology, this was definitely not seen as a 'quick-fix', nor was it always the medium adopted by teachers to ensure educational continuity. Educators of all age ranges expressed discomfort with respect to the online 'quick-fixes': "I honestly did not feel very comfortable with the online teaching formats, especially as participation was very sort of uneven between students. There were nevertheless colleagues who did" (teacher secondary school, FR – younger novice).

In both the Flemish and French Community, the lockdown resulted in quick and targeted actions to ensure that specific educational platforms and materials were accessible to teachers and educators. The Flemish Community adopted an existing and teacher-familiar one-stop-shop approach to information and content management and sharing: Onderwijs Vlaanderen and Klascement. In the French Community, pedagogical actors mentioned the creation of a centralised updated COVID-19 page, and a variety of linked educational outlets for resources and best practices. Teachers informed of greater use of Microsoft teams, as well as Google Classroom, MaClasse[10] and e-classe[11] for remote learning. However, these digital platforms were not always used fully nor directly with students.

[10] https://crp.education/maclasse/
[11] https://www.e-classe.be/

Teachers and pedagogical supports saw an increase in peer-to-peer exchanges as well as online community-level specific exchanges. Pedagogical and ICT support teams also recounted the fact that much more was in demand. Teachers and school leaders also highlighted that they largely lacked time to explore and make use of these tools and materials, given their more immediate needs and their feelings of information overload. Furthermore, teachers and pedagogical supports also explicitly highlighted that the focus on secondary education was more prominent: "In the lower grades, they depended on the parents. But in the higher grades it was almost the same as if they were in class. Because we really made sure that they had free internet at home, that they could ask questions to a teacher every day" (School leader, NL). Home-schooling actors also emerged as valuable supports. Pedagogical supports highlighted that existing virtual and distance actors provided support to teachers, students and parents pedagogically as well as socially and emotionally, and also as regards effective online instructional redesign. Some examples are BedNet education and helplin, D-Teach, and EAD – Elearning a Distance.

The online shift also brought the need for curricular revisions. School leaders informed this to be both a demanding and fruitful task for teachers: "Everyone has actually started to think "what learning material is actually essential to be automated?" "What can our children continue to learn from home, practice and revise?" (school leader, NL). In other instances, students and parents highlighted that curricular changes were more the result of certain teacher activity and/or inactivity and absenteeism from the remote teaching efforts in a school.

Course revision processes followed different levels of digital teaching preparedness as highlighted by one school leader: "we improvised and we learned a lot in a short turbulent period" (school leader NL). Later more systematic course revisions were also expressed by teachers and ICT coordinators, from the dropping of certain classes altogether, revision of content coverage and dropping "non-priority courses and degree objectives that were already pursued in the previous period" (ICT coordinator, NL), to the halving of class content/time and more general prioritisation of essential learning goals. This too was elaborated by school leaders, given the digital and time restrictions they had to face. "The (subject) teams made a selection of the necessary goals to reach with their pupils by 30 June 2020. Items that were already done, already learned, were not repeated. Goals that could be learned later in a following period (in September) were skipped. The learning time went down, so we had to make the programme more efficient" (school leader, NL).

Following Easter, the Flemish and French communities adopted different approaches. The stance on revision-only in the French Community resulted in mixed reactions from parents, students and pedagogical coaches: "in the student surveys, I had a few comments like that saying, yeah but it was so boring, we could not have new subjects" (Pedagogical coach, FR). Teachers too reflected this in actual practices. In the case of pre-teaching in the Flemish Community, schools were left to their own decisions as to what to keep and what to drop in terms of content. Teachers and school leaders highlighted that this materialised into different practical approaches: "The kindergarten then started to create a Facebook page for each kindergarten year and every day they posted videos of activities they could do at home" (school leader, NL). "The first week I just sort of proposed some fun activities, which weren't really course material related" (school teacher, FR).

According to teachers and students, scheduled courses included synchronous and asynchronous classes coupled with some form of learning management system (Google, Microsoft, Moodle) and/or online communication platform (SmartSchool, Email, ISIS). Teachers highlighted a range of resulting school schedules (e.g. daily live classes, morning interactive sessions only, unidirectional YouTube livestreams, no online classes and interaction). Most teachers and students highlighted the benefits of ensuring some form of structured schedule for delivery to maintain a learning structure and habits: "from the beginning of May we got a new schedule, one for the whole week, and from 8:30 till 13:30 we got live lessons and then in the afternoon we had our free time to study what we have learned, and so there was a lot of structure from that moment, it was better" (Student 17, NL). Some teachers seemed to view synchronous lessons as less of an educational gain, but more on a social dimension for students "…these sessions had more of a psychological benefit than anything else, because they weren't really about teaching any kind of material. … it was just sort of a question seeing each other's faces and reminding each other that you know we're all still there…which also has its benefits" (secondary teacher, FR). Students too reported these lessons going 'off-topic' in some contexts, or simply being distracting, whilst others liked this moment of social contact.

Some teachers across all school levels seemed to avoid digital redesigning of their courses altogether. There were cases of very limited use of the school-designated online platform or even of teacher absenteeism: "my French teacher? I didn't get any news from him until we started school again" (Student 13, FR). Pedagogical supports reported teachers being approached by parents for educational alternatives for their children: "I have had contact with parents who really came to say we did not have any contact with the teacher during the

online teaching period, we are looking for another school and looking for solutions, also for home-schooling" (pedagogical coach and educator, NL).

Ultimately, school leaders and teachers highlighted that shifting to distance learning was more challenging in primary education: "Online and distance learning was appreciated by students and teachers, mainly for specific courses (e.g. mathematics), specific levels (general education) and specific groups of students aged 12+" (school network, NL). This was due to several reasons, from parental support needs for pure online navigation to the specific demands of online learning.

3.4 Competences

Teachers struggled to ensure and maintain students' motivation, as did parents, and to continue to nurture the contacts with students. School leaders highlighted its importance. "Safe learning. Get contact with everyone and keeping up the motivation, because we have to run a marathon against Covid-19" (school leader NL). Students primarily highlighted effects of boredom, stress, lack of feedback, course engagement disparities and self-structuring. School leaders and teachers also voiced the negative effects of distance on children: "Some pupils were stronger in their learning position. Most pupils had to be convinced to do better. Motivation is a strong problem if you can't reach them properly" (school leader, NL). Students expressed the challenging nature of distance learning and inability to ask questions directly. Quick and simple feedback was a motivating factor for them. Interactive online with nurtured discussions was positively received: "I did 2 video conferences with my Dutch teacher, but I wanted more moments online" (student 13, FR).

In large part, teachers and students reported that the move to remote learning seemed to present students of all ages with a greater need to reflect upon and structure their learning tasks, as well as their environments in order to complete their assignments. As one student recounted, when faced with subjects he perceived as more challenging, the particularities of autonomous online learning made them even more challenging. This too was voiced by students with special needs, as one student with dyslexia elaborated: "from April I had to do a lot on my own. I was not used to working independently so much because that also means a lot of independent reading and writing assignments. I was all alone, it's hard. I am not good at all, but I try to always be present at all my lessons" (student 15, NL). Pedagogical support actors mentioned the need to develop certain self-regulation skills for students: "Managing remote working time can be learned, so it is essential to help the students to organise themselves. There are tools for that, but you have to be there for them, we have to teach to be autonomous, it is learned" (pedagogical support, FR).

Levels of digital competence and respective gaps were visible: "The majority of colleagues are not skilled enough, in fact I think that was 70%" (ICT coordinator, NL), "we have school leaders who do not know how to open an email" (pedagogical support, FR). The onset of remote schooling led to visible development of digital skills, collectively experienced by the school actors: "Yes, I think that we have now suddenly taken a big step forward in the field of digitisation. It was a must. So all colleagues who did not want to or were too stuck in their job and did not dare, they simply had to switch to a digital form. And that, I think now, creates a great opportunity" (Teacher, NL). The reliance and usefulness of past skills development and training, as well as existing and running digital projects prior to the pandemic was highlighted by school leaders, teachers and parents as beneficial: "Yes, coincidentally I had just had a refresher course at school group level. Yes, that was very strange, that was in January / February that I had followed a training on remote ICT possibilities, for meetings and the like" (school leader, NL).

Teachers raised the myth of digital natives in regards to their students' lack of competences, from correctly using email, to employing different more learning centred tools, or interacting with different documents online. Many students had their first experiences with video conferencing as well as emails. "I don't look at my emails a lot. I think now I've got 150 messages. It is not like a text message, you can't just answer like that you have to do a long sentence and everything, and the pressure is like you have to keep checking otherwise you can miss something" (student 13, FR). Most interviewed students and parents reported less digital skills gain: "At the level of my children, 14 and 17 years old, it is the moment when we start to use computers. So almost overnight my youngest had to learn to use a laptop, something she did not know how to do" (Parent, FR). Parents also voiced the benefits of past training students had received in safely navigating online platforms.

Overall, the importance of trustworthy ICT coordinators came to the fore: "Now it is very clear we need for each school, or centre, one full time ICT specialist to help with material and connection, but also with a focus on distance learning. Because there were lots of possibilities to work with distance learning, we had not chosen one policy. We used all the possibilities. That was sometimes confusing. It was more kind of window shopping without any clear goal" (school leader 31, NL).

When it came to upskilling initiatives more generally, information access and provision did not seem to be a limiting factor. Instead, teachers mentioned the issue of time. “Teachers had to find time for themselves to learn via a tutor, You Tube instruction films, or by exchanging on the platform” (school leader NL). They expressed also the need for more in-depth pedagogical sensitivities to designing technology-enhanced learning experiences: “I also strongly believe in training teachers on innovative teaching, about online didactics. There are always going to be a lot of new tools and new technology it is important, that you are aware of this and that you know a few, the way you deal with it is an innovative way” (pedagogical support, NL).

Teachers and parents were mostly positive about the increased adoption of digital communication. Parents voiced some concerns as to the content, frequency, and medium of that communication. Teachers voiced that the digital flexibility allowed for a new and easier way of talking to parents and checking-in with students. Nevertheless, some school leaders and teachers also highlighted that this proved to be more challenging with at risk groups, where the ability to check-in had often relied on face-to-face and school-door encounters, due to low digital and language skills. There were positive workarounds that schools took upon themselves. “We have started to develop an app for our school. You can put that app in the language of the parent. That costs a lot of money, but that way we can reach all parents. Because 99.9% of the parents have a smartphone here at school, that's not the problem. Downloading an app like this is still easy. Then we have contact with a parent within 3 seconds, it is with push messages and stuff on their screen” (School leader, NL).

3.5 Certification and assessment

Polls, self-monitoring tasks and gamified opportunities for self-testing proved popular with students and teachers. This was particularly true at the onset, when teachers across the Flemish and the FrenchCommunities were required only to revise materials. The ability to assess comprehension and providing/receiving immediate feedback were some of the most prominent and challenging factors for teachers. “When I'm with them in the classroom I can sort of tell what they understand and what they don't understand, and I'm there to spontaneously give more explanation about things if I feel like the message isn't really getting through” (teacher, FR). Teachers highlighted the cases of parents helping students complete assignments and of student exchanges as possibly limiting the validity of existing testing methods. In this regard, alternative and digital solutions for more formative ways of monitoring student understanding, combined with traditional methods, were highlighted by teachers. “For evaluations we sometimes also worked with Google, Google Forms. Then we asked a question, for example "what did you think of the videos, who did you see in the video?". It is not an evaluation per se, but you could check whether they did what they were supposed to do. But really evaluating that was difficult. So real tests, online... and parents also help, so, no we didn’t” (primary teacher, NL).

Teachers and school leaders mentioned that final year evaluations mostly involved the use of students’ last set of pre-corona grades as well as exams. Teachers and educational community actors often intentionally avoided test. Students and teachers highlighted that in practice, several approaches were adopted across schools. Final evaluations were adapted and replaced with evaluations of effort, task submissions and adapted report cards. According to students, exams had been adapted in terms of grading and content: “they couldn't really judge us for them, it was just to see, but you knew already if you pass, so everybody really tried. The teachers also said that they understood, so it was a bit stressful as an experience” (student 17, NL). For students who were not on track to pass, teachers and school leaders made several efforts to provide ways by which they could demonstrate their competence and ultimately pass, from additional tasks to personalised tests.

Exams took place in presence during the short return to school before summer. This generated mixed emotions among students: “when we started school again, the Dutch teacher made a fake test about the whole year, and that was good. But my French teacher who hasn't been in contact, made two surprise tests and nobody knew about them. So that was not that fun because it came from nowhere, you weren't expecting it” (student 13, FR). Despite this, most interviewed students seemed to appreciate the opportunities for both self-testing and general testing. In some cases they even do that by themselves when the opportunities were lacking in their own school. The use of ‘fake tests’ were also voiced by teachers as a way to provide a clearer picture on students’ potential learning losses over the lockdown period.

Most teachers and school leaders highlighted the general positive leniency in the annual evaluations, as well as the unique benefits that alternative and more technical educational pathways may have had in this regard: “Most pupils had a positive evaluation because in the system of Learning and working there is a modular system. Not linear, so damage control is easier than in regular education systems” (school leader, NL). This

however, also brought to light concerns amongst the teachers and school leadership interviewed (i.e., not overlooking students who may have passed, but failed to acquire the necessary skills).

Teachers, school leaders and pedagogical support actors noticed that learning losses occurred to various degrees across different groups. Students mentioned this too, when talking about absent classmates. Pedagogical support actors explained a number of remediation services were put in place. They included collaborations with TV and online media networks for remediation and revision, local-school catch-up supports and, in the case of the Flemish Community, a COVID-resulting summer school programme for most-at-risk students. Nevertheless, not everyone could afford to take part, both due to limited spaces but also limited funding to help willing teachers undertake the extra workload.

3.6 Mental Health

The pandemic have had and continues to have a mental toll on all stakeholders in a variety of ways. School leaders shared consensus in highlighting the stress of uncertainty and fragmented policy measures on their capacity to lead effectively, and the new management demands that distance leading entailed. The possibility to rely on collective school crisis teams, existing peer-to-peer support foundations and the general ability to ensure collective support were voiced by school leaders and ICT coordinators as invaluable: "You had to be able to do everything. And the border between work and home was much smaller. The colleagues played a very important role" (ICT Coordinator, NL). Teachers voiced challenges related to remote teaching, such as facing 'empty classrooms', teaching to many and none all at once, and the inability to see and read student reactions. All teachers also highlighted the accelerated demand for new ways of teaching. Those who were digitally confident had more positive experiences, but mentioned the increased stress coming from supporting less competent colleagues and addressing the highly differentiated student needs.

Students mainly expressed the challenge of suddenly limiting their social contacts with friends and teachers, as well as the cancellation of extracurricular activities: "I realised that school was fun. I like going to school, seeing the teachers and my friends and everything" (student 13, FR). In most cases, interviewed teachers and school leaders echoed this. Pedagogical supports and policy actors noted a large increase in documented cases across the mental wellbeing helplines available to children and youth.

The onset of school lockdowns affected most parents. They mentioned the need to wear multiple hats resulting sometimes in the creation of tense home environments, or conflictual communication with the school leadership. Tensions among parents were also due to the additional care-taking roles, with younger children and those with special needs demanding more support. Parental groups highlighted worse situations for mothers, frontline parents and full-time working parents. In such cases, parent associations highlighted the availability of and maintenance of child support facilities, school uptake and corona paid-holiday bonds as beneficial. Larger households and more economically struggling parents faced greater challenges to ensure quality home learning environments.

Many actors expressed some concern about workload. Most teachers made efforts efforts to combine a different teaching approach with digital upskilling. ICT coordinators and pedagogical support staff acknowledged to be understaffed while facing increasing demand and tasks. Students reported the same or less workload than before lockdown: "We got emails with the whole thing we have to do, and per day like on Monday, and on Tuesday…so I finished it all in a day, and during the week I just didn't do much. I was on my phone or watching Netflix" (student 13, FR). For some students, this may have contributed to their demotivation, leading some teachers to add new material, even going against policy guidelines. School leaders explained cases in which they had requests from parents asking for more work, alongside parents in the very same school and grades asking for less.

All stakeholders reported challenges faced in ensuring a balance between their school learning/teaching/work and life, creating stressful working and life conditions. School leaders and teachers highlighted the fact that there was no longer a moment in which they could not be reached, with the fact that they wanted to ensure student support and availability. School leaders voiced to have occurred as a result of trying to keep up with and ensuring that they were aligned with the consistently evolving policy requirements and late-night announcements, and communicate to parents and students,. "I tried to be at school at crucial moments, so when we started a new system for student care, emergency childcare. Whenever that changed, I was back at school….My work was mainly to react quickly and try to reassure people…to be very accessible" (School leader, NL). For students, the loss school routines blurred into their social and family time. "It was very strange to be at home and at school, we became like a school house. I found it very difficult to keep that a bit separate" (student, 15, NL).

Formal and informal approaches were mentioned as supports during the lockdown. Older students co-worked with friends and used social networks (Instagram, WhatsApp and Messenger) to exchange assistance and advice. School leaders highlighted the support from peer-to-peer formal school and/ or regional network teams as a way to discuss the diverse challenges they had to face. “In different meetings with other school leaders of Brussel schools we got more information on how to react in the specific circumstances of the Brussel context” (school leader, NL). Similarly, teachers mentioned internal school actors (ICT specialists, leadership, crisis team), alongside colleagues as ways by which they addressed both content and technical challenges in ensuring educational continuity. Parents themselves highlighted the use of class WhatsApp and Facebook groups to stay up to date on school changes, with parent associations also playing a large role in voicing parents’ concerns to the school leader and helping them understand the constantly changing regulations for their children.

School leaders mentioned their difficult position in wanting to ensure their teachers’ and staff wellbeing: “I got a lot of responses from my teachers, people who might still live with a parent of theirs, who does belong to the at-risk group, or are themselves at-risk (older teachers). We also had a teacher who had COVID, really a very healthy man, who has been in hospital since. So the reaction was mild panic. If we have to open up again, I have to tell my teachers…I was very afraid that they could be infected” (school leader, NL). These considerations were balanced against the equal need for schools to afford these risks and adopt measures to reopen.

The shift to distance learning had several positive effects too. Teachers mentioned the flexibility of teaching that helped them find a balance with personal life, focus on other elements of teaching when not facing student, have less classroom and school management tasks, create digital content and involve more families in education. “I thought it was good that you had more contacts with parents,that you visited the homes once, then parents were also more open to sharing. I had a better idea of what my students were like at home and at school. Yes, I thought that was positive.” (ICT primary teacher). Pedagogical support actors mentioned remote schooling had a positive effect on the collaborative team teaching and peer-to-peer approaches. The use of new tools and platforms (from quizzes to videos), by their teachers were positively viewed by students. Moreover, some students mentioned that remote schooling gave them freedom to move around, lesser classroom distractions and more focus. Indeed, teachers and school leaders also informed of few cases of students that seem to have greatly benefitted from the lockdown experience: “Sometimes (not many times) we got a pupil who did better in distance learning than at school. Learning at home didn’t disturb them from the focus on learning. At home they learned faster and had the freedom to learn at times that they wanted too. At least some positive results of the lockdown” (school leader, NL). “We often heard of the negative, but we also heard from parents “my child has flourished”, they now get education at their level. For some children with self-regulated learning skills that received support from the parents, it can work well, for children who have a harder time with it, it is not evident” (pedagogical support).

4 Discussion and policy actions

4.1 Assessment of the situation by main stakeholders

According to empirical findings, it is clear that COVID-19 has upended and forced schools, teachers, students, parents and supporting educational actors to change their working and learning lives dramatically in a few days (Education Gateway, 2020a,b; Vuorikari et al., 2020; Krumsvik, 2020; and more globally, International Literacy Centre b, 2020; Al-Fadala, et. al, 2020, INEE et. al, 2020; UNESCO UIS, 2020; EDsurge, 2020). Large differences can be seen in ways in which households, schools and communities have been able to cope and adapt to the ongoing uncertainty and home-schooling demands. This has been visible in the analyses of the interviews that were undertaken, as well as further corroborated by a number of large and small-scale quantitative and qualitative studies in Belgium (FAPEO, 2020; Baudoin et al., 2020, Baetens, to be published).

School leaders and teachers developed a sense of preparedness and resilience during the lockdown, as well as new opportunities for innovating practice. "I am positive, thinking about teaching methods, we have got to know other tools. Willing to do again but reluctantly, but we are better prepared by the experiences" (school leader, NL). This too was reflected in the literature (Bubb & Jones, 2020; Reich et al, 2020). The school leadership mostly welcomed the announcement of colour-coded guidelines on how to manage school reopening, although both school leaders and teachers expressed doubts about its concreteness and translation into practice.

Interviewed students, parents, teachers and school leaders expressed their desire to return to face-to-face schooling. More generally, parents and teachers highlighted the importance of the social formative role of schools. Parents also stressed their child's happiness and the importance of face-to-face schooling for non-cognitive development.

Pedagogical supports on the other hand also highlighted the need for further rethinking teaching and learning. "We believe that there is a new understanding for blended learning to strengthen traditional education. It will never replace the need for social and physical contacts, but it can help strengthen education for certain target groups that drop out, and that is why I thought it was so important to share with people and to encourage them to effectively take on these new roles (pedagogical support, NL).

4.2 Lessons learned

Overall, many lessons can be learnt from what helped different actors navigate the initial emergency shifts to remote learning, as well as adapt to the prolonged demands of remote teaching and learning in the context of Belgium. These lessons are summarised in the following paragraphs.

Digital divides remain a daily reality for many school-going children. Different school stakeholders still faced challenges in ensuring remote teaching and learning. This is mostly due to white zones in some parts of the French Community (Baoudewijn Digital Barometer), and large documented disparities between schools and students in digital access and ownership (Teach for Belgium, 2020, SEGEC, 2020; Baten et al., 2020), and digital needs and skills (Appstaartjaren, 2020; #Generation2020, 2020; Wallonie-Bruxelles Enseignment, 2020; UNESCO et al., 2020).

Connectivity remains expensive and often insufficiently accessible for those most in need. Some students could not join synchronous online sessions or perform diverse tasks such as watch videos due to poor bandwidth. In this regard, some interviewees mentioned the deals made with Telenet and Proximus as effective in temporarily ensuring that, upon identification, schools could request internet codes for pupils at risk. However, the interviewees and the wider COVID-19 literature (Darling Hammond 2020) acknowledge the importance of countering these needs at societal level, and not placing the responsibility solely on educational actors.

Beyond digital divides, COVID-19 lockdown measures highlighted many elements of risk. Students, parents, teachers and school leaders highlighted a range of other factors affecting students capacity to learn remotely, such as: age and learning autonomy needs, adult support, second language learners, frontline working parents, special needs and home learning environments. This was documented in the literature in the Flemish Community (Baten et al, 2020) and the French Community (Baudoin et al.,2020; Wallonie-Bruxelles Enseignement, 2020).

Reaching at-risk students often requires efforts beyond formal school channels. Most educators and schools tried and minimise student loss during the pandemic. A systematic and consistent exploration of tools

beyond the use of school digital platforms to reach students and parents was described by educators and pedagogical. This too occasionally resulted in bringing students back to school, as seen in the broader literature as well (Uit De Marge, 2020). This was quite a time-consuming and demanding method, when conducted individually. Instead, the set-up of temporary school helplines and call centres was seen as more effective and manageable.

Education leaders and teachers need data in order to support students. The existing school-led systematic initiatives to collect data, as well as broader community efforts (i.e. Digital Wallonia FR, IMEC Digimeter NL) provided stakeholders with a better understanding of the educational situation and helped them take appropriate actions following the lockdown. This is consistent with tools highlighting the strengths of school digitalisation (such as DigCompEdu, SELFIE). However, given their fragmented nature, greater synergy and pooling of these diverse 'snapshots of digital' would be beneficial.

Studying autonomously from home was hard. Although some students were visibly more at ease and motivated studying from home, they were not the majority of those interviewed. Students and teachers liked certain elements of studying from home, e.g. greater flexibilities in movement and the ability to focus. But overall, home learning was challenging, especially when having to learn new material and/or more challenging subjects. Teachers recounted the challenge that even more motivated students, as well as those in better home situations, faced when their parents were frontline workers. Studies, as well as the interviews, served to highlight a new category of 'at-risk' students working from home, based on the lack of sufficient parental support (Batens et al, 2020).

Digitalisation increased across the board. "Blended learning was born. Of course, with lots of difficulties and (starting) problems" (school leader, NL). Findings from interviews highlighted a growth in digitalisation. Students and teachers reported improvements in digital skills, teachers informed of the adoption of new digital approaches and tools for teaching and parental involvement, and school leaders expressed benefits for internal administrative matters and staff meetings. New hardware and software investments were important for school leaders in order to find solutions to connect (i.e. creating app for multilingual parental contact), and develop school lending schemes and collaborations.

The pandemic saw the rise of many unknown EdTech actors in Belgium, both in the Flemish and French Communities. Actors recognised the important role they were able to play in creating lessons to ensuring connectivity and clear communication. Nevertheless, pedagogical support staff, ICT coordinators and teachers also highlighted that these actors raised prices and/or limited freemium tool ranges. This hindered teachers' adoption of EdTech solutions. The rise of and risks from these new educational technology ecosystems have also documented more broadly (Dhawan, 2020; Reich et al., 2020; Williamson and Hogan, 2020).

Online continuing professional development became more important. Pedagogical support actors reported a large increase in provision and uptake of webinars since the start of the remote schooling period. ICT coordinators and pedagogical supports also highlighted the need for greater support for teacher professional development given the "speed of change" that was taking place with digital. Nevertheless, school teachers and ICT supports highlighted missing the social and networking dimension of in-person training. This confirms the findings from the literature supporting broader calls for further investing in teacher communities and job-embedded supports (Doucet et. al., 2020; UNICEF and UK Aid, 2020), remote professional development (EFF, 2020; Sullivan et. al., 2020), initial teacher education (Darling Hammond, 2020) and staffing (OECD 2020).

Collaboration opportunities between teachers in the same subjects and/or class teaching teams proved effective to answer the immediate digitalisation needs. According to teachers and school leaders, collaboration was effective in addressing the workload, digitalisation problem solving, course redesign and delivery, and ensuring student interactivity. Interviewed school leaders, ICT specialists and pedagogical supports acknowledged the need to combine both structured teacher-collaboration and workload division, in order to enable the delivery of interactive, motivating and supportive lessons to students. This use of distributed leadership proved equally beneficial in COVID-19 literature (Burke et. al 2020).

Previous digital policy at school enabled a smoother remote schooling. Teachers and schools leaders argued that an existing ICT policy and/or agreed technology adoption made the transition smoother for students. These structural measures were more effective in bringing structure, clarity and consistency compared to situations of 'hectic technology' experience. "I think it was good that we did class on zoom, but then there's a teacher that did it on Cisco Webex, another teacher then on zoom again, so they should have all

just took one platform" (Student NL, 13). This need for structured approaches was also noted in other national studies (Teach for Belgium, 2020; Fondation Roi Baudouin, 2020; Batens et al., 2020).

Students like timely feedback and more personalised learning experiences. Generally, students and parents interviewed assessed the provision of feedback, both asynchronous and synchronous, as positive. Creative approaches adopted by teachers to provide task-reflective and fast feedback through school centralised communication pathways (Smartschool, ClassDojo, etc), as well as other popular tools (e.g. Instagram) were appreciated by students. For younger children this was seen as a valuable opportunity to ask questions. Slower feedback for older students was less effective, at times demoralising and losing value in comparison to the immediacy of face-to-face experiences.

Final student evaluations were adapted to remote learning realities. The most common approach for students' evaluation adopted by schools relied on the last set of pre-closure grades (Christmas), with the provision of personalised catch-up/remediation opportunities and tasks for students who would have not been able to demonstrate their competencies. School leaders and teachers did not adopt online proctoring and summative online testing, visible in other countries (e.g. the UK). Students and school leaders recounted instead that their schools used the opportunity of the gradual re-openings of school in May as a way to administer mock tests and assessments of certain key attainment/grade-level skills. Parents seemed to agree with the general policy of no testing. FAPEO (2020) also highlighted that two-thirds of parents wanted that exams be cancelled because of the pandemic effects.

Social and emotional learning and motivation are essential. Students and parents highlighted the challenges of self-motivating and dealing with limited social contacts. Students also stressed the extra demands placed on them to stay on-task and keep motivated to continue their schoolwork. Boredom effects were also found by other studies (Teach for Belgium, 2020; Kinderrrechtscommissie, 2020). Parents had to make strong efforts to motivate their children, from making sure they get out of bed to controlling screen time (ONE, 2020; Mediawijs, 2020). The challenge of providing emotional support (Baudoin et al, 2020) and ensuring greater voice to children's experiences (Kinderrechtscommissie, 2020) has also been documented in Belgium.

There is no autonomous digital learning without greater emphasis on students self-regulation. Remote learning showed the urgency to develop the opportunities and strategies for self-regulated learning from a young age. Clear school structures and task expectations, consistent schedules for synchronous learning moments, quiet learning space, the creation of weekly planning calendars (by schools or students themselves in the older years), and the use of peer-to-peer working moments are some of the success factors that emerged from the teacher and student interviews. This was further reflected in in-country studies alongside the importance of motivation, self-regulation (OECD, 2020; Carter et al 2020) and learning spaces more broadly (Big Blue Dot, 2020).

Mental health challenges emerged during the lockdown. For students, teachers and school leaders alike, a fuzzy work-life boundary between the social and work portions of the day proved challenging. Students highlighted the inability to detach fully when their rooms became at once their place to work as well as to relax. Teachers and school leaders interviewed, and other studies more broadly (Anderson & Hira, 2020), recounted feeling the need to always be online and accessible. Although not voiced by teachers or school leaders interviewed, parallel reports have also reported risks of burnouts in this regard (Reich et al. 2020, Burke & Dempsey 2020). Studies on parents also highlighted the challenges of balancing work and child support (FAPEO 2020; Brom et al 2020; ONE, 2020).

Schools demonstrated their values to their communities. All stakeholders expressed the importance of schooling beyond pure learning. School leaders and teachers recalled that some students were missing schools and highlighted the importance of physical contact in developing children's social role and responsibilities (in particular in primary and lower secondary education and specialised educational pathways). Most parents expressed the desire for their children to be able to return to school to restore social contacts and in-person interactions. Similar accounts were also found in other studies in Belgium (Kinderrechtscommissie, 2020; Uit de Marge, 2020) and in other countries (Burns et al., 2020; Burke & Dempsey, 2020).

4.3 What helped to adapt to the situation

A number of factors have contributed to the alleviation of educational disruption caused by the onset of the coronavirus pandemic. The analysis presented in the table below summarises the strengths, weaknesses,

opportunities and threats that allowed or hindered the different actors to adapt to the new remote schooling situation.

SWOT Analysis: Impact of COVID-19 in schooling in primary and secondary education in Belgium

Strengths	***Weaknesses***
Supportive school and teacher peer-to-peer communities Centralised educational content and collaboration portals (Klascement, e-classe.be etc.) E-learning platforms (newly launched Happi, Moodle, Microsoft Teams, Google Classroom and SmartSchool etc.). Increased Pedagogical and ICT support. Flexibility in teaching and learning modes, time, and place. School curricula redesign and content-coverage flexibility. Increased autonomy for diverse types of learners and educators in balancing lifestyle considerations and work (also inter-school support/educator roles). Rapid school surveys: new and increased insights into the digital divides within their student population.	Insufficient access to devices for learning and poor connectivity. Lack of technological pedagogical content knowledge, data literacy and online teaching experience for educators. Students' digital learning and online safety competences. Poor home learning conditions and access to special needs support. ICT coordinators' task-loads. Primary school support: Under-developed infrastructures, less digitalised (hardware and skills) and less prioritised support.
Opportunities	***Threats***
Development and acknowledgement of new digital ecosystems - tools and content providers in Belgium. Increase in awareness and use of online professional development opportunities and support networks/tools. Growth in creation and awareness of open educational resources. Increased multi-stakeholder collaborative efforts towards ICT equipment provision to most-at-risk students. New communication media with students and parents: Google Meets, Microsoft Teams, Zoom, Slack, Discord, SmartSchool Live, Klascement "Teachers' Room", Happi etc.) Internet connectivity partnerships for at-risk students. Greater involvement of parents in the schooling process. New functionalities of existing digital tools created, and further discovered and tested by schools and educators (online digital planners, live discussions). Digital literacy development (students, teachers and school leadership) and peer-to-peer support networks between less and more digitally skilled educators.	Information overload and uncertain context. Fragmented communication among different levels. Fragmented eLearning ecosystems. School budgets and increasing cost demands. High educational inequalities, schools and teacher distribution. Work/life balance, blurred lines between school days and time-off for teachers, students and parents. Scheduling and self-regulation challenges across all age groups. Language and the provisional capacity of parental support in multi-lingual non-native households. Data privacy, online safety, and general cyber security practices in times of emergency, especially for schools, teachers and students whom are already more at risk (i.e. less digitalised, lower socio-economic status). Parental workloads and gendered invisible labour costs encountered because of remote learning/working. Monitoring and evaluation of student work online. Limitations to social contacts and human/relational side of teaching. Interoperability of digital devices and software. Increasingly diverse classroom, growth of disadvantaged groups and multi-lingual students. Sustainability of emerging digital ecosystem.

4.4 Considerations for the future in case of a new lockdown

This study offers some considerations to prepare for future possible moments of uncertainty, and to ensure that educational institutions move beyond emergency, with a personalised quality offer of blended learning (Hodges et al., 2020; Waite & Arnett, 2020; Reimers & Schleicher, 2020):

- Schools need financial support to continue offering quality teaching and learning. The continued effects of COVID-19 have created additional financial demands. Besides facilitating blended learning, schools also need now to ensure safe in-situ conditions for staff and student protection (Cardichon et al., 2020; Dhawan, 2020).

- Although some efforts to provide digital technologies to students at risk were evident across the country, more tools, greater quality checks, transparency and synergy in allocation are necessary. This is especially relevant in order to aid those most at risk to access digital technology, and to enable teachers to deliver student-centred educational opportunities (Moss et al, 2020, Williamson & Hogan, 2020).
- In the future of learning, students, teachers and schools cannot be viewed as consumers of digital technologies, but partners. During the spring 2020 remote schooling, a number of companies stepped up to assist educators, providing platforms for online learning continuation (Google Classroom, Microsoft, Smartschool), collaboration (Discord), self and peer evaluation (Bingel, WeZooz etc.), asynchronous (Instagram, Facebook) as well as synchronous class activities (MS Teams, Zoom, Hangouts, Youtube). However not all these platforms have been targeted to education (Williamson & Hodge, 2020; Teras et al, 2020). As such, the pandemic showed that these outside actors should be responsible for their role and involvement when wanting to enter and/or further grow in the educational market.

4.5 Recommendations for policy actions

- Teachers are the most valuable resources for educational continuity. Greater efforts should be made in terms of their initial education, as well as to ensure their participation in continuing professional development.
- Self-regulation competence development alongside socio-emotional learning at student and teacher training levels should be prioritised.
- Schools should have digital policy plans.
- Funding supports and increased budgets looking at content access, tools, hardware and learning spaces (on and offline) should focus on primary schools.
- Further measures would be necessary to support parental roles.
- Data-driven decision-making opportunities are essential for understanding school and student factors in delivering and accessing educational provision.
- Data literacy and online safety training should be increased and provided in contextually relevant ways for parents, teachers, school leaders and students.
- Educational technology providers who want to work with schools and students should be vetted for their educational soundness prior to uptake.
- Opportunities for vulnerable and/or special needs students to access educational, social and psychological help should be reinforced.

References

EU & International Coverage

Al-Fadala, A., Kirby, J., Zaki, O., Baghdady, A., and Regester, D. (2020). Education Disrupted, Education Reimagined, Responses from education's frontline during the COVID-19 Pandemic and beyond. WISE Qatar Foundation. Produced in Collaboration with Salzburg Global Seminar and Diplomatic Courier. Retrieved: https://www.wise-qatar.org/special-edition-e-book-education-disrupted-education-reimagined/

Anderson, E., and Hira, A. (2020). Loss of brick-and-mortar schooling: how elementary educators respond Information and Learning Sciences Vol 121. Retrieved: https://www.emerald.com/insight/content/doi/10.1108/ILS-04-2020-0085/full/pdf?title=loss-of-brick-and-mortar-schooling-how-elementary-educators-respond

Bubb, S., & Jones, M., A. (2020). Learning from the COVID-19 home-schooling experience: listening to pupils, parents/carers and teachers**.** Improving Schools, 23 (3), 209-222. doi:10.1177/1365480220958797

Burke, J., & Dempsey, M. (2020). Covid-19 Practice in Primary Schools in Ireland Report. Maynooth University. Retrieved: https://www.into.ie/app/uploads/2020/04/Covid-19-Practice-in-Primary-Schools-Report-1.pdf

Burns, T. & F. Gottschalk (eds.) (2020). *Education in the Digital Age: Healthy and Happy Children*, Educational Research and Innovation, OECD Publishing, Paris. Retrieved: https://doi.org/10.1787/1209166a-en.

Carter Jr, R.A., Rice, M., Yang, S. and Jackson, H.A. (2020). Self-regulated learning in online learning environments: strategies for remote learning. *Information and Learning Sciences*, Vol. 121 No. 5/6, pp. 321-329. https://doi.org/10.1108/ILS-04-2020-0114

Darling-Hammond, L. (2020). A New "New Deal" for Education: Top 10 Policy Moves for States in the Covid Era. Retrieved: https://www.forbes.com/sites/lindadarlinghammond/2020/05/ 19/a-new-new-deal-for-education-top-10-policy-moves-for- states-in-the-covid-20-era/#11a33a0b6266

Dhawan, S. (2020). Online Learning a Panacea in the Time of COVID-19 Crisis. Journal of Education Technology. Vol 49(1) 5-22. DOI: 10.1177/0047239520934018

Doucet, A., Netolicky, D., Timmers, K., & Tuscano, F. J. (Producer). (2020). Thinking about Pedagogy in an Unfolding Pandemic - An Independent Report on Approaches to Distance Learning During COVID19 School Closures. Retrieved: https://bit.ly/2EZ0qEZ

Edsurge (2020). Corona Diaries. Retrieved: https://coronadiaries.io/listen.html

Education Gateway (2020a). Survey on Online and Distance Learning – Results. Retrieved: https://www.schooleducationgateway.eu/en/pub/viewpoints/surveys/survey-on-online-teaching.htm

Education Gateway (2020b). Survey on the start of the school year after school closures – Results. Retrieved: https://www.schooleducationgateway.eu/en/pub/viewpoints/surveys/survey-on-school-year-2020.htm

European Commission/EACEA/Eurydice, (2020). Equity in school education in Europe: Structures, policies and student performance. Eurydice report. Luxembourg: Publications Office of the European Union. Retrieved: https://eacea.ec.europa.eu/national-policies/eurydice/sites/eurydice/files/equity_2020_0.pdf

Hodges, C., Moore, S., Lockee, B., Trust, T. and Bond, A. (2020), "The difference between emergency remote teaching and online learning", Educause Review. Retrieved: https://er.educause.edu/ articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning.

INEE, Save the Children & UNICEF (2020). Advocacy Brief: Learning must go on: COVID-19 Advocacy Brief. Retrieved: https://inee.org/resources/learning-must-go-covid-19-advocacy-brief.

International Literacy Centre b (2020). Learning after Lockdown, Briefing Note 2: Primary Assessment and COVID. London: UCL Institute of Education. Retrieved: https://www.ucl.ac.uk/ioe/research-projects/2020/oct/learning-after-lockdown

Krumsvik, Rune. (2020). Home schooling, remote teaching and digital Bildung in societal crisis: Extended editorial. Nordic Journal of Digital Literacy. 15. 71-85. 10.18261/issn.1891-943x-2020-02-01.

Moss, G., Allen, R., Bradbury, A., Duncan, S., Harmey, S., and Levy, R. (2020). Primary teachers' experience of the COVID-19 lockdown – Eight key messages for policymakers going forward. Institute of Education. Retrieved: https://discovery.ucl.ac.uk/id/eprint/10103669/1/Moss_DCDT%20Report%201%20Final.pdf

OECD (Producer). (2020). Learning remotely when schools close: How well are students and schools prepared? Insights from PISA. Retrieved: https://bit.ly/3fBNt0t

OECD (2017). Education Policy Outlook: Belgium. Retrieved from https://www.oecd.org/education/Education-Policy-Outlook-Country-Profile-Belgium.pdf

OECD (2020). Education at a Glance. Retrieved: https://www.oecd.org/education/education-at-a-glance/?utm_source=twitter&utm_medium=social&utm_campaign=eduataglancesep2020&utm_content=en&utm_term=edu

OECD (2020g), "Education responses to COVID-19: an implementation strategy toolkit", *OECD Education Policy Perspectives*, No. 5, OECD Publishing, Paris. Retrieved: https://doi.org/10.1787/81209b82-en.

Reich, J. (2020). Keep it simple, schools. Educational Leadership. An Educational Leadership Special Report. 77, 2-5. Retrieved: http://www.ascd.org/publications/educational-leadership/summer20/vol77/num10/Keep-It-Simple,-Schools.aspx

Reich, J., Buttimer, C. J., Fang, A., Hillaire, G., Hirsch, K., Larke, L. R., Littenberg-Tobias, J., Moussapour, R., Napier, A., Thompson, M., & Slama, R. (2020). R*emote learning guidance from state education agencies during the COVID-19 pandemic: a first look*. Massachusetts Institute of Technology. Retrieved: https:// edarxiv.org/437e2/

Reich, J., Buttimer, C. J., Coleman, D., Colwell, R., Faruqi, F., & Larke, L. R. (2020). What's Lost, What's Left, What's Next: Lessons Learned From The Lived Experiences Of Teachers During The Pandemic. Retrieved: https://edarxiv.org/8exp9

Reimers, F. & Schleicher, A. (2020). Schooling disrupted, schooling re-thought: How the Covid-19 pandemic is changing education, OECD. Retrieved: https://read.oecd-ilibrary.org/view/?ref=133_133390-1rtuknc0hi&title=Schooling-disrupt-ed-schooling-rethought-How-the-Covid-19-pandem-ic-is-changing-education

SELFIE – Guide for School Coordinators. Retrieved: https://ec.europa.eu/education/sites/education/files/document-library-docs/selfie-guide-school-coordinators_en.pdf

Sullivan, F., Hillaire, G., Larke, L. & Reich, J. (2020). Using Teacher Moments During the COVID-19 Pivot. Journal of Technology and Teacher Education, 28(2), 303-313. Waynesville, NC USA: Society for Information Technology & Teacher Education. Retrieved: https://www.learntechlib.org/primary/p/216171/.

The DELVE Initiative (2020), Balancing the Risks of Pupils Returning to Schools. DELVE Report No. 4. Published 24 July 2020. Retrieved: http://rs-delve.github.io/reports/2020/07/24/balancing-the-risk-of-pupils-returning-to-schools.html.

UNESCO UIS (2020) "Out-of-School Children and Youth." UNESCO UIS. Retrieved: http://uis.unesco.org/en/topic/out-school-children-and-youth.

UNESCOa (2020). COVID 19 Education Sector Issue Notes: Addressing the Gender Dimensions of COVID related school closures. Issue note 3.1, August 2020: Retrieved: https://en.unesco.org/sites/default/files/covid-19-ed_webinar_3-addressing_the_gender_dimensions_of_school_closures-report-en.pdf

UNESCOb (2020). "UNESCO Rallies International Organizations, Civil Society and Private Sector Partners in a Broad Coalition to Ensure #LearningNeverStops." UNESCO, March 26, 2020. Retrieved: https://en.unesco.org/news/unesco-rallies-international-organizations-civil-society-and-private-sector-partners-broad.

UNESCO; UNICEF; World Bank. (2020). What Have We Learnt? Overview of Findings from a Survey of Ministries of Education on National Responses to COVID-19. Paris, New York, Washington D.C.: UNESCO, UNICEF, World Bank. Retrieved: https://openknowledge.worldbank.org/handle/10986/34700 License: CC BY-SA 3.0 IGO.

Waite C. & Arnett, T. (2020). Will Schools Change Forever? Predicting how two pandemics could catalyze lasting innovation in public schools. Christensen Institute. Retrieved: https://www.christenseninstitute.org/wp-content/uploads/2020/10/school_change.pdf

Williamson, B. & Hogan, A. (July 2020). Commercialisation and Privatisation in/of education in the context of COVID19. Education International Research. Retrieved:

https://issuu.com/educationinternational/docs/2020_eiresearch_gr_commercialisation_privatisation?fr=sZDJkYjE1ODA2MTQ

Belgium National Coverage

Brotcorne, P., & Mariën, I., (2020). Baromètre Inclusion Numérique/Barometer van de digitale inclusie (Barometer of Digital Inclusion FR/NL). Coordinated by Fondation Roi Baudouin. Retrieved: https://www.kbs-frb.be/fr/Activities/Publications/2020/2020_08_24_CF

DigitalForYouth (2020). "Digital for youth", available at: www.digitalforyouth.be/

Digital for Youth (2020). Searching for 10,000 laptops for at-risk students https://www.feweb.be/nl/nieuws/bericht/2020/03/26/10000-laptops-gezocht-voor-kansarme-leerlingen https://www.digitalforyouth.be/

OECD (2020g). Country Notes Belgium: School Education during COVID-19. Were Teachers and Students Ready?. Tackling Coronovirus (COVID-19) – OECD Contributions. Retrieved: http://www.oecd.org/education/coronavirus-education-country-notes.htm

OECD (2019). Belgium Country Note - TALIS 2018. Volume 1: Teachers and School Leaders as Lifelong Learners.

OECD (2017). Education Policy Outlook Belgium. Retrieved: http://www.oecd.org/education/Education-Policy-Outlook-Country-Profile-Belgium.pdf

Tondeur, Jo (2020). Terug naar (de digitale) school: 6 op 10 leerkrachten voelen zich klaar voor online learning: VUB-survey onderzoekt hoe leerkrachten de shift naar online onderwijs ervaren en brengt noden in kaart. VUB Today: Retrieved: https://press.vub.ac.be/terug-naar-de-digitale-school-6-op-10-leerkrachten-voelen-zich-klaar-voor-online-learning

Community Coverage: Flemish Community

Official Ministry of Education Website: https://onderwijs.vlaanderen.be/nl/home

One stop education web portal: Klascement https://www.klascement.net/ , Klasse https://www.klasse.be/

Baten e.a. (2020). Thuisonderwijs tijdens de COVID-19 pandemie: de eerste resultaten [Teaching at home during the COVID-19 pandemic: First results – Phase 1 before the Easter holidays]. UGent: Onderzoeksgroep Ontwikkelingsstoornissen, April 2020. Retrieved: https://www.ugent.be/nl/actueel/thuis-onderwijs-covid19.htm

Baten e.a. (2020). Thuisonderwijs tijdens de COVID-19 pandemie [Teaching at home during the COVID-19 pandemic: Phase 2 after the Easter holidays]. UGent: Onderzoeksgroep Ontwikkelingsstoornissen. Retrieved: https://www.ugent.be/nl/actueel/thuis-onderwijs-covid19.htm

Baten e.a. (In. progress). Thuisonderwijs tijdens de COVID-19 pandemie: Phase 3 Return to school]. UGent: Onderzoeksgroep Ontwikkelingsstoornissen. Data to be collected September/October

Kinderrechtencommissariaat (2020). Rapport - kinderrechtenperspectief in de coronacrisis #jongerenovercorona – Meer dan 44,000 kinderen en jongeren over corona. Retrieved: https://www.kinderrechtencommissariaat.be/sites/default/files/bestanden/20200525_rapport_jongeren_over_corona.pdf

Kinderrechtencommissariaat (2020). Advies - kinderrechtenperspectief in de coronacrisis #jongerenovercorona. Retrieved: https://www.kinderrechtencommissariaat.be/sites/default/files/bestanden/advies_2019_2020_12_jongeren_over_corona_def.pdf

Mediawijs (2020). Onderzoek: Schermtijd in tijden van Corona. Retrieved: https://www.medianest.be/schermtijd-tijden-van-corona-zo-zit-dat-bij-jullie

Mediawijs (2020). Allemaal Digitaal – Everyone Digital. Retrieved: https://e-inclusie.be/tools/nieuw-mediawegwijzer-allemaal-digitaal

Onderwijs Vlaanderen (2020). "Coronavirus". Retrieved: https://onderwijs.vlaanderen.be/nl/nl/ coronavirus (accessed 4 May 2020).

SchoolIT (2020). Analyse: het gebruik van digitale tools voor en tijdens de pandemie. Retrieved: https://schoolit.be/infrastructuur/blog/analyse-het-gebruik-van-digitale-tools-voor-en-tijdens-de-pandemie/

Teach for Belgium (2020). Thuis leren in tijden van Corona- leerlingbevraging. Retrieved https://stories.teachforbelgium.org/2020/04/01/thuis-leren-in-tijden-van-corona-leerlingbevraging/

Uit De Marge (2020). De impact van de COVID-19- maatregelen op kinderen en jongeren in maatschappelijk kwetsbare situaties Hoe overleven kinderen en jongeren in kwetsbare posities de lockdown?Retrieved: https://www.uitdemarge.be/wp-content/uploads/2020/05/DOSSIER-De-impact-van-COVID-19-op-kinderen-en-jongeren-in-kwetsbare-situaties-3.pdf

Vandendriessche, K., and De Marez, L. (2019). IMEC Digimeter 2019: Digital Media Trends in Flanders. Retrieved: https://www.imec-int.com/en/imec-digimeter-2019

VRT (2020). Education cost of Corona. Retrieved: https://www.vrt.be/vrtnws/nl/2020/09/09/coronakosten-katholiek-onderwijs/?deliveryName=DM69944

WeZooz Academy (2020). Eindrapport WeZooz Academy: joint effort Department Onderwijs, Microsoft én Signpost/WeZooz NV.

Community Coverage: The French Community

Official Ministry of Education Website: http://enseignement.be/index.php and associated support services http://www.federation-wallonie-bruxelles.be/index.php?id=133

Main education portals: Enseignement.be http://www.enseignement.be/index.php?page=28295&navi=4681, Happi (hybrid and distant learning platform) https://happi.cfwb.be/, MaClasse https://maclasse.crp.education/, eClasse https://www.e-classe.be/

Baudoin, N., Delisse, S., Coertjens, L, & Galand, B., Galand, B., Crépin, F., Baye, A., & Lafontaine, D. (2020). Enquête sur le bien-être des élèves dans le contexte du COVID-19 - 1ère édition : du 4 au 30 juin 2020. UC Louivain In partnership with Federation Wallonie Bruxelles. Retrieved: http://enseignement.be/index.php?page=28274&navi=4601

Baudoin, N., Delisse, S., Coertjens, L, & Galand, B., Galand, B., Crépin, F., Baye, A., & Lafontaine, D.(In Progress). Enquête sur le bien-être des élèves dans le contexte du COVID-19 - 2ème édition : du 21 septembre au 9 octobre 2020. UC Louivain In partnership with Federation Wallonie Bruxelles. Retrieved: http://enseignement.be/index.php?page=28274&navi=4601

FAPEO (2020). Enquête – « Parents confinés, comment vous gérez ? » (« Confined parents, how do you handle it?), Brussels.

FAPEO (in progress). Enquête – La reprise de l'ecole, comment ça se passe?. Retrieved: http://www.fapeo.be/enquete-reprise-2020/

Fondation Roi Baudouin (2020 Internal Document). L'école à la maison: vécu des familles, des jeunes et des accompagnants.

#Generation2020 (2020). Wiard, Victor - Rapport. Les usages numériques des jeunes en question. Retrieved: https://www.generation2020.be/ressources/

La Ligue (2018). Le Barometre des Parents 2018. La Ligues des Familles. Retrieved from: https://www.laligue.be/Files/media/evenenement/2018_12_03_Barometre-2018/barometre-2018-version-coordonnee-3-nd.pdf

ONE (2020). Les Écrans ont-ils aidé les parents pendant le confinement. Retrieved: https://www.one.be/public/detailarticle/news/les-ecrans-ont-ils-aide-les-parents-pendant-le-confinement/?L=0&cHash=efcb90d29072389cb2ff4c42ff15a720

Teach for Belgium (2020). Sondage – Apprendre à la maison en temps de confinement. Retrieved: https://stories.teachforbelgium.org/2020/04/01/sondage-apprendre-a-la-maison-en-temps-de-confinement/

Wallonie-Bruxelles Enseignement (2020). Rapport : Cadastre des usages numériques des élèves des établissements W-B E lors de la crise sanitaire <COVID 19>

Annex: Methodology

The target sample

Stakeholder demographics – Who are the interview respondents?

This report is based on qualitative research that was undertaken in Belgium, the Flemish and Walloon communities from June till August, 2020. A total of 31 in-depth and semi-structured interviews were carried out with diverse educational stakeholders (see Table 1). Interviews covered participants experiences during the emergency remote learning period, which followed a federally imposed lockdown in Belgium on March 16th, 2020. The interviews are also reflective of the period of gradual lockdown lifting, experienced before summer, and remediation and re-organisation over summer break (see Appendix 1 Timeline). Given the distinct measures faced in the Flemish and French Communities respectively, the stakeholders across the two communities were also accounted for in representation (see Table 1 FR/NL).

The 32 participants consisted of 18 females and 14 male respondents. All actors (students, teachers, parents, leadership, and other) were represented in coverage of both the Flemish (19) and the Walloon (12) communities. The sample consisted of a total of 5 students (4 female, 1 male), 4 parents, of which two were representative of overarching parent associations (2 female, 2 male), 12 teachers ranging in subject areas, years of experience and digital affinity in technical and general educational trajectories. Of the 12 teachers, 3 are also ICT coordinators, 2 others also work as pedagogical advisors, 1 as student support and coaching, and 1 in an online school (8 female, 4 male). Six school directors were also interviewed, two primary and four secondary (2 female, 4 male). Five 'other' stakeholders (2 females, 3 males), were included, two of whom represented policy-level educational actors in the Walloon and Flemish communities respectively, one represented a school network for pedagogical development (French Community), another represented the voice of a large digitalisation effort and support network for schools, students and professionals (French Community), and one a pedagogical and educational technology network for teachers (Flemish Community).

Participants in some cases also presented multiple educational roles, and the interview transcript was therefore adapted to include/exclude questions so as to gain insight in respects to these diverse roles' capacities for insight (e.g. a teacher would be at once teaching French, as well as be the ICT touchpoint and class group headteacher, or an ICT coordinator was responsible for supporting and overseeing several schools). These diverse responsibilities and situational oversight (as detailed in Table 1), were also deemed valuable in participation, and relevant to further drawing light and insights into the emergency education conditions and responses.

Table 1. Interview sample by educational actor, school type, contact and interview format

S=student, T=teacher, L = School Leadership, P=Parent, and O=Other

Stakeholder identifier: S, P, L, T, & O	**Sex**	**NL/FR**	**Age (if applicable – students only)**	**Actor and Role/s if more than one**	**School Context (SES, rural/urban, size and orientation)**	**Interview Type (Transcript template)**	**Collection Method**
1 S	M	NL	13	Student	Ghent 800 - 900 pupils. Catholic Education Flanders ASO STEM & Sciences	Student survey	MS Teams online
2 S	F	NL	15	Student	Aalter, about 200 pupils, gemeenschapsonderwijs (TSO Sociale Technische Wetenschappen)	student Survey	MS Teams online
3 S	F	NL	17	Student	Gent, 800 - 900 pupils, Catholic Education, Flanders, ASO Latin & Maths	student Survey	MS Teams online
4 S	F	FR	13	Student	Brussels, 1200 pupils, Roman Catholic Secondary School, General education	Student Survey	MS Teams online
5 S	F	FR	11	Student	Brussels Catholic Primary	Student Survey	MS Teams online
6 P	M	FR		Parents - La ligue des	Wallonie-Brussels	Parent	MS Teams

				Familles		Survey	online
7 P	M	NL		Parents GO! Ouders	Flanders	Parent Survey	MS Teams online
8 P	F	FR		Parents	Brussels , Secondary and Primary	Parent Survey	MS Teams online
9 P	F	FR		Parents	Brussels, Primary	Parent Survey	MS Teams online
10 P	M	FR		Parent (14 & 17), Digital coach and teacher	Mons, Secondary and Primary	Parent Survey	MS Teams online
11 SL	M	NL		School Director		School Leadership Survey	MS Teams online
12 SL	M	NL		School Director		School Leadership Survey	MS Teams online
13 SL	F	NL		School Director		School Leadership Survey	MS Teams online
14 SL	F	NL		School Director		School Leadership Survey	MS Teams online
15 SL	M	NL		School Director		School Leadership Survey	Written form
16 T	F	FR		Teacher & Support		Teacher & Other Survey	Face-to-Face
17 T	F	FR		Educator – Technological Pedagogical Coach for education, Trainer Digital Learning		Teacher & Other Survey	MS Teams online
18 T	F	FR		Teacher		Teacher survey	MS Teams online
19 T	F	NL		Teacher Online/Virtual school & Edtech & Pedagogical Advisor		Teacher & Other Survey	MS Teams online
20 T	M	NL		Teacher & ICT Team support		Teacher survey	MS Teams online
21 T	M	NL		Teacher		Teacher survey	MS Teams online
22 T	F	NL		Teacher, ICT Team support -and Zorgleraar		Teacher Survey	MS Teams online
23 T	F	NL		Teacher		Teacher Survey	MS Teams online
24 T	F	NL		Teacher		Teacher survey	MS Teams online
25 T	F	NL		Teacher		Teacher survey	MS Teams online
26 T	M	NL		Teacher and ICT Coordinator		Teacher & Other Survey	MS Teams online
27 O	M	NL		Other - Policy		Other Survey	Face-to-Face - Mac Quicktime recording

28 O	M	NL		Other – Large Educational Teacher Platform		Other Survey	Face-to-Face - Mac Quicktime recording
29 O	M	FR		Other - Digital Development		Other Survey	MS Teams online
30 O	F	FR		Other – Digital Development		Other Survey	MS Teams online
31 O	F	FR		Other - Policy		Other Survey	Ms Teams online
32 SL	M	NL		School leader		Leader Survey	Written Account

Note: Participants' personally identifiable data was anonymised.

Sample Selection Process

Selection of the sample aimed first and foremost to ensure that a diversity of voices, both in stakeholder types, as well as school-types from the Walloon and Flemish educational communities were accounted for. Attention was made so as to ensure gender balance in coverage, school-going age ranges, school size and educational network affiliations and locations as well as at-risk and under-resourced representativeness in families. For teachers, the teachers' years of experience, school types, grade-level as well as their additional roles in schools were also considered. For instance whether they could provide reliable insights on other teachers' experiences and/or broader educational visibility (student and support coach, head teacher (zorgleraar), multi-school teaching and/or support lead for other teachers on ICT and/or subject matter or grade level), was considered.

Moreover, stakeholders that could allow for reflective views/experiences of a particular stakeholder group were also considered in the initial selection. This was collectively decided to ensure qualitative coverage of both the Flemish and French Communities, as well as the time-sensitive nature of data collection, in including diverse voices/actors. For example two parent representative bodies (one Flemish and one French) were incorporated, alongside the select interviews with parents themselves, to ensure also insights into more at risk and overarching parental dynamics were incorporated.

A snowball effect was employed so as to ensure that diversity could be ensured, asking for instance to community actors when interviewing them for schools that may have not been responsive at all, more at risk schools etc.

In addition to the interviews, continuous requests for ongoing internal reports, surveys and other rapid school and community surveys that had been undertaken by schools and or community actors were made at the end of all the interviews. Study-awareness and data was also enquired to other known actors in the educational field from pedagogical support leads to researchers and policymakers (Wallonia and Flanders). Further complementary data collection was also gathered leveraging the authors own networks in the active Belgian field of educational sciences and technology-enhanced learning, as well as the ongoing coverage and capture of press and more public communications on the pandemic and educational matters in Belgium monitored.

Interview Scenario

Interview Development

Part of a larger multi-national study, the following country study employed a shared starting basis. Interview scenarios were collectively developed with educational experts from Estonia, Poland, Italy and Greece, led by the Joint Research Centre. Following a process of question refinement amongst the expert group; the resulting generalised interview transcript consisted 43 questions ranging from Generic (3), to the coverage of 5 core themes 1/ Inequality (6), 2/ Teaching, learning and Tools (10), 3/ Competences (6), 4/ Certification and Assessment (4) and 5/ Mental health (6), whilst concluding with Lessons Learnt (8).

Importance to the relevance of questions per target group were subsequently denoted, with certain questions being asked to all stakeholders interviewed (e.g. Generic "*what were your first thoughts when schools closed, have these changed when the situation prolonged*") and others targeted for only a subset of stakeholder respondents (e.g. for students and teachers: "*do you think that you/your students have the competences to*

regulate your/their own learning?" , teachers: *"where synchronous online contact teaching sessions organised, if yes, for what purpose?"*, or for parents: "*As parents, in which tasks have you supported your child/ren? How balanced or burdening was this for you?*" etc.).

Interview Adaptations

The final interview protocol undertaken therefore followed a semi-structured interview process and aimed to be conducted in under an hour. All interviews started from the same founding interview transcripts denoted per stakeholder group. Interviews were then further refined to 1/ ensure language usage and questions per stakeholder group were appropriate (E.g children and youth, teacher versus parent etc) and 2/ for the various context languages (French and Flemish). In the case of Belgium therefore, the collectively agreed upon English transcripts (and their stakeholder denotations), were then translated to French and Flemish respectively for each stakeholder group.

Data Collection Process

Interviews were conducted between June 8th and September 2nd, 2020. Given the ongoing pandemic, most interviews were conducted at a distance, whilst employing Microsoft Teams and the integrated recording function (see Table 1). Several (n=3), were conducted face-to-face and the audio was recorded respectively, and one was collected in written form. Informed consent was received prior to each interview, as well as by parents when it came to the minors that were interviewed. In general, the interviews ranged from 45 minutes to 1 hour and a half, dependent on the stakeholders (and respective semi-structured interview transcript) being employed. Teachers, due in most part to having the most interview questions (denoted questions on the scenario transcript), took the most time ranging instead from 1 hour to 1 hour and a half.

Following the interviews, the recordings were then transcribed. The transcribing process was two-fold. In first instance, a play and dictate function was employed in Microsoft Word, automatically transcribing in French, Flemish and English (respective of the interviewee language of choice). This autonomous transcribing was then followed by re-listening and manual verification and editing, as well as interviewer and interviewee question/answer text abbreviations and edits by two researchers respectively.

The transcripts were subsequently anonymised. Identifiers were provided, employing a shared approach with a label by stakeholder types, and an interviewee number (e.g. Student (S) 3). Identifiable data (i.e. names, school names, technology platform names, or positions – where applicable) were removed and/or replaced so as to protect the anonymity of the interviewed participants. Core demographic data such as school size, grades and age (where applicable), population demographics, orientation of study/teaching and/or novice/veteran and language community representativeness etc. were included at the start of each transcript. This was deemed relevant so as to ensure coverage visibility as well as importantly also of possible limitations in insights from interviewed participants.

Challenges experienced during the interviews were minor in most part, with the use of online video conferencing having in recent days been widely adopted by diverse participants for a number of online meetings, work and schooling. Interviews conducted in French, Flemish and English, dependent on preference also proved an enabler for participants. Therefore, a comfortable and smooth interview process was carried out in most cases. However, sensitivities to the interviewing and rapport building with younger participants (usually facilitated through various prompts and manners offline) was visibly impacted. This was particularly the case with the youngest participant, whom had also not been active in video conferencing with school during lockdown, and instead involved in unidirectional streams from her respective primary teacher. Therefore, in such cases building rapport online proved more strained, with the participant being shyer and developing ease and openness of expression more strained.

Data Analysis

The qualitative data (interview scripts resulting from the transcribed audio interviews), underwent a two-fold thematic analysis. Interview transcripts were first coded using the collective semi-structured interview agreed themes as codes. This resulted into initially classifying each interview (sometimes one comment, sometimes a longer explanation) reflecting the diverse respondent insights under: Generic, Inequality, Teaching, Learning content and tools, Competences, Certification and assessment, Mental health and Lessons learnt, and 'Other' for themes that emerged which could not be allocated to existing themes. The phase 1 codes were applied as well as commonly used to code across all transcripts.

Further analysis was then conducted per identified theme, where other more in-depth thematic codes emerged from the process. These enabled for the synthesis and recoding of more generic initial phase 1 key insights, to be further broken down into sub-categories (i.e. enabling greater nuance within the diverse categories where applicable and relevant). This phase 2 was also used so as to identify reflective quotes, which were then identified and flagged for later reporting use.

Dual coding between two researchers was applied to come to a shared agreement on the initial coding rubric, as well as when the need arose to discuss more challenging respondent statements for initial and sub-theme identification in transcripts.

Limitations of the Study

In general, all efforts were taken so as to ensure that the interviews were as open and inclusive to all voices and experiences as possible, from the assurance of modalities of interview collection, to the language of the interview. This being said, given the COVID-resulting social distance measures, and consequent online needs, several limitations are worth noting.

First and foremost, the lack of direct reach for interviews of those considered most at-risk, or simply at a greater disadvantage, or not in employment, education nor training must be accounted for. It must be noted that the students and parents interviewed, were what could be considered as representing a more economically stable population subset. Interviewed families in most part had a device and connectivity at home, as well as spoke one of the three interview languages as a mother tongue, and reacted to our outreach for participation. The short time span, COVID health implications, and summer months, had an effect on the ability for employing the support of social actors (i.e. digital competence centres and public libraries) to facilitate the interviews from more at-risk groups (i.e. as they assist parents/students to have access as well as connect online). This therefore demands greater attention in further research. This being said, the consequent assurance of overarching parental organisations (representative and providing support for parents across the SES index), and more heterogenous school representative actors (leaders and teachers) in the interviews, aimed to counterbalance this potential limitation.

Moreover, it must also be noted that albeit assurance to coverage was accounted for, the distinct nature of experiences in the Flemish and French Communities varied greatly within and beyond schools, as well as homes. As such the qualitative nature of the interviews brought a rich and deep understanding as to the voices heard, but may also be limited to a certain degree in covering the diversity of experiences across the language communities in regards to school trajectories (general vs technical and vocational, across different age groups, and reflective of diverse special needs in the educational system). This being said, the outreach for, recognition of, and reinforcing inclusion of additional large and smaller scale studies (quantitative and qualitative in Flanders, Wallonia and cross-cutting Brussels respectively), as well as the documented wider public debate undertaken by various actors (multi-national, policy, school, research and private) during this period, can convincingly be said to account for these limitations.

Appendix

Appendix A: Rough timeline of main COVID-19 decisions for Education, Belgium

MARCH, 2020	
12th	Official lockdown announced
13th	Some schools use the last day to prepare students for remote work expectations, others use it for teacher meetings and re-grouping, and some a combination of both.
16th	Schools officially closed two weeks before the Easter break, with the initial idea of re-evaluating the situation and re-opening after the Easter break.
	Revision-only period announced, no new material to be given to students across all educational communities till Easter break.
	Easter break lockdown measures, with the initial voiced federal re-opening set communicated as a possibility for the 19th of April (last day of easter break), with possibility of extension two more week till the 3rd of May dependent on the situational assessment.
	Digital for Youth laptop initiative announced – with the aims to collect and refurbish 10,000 laptops for secondary education, to students in Flemish and German-speaking parts of Belgium[12] collective contributions from various Flemish actors also participate with funds[13]
30th	Pre-teaching[14] announced for Flemish students if schools will still have to remain in remote teaching after the easter holidays. A three-pronged scenario is communicated by the Flemish minister of education, Ben Weyts. Much discussion and controversy follow the announcements, as documented by numerous press outlets[15][16], and questions[17] as well as a point of distinction between the community approaches.[18]
	Set-up of the taskforce e-inclusie[19] focused on two central objectives: 1/ make laptops, tablets and the internet more accessible to vulnerable groups, 2/ strengthen and support digital skills faster in vulnerable groups
APRIL, 2020	
5th -18th	Easter Break
20th	Pre-teaching starts for the Flemish Community – new material is allowed, up to schools and teachers to decide the most relevant learning objectives. This new material is enabled upon the condition that teachers will then revise and review this in class.

[12] https://www.digitalforyouth.be/over-ons/
[13] http://www.flanderstoday.eu/campaign-launched-get-laptops-lower-income-pupils
[14] https://onderwijs.vlaanderen.be/sites/default/files/atoms/files/vertaalfiche_preteaching_FR.pdf
[15] https://www.vrt.be/vrtnws/nl/2020/03/30/als-scholen-na-paasvakantie-niet-heropenen-zal-er-nieuwe-leerst/
[16] https://www.hln.be/nieuws/binnenland/na-paasvakantie-krijgen-leerlingen-zeker-nieuwe-leerstof-deze-drie-scenario-s-liggen-op-tafel~a189f798f/
[17] https://www.vlaamsparlement.be/parlementaire-documenten/zoekresultaten?thema%5Bonderwijs%20en%20vorming%5D=Onderwijs%20en%20Vorming&sort=date
[18] https://www.lecho.be/economie-politique/belgique/general/les-strategies-scolaires-flamande-et-francophone-pas-aussi-differentes-qu-il-n-y-parait/10224344.html
[19] https://e-inclusie.be/taskforce

	Walloon minister of education continues to advocate and strongly encourage RCD – Remediation, Consolidation and Experience. In theory it is not permitted to cover new material.
19th	Initial voiced federal re-opening of schools revised given the pandemic. Remote teaching is extended till the 3rd of May by the National Security Council (Federal level)
24th	Phased easing of the lockdown concept is introduced by prime minister Sophie Wilmès (Federal government level) for May 18th. The introduction of a phased exit to the strict lockdown that was imposed is elaborated. However, uncertainty upon re-opening of schools remain, given the reliance on caseloads (and hospital capacity) that entail confirmation of phases one week in advance. At this point teachers, students, parents, school leaders and supportive educational actors await further details from their respective communities (French, Flemish). At Federal level the school-voiced elements (which will be allowed when Phase 3 proceeds on May 18th are that: schools will resume part-time – maximum of three grades for primary and secondary and small groups. Priority given to first and second years of primary and last year of secondary. Kindergartens remain closed till further notice.
MAY, 2020	
2nd	Corona parental leave adopted for parents with children under 12 years old and/or demanding of extra care (voiced from 1st of May till 30th June, with a possible prolongation)[20]
3rd	Initial 2nd planned re-opening of schools cancelled given the pandemic. Given the phased approach, pre-teaching continues, and the re-opening of May 18th is set.
4th	Belgium begins its phased lifting of lockdown measures, undertaking phase 1. Tele-working remains the norm, sports are allowed but no lingering in public spaces, and the addition of one more social contact. Many parents (when possible) remain in teleworking modes, and students as well as parents and teachers are very much still in limited social contacts with non-family/house-sharing members.
11th	Phase 2 starts. No impact on education, but the shops and general commerce re-opens. Restaurants, tourism and non-essential travel still banned. Social contacts remain limited.
It has now been approximately 9 weeks since the official lockdown of schools	
18th	Following negotiations and initial disagreements between the Flemish, German and French communities, the return back to school date is agreed and classes at school resume. Classes seen as important for students social and emotional wellbeing. Various measures are taken to prioritise at-risk students. This being said, diverse translations of the federal guidelines are visible amongst different community actors given their significant discretion over the application of the rules to practice. For parents with children in different schools and also the mixed school-going communities in Brussels, this makes the situation more complex. However, initial disagreement between the Flemish and Francophone communities results in: - Flemish Community: Communicates 15th May, 2020 for schools to be able to run a 'back to school' test day[21] and highlights the school-led decision making role in return scenarios[22]. Mouth masks are obligated in school for students 12 years old

[20] https://www.one.be/public/detailarticle/news/conge-parental-corona/?L=0&cHash=e890b7d28b151a76e196b3191e574637

[21] https://www.hbvl.be/cnt/dmf20200424_04934075/scholen-openen-op-18-mei-maar-mogen-op-15-mei-al-proefdraaien

[22] https://www.onderwijs.vlaanderen.be/sites/default/files/atoms/files/vertaalfiche_modelbrief_EN.pdf

	and above, as decisions over which years and reasoning are clarified[23]. Kindergartens remain closed. Primary school grades 1, 2, and 6th are allowed back. However, 1st and 2nd are brought back for 4 out of 5 days of the week, and 6th grades can attend 2 full days, or 4 half days, based on individual school decisions. In secondary school, lessons can only be provided for the general trajectory (ASO) last year/grade and is limited for one full day per week. Other pathways (TSO, BSO and KSO and 7th year BSO), are allowed two days per week. Additional requirements of teachers to support school-going grades given the need to assure smaller class groups, and restrictions on student movement and social contacts are emphasized as well as childcare possibility is expanded.[24] - French Community: Re-opens May 18th partially for the last year of primary school, and the last year of secondary school[25]. Mouth masks are obligated in school for students 12 years old and above. Further breakdowns are covered in the circulaire 7550[26]
	Daycares for working parents re-open.
18th	New collective campaign "Speak about it *"« Parlez-en ! Appelez la ligne 103, ils sont là pour vous écouter. C'est entièrement gratuit et anonyme*. » is launched targeting children and youth in Wallonia and Brussels. This is run by organisations Ecoute-Enfants*, Child Focus and SOS-Enfants[27] helpline opens
25th	The French Community allows the partial re-opening of primary grades 1 and 2 (in addition to previously allowed grade 6), as well as secondary school second years (alongside previously allowed last years).
JUNE, 2020	
	Belgian phased exit strategy is communicated
24th	Announcement made by all three education ministers that schools would resume in September, for the new academic year. Schools would operate with a colour-coded system, of which would be based on different risk scenarios. These are to be applied to all class levels (kindergarten to secondary education). All plans would also involve the use of social-distancing and face masks for students 12 years old and above. It must be noted that instances of younger students having to wear a mask are also practiced in some schools, but purely for the school bus journey (which involves in some cases different age groups and social 'bubbles'.
24th	The French Community translates the federally agreed education measures *Circulaire 7625 - Définition d'une stratégie en vue de la rentrée de septembre 2020/2021 dans le contexte du Covid-19 - Enseignement secondaire (later revised - see August 18th)* *Circulaire 7626 - Définition d'une stratégie en vue de la rentrée de septembre 2020/2021 dans le contexte du Covid-19 - Enseignement fondamental*
JULY, 2020	

[23] https://www.vrt.be/vrtnws/nl/2020/05/14/weer-naar-school/

[24] https://www.vrt.be/vrtnws/nl/2020/04/22/details-voorstel-opening-scholen/

[25] http://www.federation-wallonie-bruxelles.be/index.php?id=detail_article&no_cache=1&tx_cfwbarticlefe_cfwbarticlefront%5Baction%5D=show&tx_cfwbarticlefe_cfwbarticlefront%5Bcontroller%5D=Document&tx_cfwbarticlefe_cfwbarticlefront%5Bpublication%5D=3233&cHash=ab1d1cdbbe510b0ab025fd8f1a321670

[26] http://enseignement.be/index.php?page=26823&do_id=7803

[27] https://www.one.be/fileadmin/user_upload/siteone/coronavirus/Communique-de-presse-Ligne-103-20200515.pdf

	Re-imposed measures: shrinking of social groups from a fluid 15 to a fixed 5, from 29 July for at least the next four weeks.
	Schools out for summer
	Summer Schools: Flemish corona-resulting summer school for at-risk students covering literacy and numeracy, digital skills and metacognition are launched.
	Virtual summer schools launch VRT – in coordination with ministry of education of the Flemish Community RTBF – In coordination with the Federation Wallonie-Bruxelles
24th	Re-opening considerations for the French Community communicated: *Circulaire 7677: Covid 19 - Consignes de rentrée*
AUGUST, 2020	
14th	Sciensano public health body publishes guidelines on measures for the contact procedures for someone with COVID – with an excerpt relevant for educational stakeholders.
18th	Revised re-opening measures for the Walloon region *Circulaire 7686 : Définition d'une stratégie en vue de la rentrée de septembre 2020/2021 dans le contexte du Covid-19 - Enseignement secondaire - Erratum*
19th	Revised re-opening measures for the Walloon region Circulaire 7691 : Définition d'une stratégie en vue de la rentrée de septembre 2020/2021 dans le contexte du Covid-19 - Enseignement fondamental - Erratum
19th	Flemish Community: Secondary schools authorized to teach in code yellow (see Appendix B) once a week online if they choose to, under certain student and staff consideration measures.
20th	Announcement of central Walloon learning management platform: Happi (pour Hybridation des APPrentissages Interactifs)
21st	Official launch for students and teachers of Happi, a platform to enable distance learning, at the open and free disposition of all educational institutions of the federation *Wallonie-upon request:* Circulaire 7697 : Happi : la plateforme d'enseignement à distance mise à disposition des établissements d'enseignement obligatoire Circulaires *A section of Happi is also dedicated to teachers professional development* Circulaire 7698 : Enseignement hybride : module de formation en ligne
27th	*French Community: Adaptations and considerations for school leaders in initially outlined return to school plans of August 18th and 19th for primary and secondary. Modifications cover a number of school activites and processes as a result of the latest* Circulaire 7713 : Coronavirus Covid-19 - Procédure pour la gestion des cas et des contacts Covid-19 en collectivités d'enfants: Écoles
SEPTEMBER, 2020	
1st	*All Schools reopened under code Yellow (see Appendix B)*

	RTBF voices continuation of online educational *provision*
	Internet providers communicate extension of collaborative open services for those most at risk - Flanders
	Flanders strikes new deals with Microsoft for fast-tracked licensing
	Digital for Youth Further support for at-risk (technologies)
11th	Pandemic Portals: Communicated corona figures for Wallonia[28]
16th	*Pandemic Portals: Flemish Community: Charting the viral spread in education – from teaching staff to students who appear to have tested positive as well as precautionary quarantine*[29]
22nd	Circulaire 7748 Enseignement de promotion sociale : mesures et recommandations pour le tracing et le testing
	Internet as a basic right – Open letter by the Taskforce for e-inclusion call[30]

Appendix B: Belgium Re-opening Colour Code Approach

2020-2021 Colour codes agreed upon by the Flemish and the French Communities in Belgium

Table: Highlighting the colour-coded risk approach in Belgium, as well as the educational implications to schools and classes and the individual responsibilities and social dynamics at school.

Colour codes	Risk level	Educational implications	Individual/Social implications
Green	Low risk (best-case scenario with a normalised health situation – vaccine or herd immunity)	All school going children (primary and secondary would go 5 days a week)	All contacts possible again with reinforced hand hygiene
Yellow (starting basis for all academic institutions as of Monday September 2nd, 2020).	Limited spread of virus.	Kindergarten and primary in school 5-days a week for all pupils. Secondary school students have 4-day weeks, with remote learning on Wednesdays	Face-masks mandatory from age 12 onwards when social distancing cannot be assured, not required outdoors. Student movement and contacts are limited to class bubbles. Teachers move between classrooms for subjects. School events and trips cancelled and/or adapted.
Orange	Increasing virus spread.	Kindergarten and primary school continued for all. Secondary school	Same as yellow.

[28] https://www.one.be/public/coronavirus/

[29] Corona contaminations communicated for Flanders primary and secondary: https://onderwijs.vlaanderen.be/nl/coronacijfers-clb

[30] https://e-inclusie.be/dossiers/dossier-digitale-inclusie/open-brief-internet-basisrecht

		classes are halved – half in school/half online, rotating groups in/online on a weekly basis.	
Red	Highest risk scenario	Same as orange	Stricter hygiene rules and increased limitation of contacts.
Community Specifics			
Ministry of Education Flanders	*Breakdown of pandemic scenarios by school-level and orientation guides (draaiboeken)*[31]		
FWB Education	*Breakdown and school-level and type guides (circulaires)* [32]		

[31] Draaiboeken Flanders https://onderwijs.vlaanderen.be/nl/nl/coronavirus/pandemiescenarios-en-draaiboeken-2020-2021
[32] School guides http://www.enseignement.be/index.php?page=25431&navi=152 & http://enseignement.be/index.php

Country report on the impact of COVID-19 lockdown on schooling in primary and secondary education: Estonia. Author: Eve Mägi

Contents

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Authors

Eve Mägi

Executive summary

In Estonia, schools were closed on 16 March as part of the COVID-19 lockdown measures. The State took a clear approach containing a general framework and guidelines rather than instructions, in which school owners and leaders had to make decisions based on the local needs. Current research pointed that most teachers, parents and students were positive about the remote schooling period, which correlated with self-regulation skills, but also tired and demotivated towards the end of it (Lauristin et al., 2020). Almost half of the Estonian students said that they spent more hours studying than before, and 43% of students argued they received less support from teachers compared to face-to-face schooling. 70% of students started to use new study methods and tools of communication during the remote learning period (Fritz and Persson 2020), and teachers rapidly developed their digital and social and emotional competences (Lauristin et al 2020). Data protection and cyberbullying appeared as increasing challenges in this period (Lauristin et al 2020)

This report presents the findings from interviewing 28 school-related stakeholders in Estonia, including students and parents, on how unexpected remote schooling imposed by the COVID-19 lockdown measures in primary and secondary education affected inequality in schooling, teaching tools and content, competences, students' certification and assessment, and stakeholders' mental health. The aim was to learn some lessons in view of a return to school or a new lockdown. The interviews took place in summer 2020.

The general findings of this study show that, in Estonia, information flow at state and organizational level on the COVID-19 remote schooling period was efficiently complemented by media follow-up. Even though there were a lot of instructional guidelines on how to succeed in remote learning, some teachers, parents and students did not feel instructionally supported, but overwhelmed during the initial weeks. School IT specialists and educational technologists provided extensive support, particularly related to digital competence. All stakeholders strongly appreciated it. Teachers collaborated with professional networks and shared useful methods, ideas with colleagues at school, but would have needed additional support on digital pedagogy and instructional practice for teaching online. School leaders found systematic collaboration with school owners as supportive factor.

In terms of **inequality**, the family situation, and especially parental support, became one of the most relevant factors to reinforce or reduce inequalities. Several student groups such as introvert students, easily distracted ones, or those with learning disabilities improved their performance. The main obstacles to digital learning were connectivity issues and at times insufficient digital competence. The education provision was complemented with education technology companies' support, enabling an increased access to educational opportunities.

Concerning **teaching tools and content**, teachers and students missed an environment that would converge informative-organizational functions (currently eKool and Stuudium), interactive functions and cross-subject teaching. Teachers struggled with balancing focus on students' academic outcomes and student participation, and to identify when they lost track or motivation. Signs of fall in student motivation encouraged school leadership and some teachers to focus the curricula on core skills and subjects. Learning design patterns varied extensively among schools as did the frequency and length of online sessions. Parents expressed their expectation to have online sessions systematically, and were critical and exigent with teachers and schools about providing them together with systematic tasks and deadlines. They would have liked to see much more direct teacher-student communication rather than teacher-parent contact. Parents and students pointed to schools as responsible for online risks, privacy and cybersecurity, and school leaders admit insufficient competence to address it in a meaningful way.

In terms of **competences**, students, parents and teachers were not equipped with the digital competence needed for a situation in which digital technology becomes essential in this learning and teaching. However, digital competence developed rapidly among all stakeholders. Social skills development was not a priority for teachers, but some started to focus on them after gaining experience and confidence in remote learning. Motivational loss, fatigue, and tiredness emerged among students, parents, teachers and school leaders towards the end. However some students managed to find their rhythm and appreciated flexibility of study arrangements and calm environment during the remote learning period.

Regarding **assessment**, uncertainty about student contribution left some teachers unconvinced about grading. Educational staff recognised that addressing this challenge requires digital pedagogy skills, but some teachers suggested that learning analytics can bring teaching innovation by improving student engagement.

Concerning **mental health**, educational staff experienced both physical and mental stress, mostly due to the extreme workload. Phone calls from colleagues and school leadership were for teachers and schools leaders

one of the strongest stress reliefs and support measures through collegial support. Parental support was a key factor for persistence in remote learning, but some parents said that it put a lot of pressure on them. The approach of professional support specialist team working in collaboration with teachers in creating solutions to address individual needs and providing different types of assistance has been one of the strongest assets in the remote learning period.

To sum up, the **findings of this study** show that the unexpected and obliged remote schooling in Estonia due to the COVID-19 lockdown demonstrated that blended learning is possible. Estonia was already digitally well-equipped to face remote schooling and managed to continue with its collegial support for systematically keeping contacts and assistance. Remote schooling during lockdown helped to develop more sophisticated digital learning environments, envisage innovative pedagogies and learning analytics, speed up the process for a higher level of digital skills, and strengthen collaboration and communication among stakeholders. Nevertheless, the abundance of digital platforms overwhelmed stakeholders, curricula content had to be shortened, dedicating limited attention to students' social and emotional skills that would have been beneficial to face the crisis. Indeed, workload, stress and poor resilience and students' motivations appeared as the main obstacle for the success of remote schooling.

These lessons from remote schooling in Estonia call for **policy actions** to integrate digital competence into education at all levels and to strengthen student-teacher, school-home and public-private partnerships.

1 Aim and scope of the report

The aim of this report is to learn lessons on how the unexpected, obligatory shift from face-to-face to remote schooling has affected primary and secondary education, as well as to evaluate the existing solutions in place for remote teaching and learning from the perspective of different school-related stakeholders. The report collects information in Estonia obtained by interviewing 28 stakeholders (11 teachers, 4 professional support staff members, 4 school leaders, 4 students, 4 parents and one private sector educational technology company representative) on the following topics: inequality; teaching, learning contents and tools; digital, and social and emotional competences; certification and assessment; and mental health. More information can be found in the Annex on the methodology of the study.

In order to set the scene, a general overview of national research covering the impact of the COVID-19 lockdown measures on schooling, as well as the educational policies for remote schooling developed during the lockdown in the country are presented in section 2. Section 3 presents the main findings of the interviews to stakeholders. Section 4 analyses the findings and draws some lessons from the lockdown in Estonia.

2 Current policy situation and national research on COVID-19 and remote schooling

2.1 Institutional context and policy situation at national level

To address the COVID-19 risks, Estonia adopted a school-based local approach (Reps, 2020). While general framework and guidelines rather than instructions were provided by the ministry, school owners (mostly municipalities) and school leaders had to take decisions based on the local needs.

The Ministry of Education and Research mapped the situation in schools by creating an overview of the challenges schools are facing and what kind of assistance is expected from the state level (Ministry of Education and Research, 2020a). Most schools implemented contact learning, although some chose blended learning, especially at upper secondary level. 75% of schools confirmed that they had designed an appropriate plan for the remote learning and were ready for implementation if needed. Educational staff found the most difficult aspect to be organising educational provision for both students at school and at home simultaneously, as there is frequent need for some students to stay in self-isolation. As some schools adopted strict measures and implemented a remote learning model that some parents did not appreciate, the ministry called for not exceeding the Health Board recommendations.

The state emphasized that digital transformation has become a focal point of school life and educational institutions should maintain and develop remote learning capabilities throughout the school year to be prepared for a smooth transition if necessary (Ministry of Education and Research, 2020b). There are several state level new developments to extend digital competence development, such as new digital textbooks (including for students with special educational needs).

2.2 National research on the impact of COVID-19 on the school

The Estonian Education Forum conducted a study on how students, teachers and parents coped with remote learning during the COVID-19 situation (Lauristin et al., 2020). It collected feedback through online questionnaires in social media during the period of 12-18 May 2020. Overall, most teachers, parents and students gave a positive evaluation for this experience (approximately 50-65%). Most students perceived this experience positively. More than a third (37%) indicated they would prefer remote learning, about the same share (35%) did not have a preference and a bit more than a quarter (28%) state preference for traditional contact learning. There appears to be a positive correlation between self-regulation skills and good experience/preference for remote learning.

Compared to the other Nordic and Baltic countries, Estonian students felt more satisfied with remote learning – only one in ten students was dissatisfied with the changes in the organisation of studies (Fritz and Persson 2020). Estonian students appeared to have the best internet access and necessary equipment for learning. Almost half of the Estonian students said that they spent more hours studying than before, although one-third said they spent fewer hours. Half of the students experienced a more difficult level of tasks during the remote learning period compared to regular schooling time. Seven out of ten students stated they started to use new study methods and tools of communication during the remote learning period. While support from home increased, nearly half of students (43%) expressed they received less support from teachers compared to the situation at school (Fritz and Persson 2020).

The remote learning period was transformative learning that changed attitude towards digital teaching and learning (Lauristin et al 2020). Teachers developed rapidly their digital competence together with self-efficacy, time-management, self-discipline and social skills. Various teachers were able to try out new tools and digital environments. Teachers found tutorials from the Information Technology Foundation for Education (HITSA) and emerging subject teacher Facebook groups particularly useful. Educational technologists, IT support specialist, school leadership and colleagues were mentioned among the support sources; only a few teachers state they did not need any help (Lauristin et al 2020)

Participants in the study (Lauristin et al 2020) expressed that towards the end of the remote learning period, there were increasing signs of tiredness, fatigue, and lack of motivation due to dearth of face-to face communication. Complications were caused by occasional poor internet connection, sometimes equipment was missing – especially on the countryside. Some teachers were critical about the passive role of the state, which they found hard to understand. It was confusing for teachers to organise online contact-sessions, use various technical equipment, and follow data protection requirements. Teachers longed for positive feedback and recognition.

The relationship between school and home was redesigned immediately when remote learning started. Expectations between parties diverged and misunderstanding occurred. The study identified four different roles among parents: active child-centered study leader, observant bystander, communication-oriented solution seeker, demanding school reliant parent (Lauristin et al 2020).

Experts predicted an increase in cyberbullying during the remote learning period. A survey among 16 000 students from 77 schools in Estonia conducted in May 2020 showed that 12.7% of students had been victims of cyberbullying in schools where there is no KiVa[33] antibullying program during the remote learning period. The share of cyberbullying victims was somewhat lower in schools where the KiVa program is implemented (7.5%).

[33] KiVa is an evidence-based antibullying program developed in Finland and offers a wide range of concrete tools and materials for schools to tackle bullying.

3 Results

3.1 General information

The official announcement to close schools as of Monday 16 March came on Thursday 12 March. There were clear signs in the media that the COVID-19 spike in Estonia was going to affect everyday life, including schools. Therefore, it did not come out of the blue for school staff, students or parents that schools switched to remote learning. "I was watching the TV news and they announced that remote learning will start. Then, my mum checked it on the internet. /.../ I had a good feeling because I thought I do not have to get up at seven o´clock to go to school" (a lower secondary student). A primary student explains: "I was startled when I heard the news. I thought that there will never be going to school again". Parents expressed that there was some anxiety: "Finally, some clarity that students will stay home and from here on we take it step by step" (a parent of a lower secondary student).

Teachers noted that, at first, even though anxious, their understanding was that "this is for a few weeks only, so it will be a weekend full of planning. We had no idea it will last so long". That appeared to be a relief in a sense that there was a certain point of time in mind and it was not too long. As this period followed shortly a one-week school holiday, then many families had undertaken international travels which made some teachers wary of having contact learning, so they were relieved to learn about the remote learning option.

Some school leaders stressed the confusion related to initial decisions. Municipalities as school owners started to make their own decisions when/how to switch to remote learning. At the same time, private schools made decisions independently. Thus, the signals and decisions varied considerably during the week prior to the state decision that all schools had to switch to remote learning. The announcement on Thursday enabled some schools to have a day (Friday 13 March) for planning and preparations. For instance, general staff meetings took place in schools that day to discuss plans for the following weeks which, several teachers emphasized, provided clarity and structure.

Most teachers considered it helpful in the remote learning situation that schools previously had practised e-learning days, typically three times a year, which had paved the way for teachers. However, as a secondary school subject teacher pointed out: "These e-learning days served as some kind of pre-work in the framework of what kind of capacity and skills I had, but during this everyday remote learning, I had to put all the tasks, explanations, homework in the language and looks of Maths and my stress level was huge: how do I make it all understandable for my students?"

Teachers were satisfied with the information flow throughout the remote learning periood, which cannot necessarily be said about the instructional support. School leaders highlighted that the information flow from the state level was quick, but rather descriptive during the first week. However, the ministry officials were perceived to act quickly and after a few weeks, school leaders noted, the information flow improved and entailed more suggestions on methodology and where to seek help.

Schools continued to hold weekly (now online) staff meetings which were described as "much more focused and useful compared to earlier staff meetings where all staff members reflected their experiences, discussed next steps etc". Some school leaders held meetings at the same school level rather than gathering all together with a full school team. A primary and lower secondary level school leader noted half-jokingly "I had never had before such a great overview of how students are doing". At school level, some leaders prepared weekly summaries with key messages to ensure that teachers easily capture the most relevant updates and changes in instructions.

Some schools had formed crises committees that consisted of a school leader, some teachers, sometimes educational technologist and/or school owner representative to ensure information flow and systematic decision-making procedures. Some teachers considered that the level of flexibility that was built at school system level and in organizational processes became relevant. Teachers concluded the transition process was smoother in schools where there was more perceived flexibility.

Some teachers and school leaders perceived that there were many instructional guidelines available on how to succeed in remote learning. More specifically, instructional support shared by professional teacher networks, subject networks and the Information Technology Foundation for Education (HITSA). At times, teachers found these numerous guidelines and suggestions rather overwhelming and even stressful, noting that it took a few weeks to try out what was the best option for their needs. A lower secondary school teacher said: "The first week was very chaotic in which everyone suggested useful digital environments and methods

to apply. After two weeks things settled and a selection of environments and methods that suit you and your subject best were adopted".

The support of the school IT team[34] was available in many schools. They started preparations in schools immediately when decisions on the remote learning came. Yet, several teachers did not necessarily perceive that they were supported, especially at the beginning of the remote learning period. IT teams provided technical support but teaching online was perceived to be a whole lot of different elements. A primary and lower secondary school teacher said: "Even though I knew that there were all sorts of support available, I still felt alone". Students found it helpful when teachers or educational technologists had instructed them on the (new) digital environments they were going to use during remote learning. Instructions from teachers during the online sessions largely served them as the main support, next to parental assistance.

Some parents considered that the information flow from school during the first weeks was scattered, while others were happy: "I did not have the feeling that I do not understand what is going on but rather that I have an opportunity to ask and specify if needed" (a parent of primary and lower secondary school students). Schools who used online communication and digital environments on a regular basis had an advantage, so they reacted faster and more efficiently from parental[35] viewpoint compared to those schools that did not use e-communication that frequently. Parents acknowledged that it was very difficult for the schools as "they had to create a wheel". At the same time, a parent of a primary and secondary school students said: "There was a total confusion at school during the first week. To my surprise, secondary level students started creating accounts and establishing understanding of how various digital environments work". Interestingly, parents perceived lower secondary level children more prepared compared to the older ones. Some parents (of children at primary and lower secondary level) mentioned they did not remember having received any instructions from school on how to support children at home during the remote learning period: "There were no specific instructions, but I remember clearly that one teacher reassured that parents are not new teachers and if there are any issues, I should contact a teacher." Others looked for instructions in teacher feedback: "Instructions were in a feedback format. For instance, when my first grader made some mistakes, then teacher pointed to what needs more practice, so that was a signal to me how to support my child, what to consider".

School leaders received phone calls from various private sector companies who offered equipment or webcams and other material support throughout the remote learning period. Schools were not able to include all support provided. A secondary school leader describes: "Youth centre offered help. We could not really tell how to help, it felt isolated." School leaders mentioned systematic collaboration with school owners (municipalities) as a supportive factor through all phases of remote learning. Some school leaders disapproved of the State decision to leave it up to the school owners (mostly municipalities) to decide if students could continue contact learning after 15 May. It was perceived as if "the state left the students in difficulties" (a primary and lower secondary school leader) implying that school leadership expected a clear decision at the state level that would apply to all schools the same way.

3.2 Inequality

While most students and teachers were physically apart during the remote learning period, there were some cases (on the countryside) where assistant teachers/social pedagogues went home to assist students with schoolwork. After the first week when it was clear that some children (incl. children with special needs) could neither cope with remote learning nor rely on parental support. In that case, the assistant teacher suggested that she was ready to assist the children at home, which became an established pattern until the end of the remote learning period. School leaders noted that families not always accepted this type of at-home assistance. Occasionally, teachers took study materials to student mailboxes aiming to mitigate issues with digital skills and/or motivational problems and provide an alternative for students to continue participation in education. Later, upon collecting materials from the mailboxes, teachers admitted with regret that these were sometimes incomplete.

Teachers and school leaders emphasized that parental support was a key factor for persistence and engagement in remote learning, and in assisting students with task instructions. Thus, home situation became one of the most dominant factors to reinforce or reduce inequalities. This happened especially at primary and lower secondary level, as at that age parents play an influential role in the study process. It appeared

[34] Often includes educational technologist and/or IT help person
[35] Several interviewed parents had three children who attended different schools.

particularly challenging to get teenagers back on track without home support. Students from families in which both or one of the parents were frontline workers were in a more vulnerable position in terms of home support as they often had no parental assistance.

Functional literacy skills among students with special educational needs also appear to have made a difference. "One parent was very helpful to open my eyes; the parent wrote that her child is in trouble, he spends the whole day on the tasks in my subject and he does not comprehend guidelines or tasks. This was very important for me as students frequently emailed me, complaining they do not understand but when parents turned to me, it was a signal that forced to act quickly" (a primary and lower secondary school teacher). Eventually, the teacher considered it more important to leave out some topics and to focus on student participation by taking time on prioritising clear guidelines and study material: "Nothing happens if you just touch upon some topics, stress practical examples and go in-depth with other topics".

Synchronous online lessons a couple of times a week worked well and were highly appreciated among students with special educational needs. However, as teachers noted, the small group size or one-on-one assistance in the online lesson made a huge positive difference, because it addied an element of familiarity: the teachers' voice/figure and immediate assistance. Support from assistant teachers in cooperation with the main teacher played a crucial role in enabling one-on-one assistance.

Teachers identified students with a mother tongue other than the language of instruction (such as Russian-speaking students) as a group that needed special assistance during remote learning. This happened mainly at primary level, as students did not always understand the instructions and content, while parents did not speak Estonian and were therefore unable to assist them. Teachers addressed this concern with individual assistance. The returnee students (who had come mostly from Finland) needed a similar support.

Several student groups emerged as more successful in remote learning compared to the usual face-to-face learning, according to teachers and parents. Students with Attention Deficit/Hyperactivity Disorder (ADHD) and with autism benefitted from a calmer environment and less daily contacts, respectively. Daily parental support at home also uplifted modest students.

There were student groups that teachers perceived as not reaching their potential during the remote learning. Perfectionist students suddenly fell behind: "They were too insecure to submit their tasks and without constant reassurance unsubmitted tasks piled up" (a special education teacher, lower secondary level). To address this issue, a team of professional support specialists at school started working with these (and other) types of students by organising weekly meetings amongst support specialists. In these meetings, staff created individual study plans for every student in need considering a student's main challenge. Thus, the professional support team acted as a coordinator between a student and teacher(s). "Now it is important to reduce the material load, now one-on-one video lessons are a must" (a special education teacher). After receiving assistance, students were sometimes able to continue independently. A similar example can be drawn from other schools on the countryside in which every morning a social pedagogue received a list of students at risk of disconnection from teachers. The social pedagogue directly called the listed students and/or their parents to follow up and aid or design solutions with other colleagues.

A suitable physical environment with a place to study without noise or interruptions was a challenge for some students, as mentioned by various teachers. For example, one student at upper secondary level did not participate in remote learning as he had difficulties finding a suitable private place to study among several other siblings. Teachers also noted that some students could not attend online lessons due to a room problem, as they had to share space with numerous siblings.

Digital equipment was there to support access to remote learning. Students, with a few exceptions, had or received a laptop. In case a student did not own one or there were several children in the family, schools, in some cases local governments and/or private companies, helped by lending out laptops. Most teachers had either personal or school laptops to use. However, challenges with access were related to poor internet connection outside urban areas, limited performance of the broadband connection among both students and teachers. Weak signal and internet speed hindered online class participation as indicated by a secondary school student: "It was really annoying that I could not hear what they were talking about. I was waiting and... nothing. The sounds were funny".

Some teachers emphasised the importance of advanced digital equipment that enabled them to follow desirable lesson design and offer higher quality teaching. For instance, document cameras were appreciated among teachers who had them at their disposal. A secondary school teacher said: "I quickly stopped using slides and switched to my document camera for writing, drawing, explaining – students liked it the most and so did I". Yet, there were teachers who missed this type of assistance: "I would like to have better technical

equipment. I want a screen on which I can write, and a child can follow more easily. In spring, it was all a bit too basic" (a primary and lower secondary school teacher).

3.3 Teaching, learning content and tools

Teachers appreciated that education opportunities became increasingly accessible during remote learning. It means that various digital environments (Opiq, Miksike), apps and web platforms that required a user licence opened up free of charge and teachers were able to diversify the study process. "The opportunities for using various digital environments were large. I used several new environments, particularly at the beginning when I did not use as many online sessions, and I am very pleased" (a secondary school teacher).

Some teachers considered the amount and quality of digital materials to be appropriate (examples of eKoolikott and Opiq), others pointed out that various subjects were covered unevenly. While the situation was good in Estonian language, in mathematics the situation was worse, particularly for students with special educational needs. Inspired by the remote learning experience, a special education teacher was planning to fill in the gap by designing support materials in mathematics that went into testing phase in September 2020. The concern for various subject teachers was about the process of re-designing lessons and adjusting material. According to a primary level teacher: "Adjusting different formats and materials was the most time-consuming activity. /.../ I do not use the read-from-textbook-complete-exercise approach." A leader of primary and lower secondary school said: "One had to restructure tasks so students could complete them independently with minimal assistance, also that it would be convenient to provide feedback for these tasks".

Teachers had professional autonomy to choose digital environments that best fit their needs. Teachers highlighted that widely used web platforms (Stuudium and eKool) served monitoring purposes well, but were not really for interactive learning purposes. A primary school teacher: "These are not meant 100% for studying as these do not support self-organizational skills. I started using GoogleDocs which was visually more attractive for students and user-friendly".

There was some criticism towards the regular use of certain digital environments caused by discouraging student feedback. A primary and lower secondary school teacher: "We started using Opiq. /.../ but then we found out it is impossible because it is the same thing as if a student had to learn it independently. There is no explanation part, which is crucial for a student. So, we dropped it as it did not serve the purpose".

Parents were critical towards the use of many different digital environments. "Students might use their phones every day, but these environments are not very familiar for them, especially for younger students /.../ There was a lot of creating new accounts at the beginning, understanding how various digital environments work and how do you navigate there. /.../ Teachers overdid it at the beginning, later more flexibility was created, and students got more experienced" (a parent of primary and secondary level students). This criticism reached school staff and leadership who tried to address this challenge by recommendations to reduce the number of digital environments in use among teaching staff. Some schools guided to stick with materials and digital environments familiar for students but also for teachers from previous experiences. "A subject teacher should use the same digital environments throughout the remote learning period, not to switch between multiple ones and introduce five new environments the next lesson. In short, one teacher, one or two digital environments" (a primary and lower secondary school teacher).

Teachers and school leaders concluded with hindsight that it was a good decision to stick to one or two environments, although some teachers with a good level of digital skills highlighted that after the initial weeks, they motivated themselves with exploring new digital environments and challenged themselves to renew the teaching process. With the opportunity to choose from many digital environments, teachers, parents and students appeared to have missed the one that would converge informative-organising functions (currently eKool and Stuudium) and other functions in a user-friendly way.

Teachers collaborated both within the school and outside the school via professional networks. Teachers posted examples of cross-subject approaches they had used and shared experiences in Facebook groups or Messenger about digital environments. There were some spontaneous initiatives for sharing useful methods and approaches within the same school. "Someone had an idea, created a baseline and then other teachers built around that idea" (a primary and secondary school teacher). School leaders noted that teacher collaboration intensified as collaboration skills improved during the remote learning. Teachers gained confidence to share their materials, seek advice and collaborate throughout the teaching process. "At the beginning, teachers focused on short units but later they started implementing lengthier projects and longer units together in their study design" (a secondary school leader).

Some teachers were not comfortable with teaming up with colleagues due to previous experience with cross-subject learning or because they found the situation overwhelming. “I did not collaborate with my colleagues. I was busy coping with my own tasks. What I did was following the subject group postings on Facebook” (a primary and lower secondary school teacher).

Some teachers adjusted curricula content by trying to address first the topics they considered easier for students, others designed the process based on the academic level in the group. With the groups they perceived as less academically capable, they addressed all topics required in the curricula but not in the same depth, as they would do for contact learning. A primary and lower secondary school teacher: “I readjusted curricula in terms of redesigning some topics. Perhaps some topics were touched to a lesser extent, particularly for students who had difficulties in my subject”. A primary level class teacher: “I did not manage to address all topics in the curricula. /…/ I know I must return to these topics next year “. In some schools, curricula content was adjusted after four weeks due to high workload and signs of fall in motivation.

Providing feedback was the most time-consuming task for some teachers because of the perceived need to address every student frequently. “Teachers appreciate digital environments that provide feedback automatically, ideally in a cross-subject learning design. Providing formative feedback was intense for teachers at times” (a primary and lower secondary school leader). A secondary level subject teacher addressed this challenge: “At the beginning of a lesson, I explained all mistakes, what could have been done, alternative solutions… /…/ Not individually, but all students were able to learn from everyone’s mistakes”.

Parents were critical about several elements in learning design. Providing to-do lists to be completed routinely without online lessons caused disappointment among parents. A parent of primary and secondary school students: “Studies remain very one-sided if the teacher provides only to-do lists, adding a note that if you need to ask something, then email me. My child was rather asking me, not the teacher.” Another parent of primary and lower secondary students stressed critically: “There was a clear lack of communication and online video lessons. For one of my children, video lessons only started in May and took place only three times. My children missed other students’ faces, group works and socialising. It was not there! Students just submitted tasks one after another. If a student did not email the teacher with any problems, then there was no communication at all. /…/ I am hesitant to what extent my children really learned much with just routinely tasks”. Some parents state that during the first week teachers set unrealistic deadlines, but the situation improved once the school teams gained deeper insight and received feedback from parents.

The remote learning period inspired learning preparations and personal development. Teachers appreciated the flexibility of learning time and place. One teacher described the new approach: “I will film the lesson and upload the video along with the study materials, so all students who are absent or sick have access to our lesson. It also enables slower students to review the material if they feel the need.” Students emphasised the positive effect of flexibility because they could decide when to do schoolwork. Some students preferred to complete everything at once after they woke up, while others participated in online lessons in the morning, took a break in between and completed individual tasks in the evening. Teachers, similarly, noted that for many students choosing their own rhythm for learning (evening or morning) provided good results. Flexibility of time and arrangements has positively affected work-life balance. One teacher mentioned she “actually saw some signs of spring over at least fifteen years”. Another teacher was proud of “creating a pattern to be able to organise work during remote learning without constantly feeling overwhelmed and better use time”.

School leaders stressed that flexible arrangements can be transferred to contact learning. That would enable teacher to continue teaching and student continue their studies without the need for replacement. Moreover, remote learning experience has inspired changes in learning design. A primary and secondary school leader: “Lessons will have different length and students are not expected to attend up to eight different subjects but timetable is designed in a way that students have more opportunity to go in depth and focus on the same topic during the same day”.

Teachers, school leaders and parents recognised that there might be some gaps in student academic development and saw the need to adjust the study process accordingly. A primary and lower secondary school leader: “We cannot be sure what the base level at the beginning of this new academic year will be /…/ we probably cannot continue where we left in spring but have to take a few steps back. To repeat material, to even out the base”.

Online risks and cybersecurity were not a priority during remote learning. Guidelines about internet safety were scattered in some schools. “There probably were some bits in the load of information, but we could not even think that far yet” (a primary and lower secondary school teacher). Schools used their own servers and email accounts to minimise risks. School leaders explained that in some digital environments, it would have

been helpful to create multiple accounts to ensure online safety, but it would have meant additional costs, so this did not take place. Zoom security raised concerns among parents and teachers as it was discussed in media. According to a lower secondary level teacher: "Some students very knowledgeable about internet safety, refused to participate in online sessions if they were organized in Zoom pointing out the security concern." Another teacher: "It came from the parents that they boycott Zoom because it was clearly stated in the media to be unsafe. Our school bought a Zoom licence and IT support team explained".

Students at primary level did not know what cybersecurity was, but they had heard about password strength. Students at secondary level were aware of online risks and privacy. Another parent stressed school responsibility: "As a parent, I trust school. If they share materials or digital environments, then we trust that schools know what they do and are responsible, also for data protection. It is not up to a child, anything that is beyond cyber hygiene. If school invites students to any digital environment, then they are responsible for cybersecurity". School leaders acknowledged online risks and privacy to be an increasingly relevant topic, yet they did not feel overly confident addressing them. "It [online security] requires one to be familiar with various layers – first to get a clear picture oneself and then to organise information to share with students and teachers in a meaningful way" (primary and lower secondary school leader).

3.4 Competences

Even though teachers considered their digital skills as being satisfactory, they also highlighted that they were not prepared for a situation in which digital technologies became essential for the study process. A primary and lower secondary teacher said: "One had to be ready working with digital devices the whole day. There is a major difference between using the device for communication and leisure and as your main tool for studying". A secondary school teacher also stated: "I am familiar with many digital environments and have used them in the study process before. However, I have not been in a situation in which I have to work the whole day with digital tools and rely mostly on digital environment to achieve study outcomes".

Teachers felt that they benefitted from previous experience with digital environments and their digital competence developed quickly. A lower secondary school teacher: "Our educational technologist has provided training on Google Classroom and I am really happy that I was familiar with it. If I had to start learning from zero, then the learning curve would have been much slower and more difficult". Teachers perceived creativity and self-efficacy as mitigating factors. "Readiness [to work in digital environments] developed through practice and step by step, I had not used many digital environments for Music. /.../ It helped me a lot to see the environment from a student's point of view" (a primary and lower secondary school teacher).

Teachers assessed that students did well in terms of digital skills during the remote learning period. At the same time, it varied largely in a way that "some students could teach teachers, while others need assistance from the very beginning. Luckily, the latter group is a minority; most had at least an elementary level" (a lower secondary school teacher). Furthermore, "some students were at a level that enabled them to make suggestions for digital environments and workflow organisation at school" (a primary and lower secondary subject teacher).

Yet, some teachers characterise students' digital skills as rather one-sided. A primary and lower secondary teacher said: "Students were not ready for versatile use of digital tools. For instance, formatting was fine, but what I really missed - photo editing capability. /.../ This side was very weak". Other teachers experienced that students had difficulties finding relevant information or an appropriate place to navigate on the screen. A primary and lower secondary level teacher: "You would think that googling is rather simple, and you do not have to teach it, but it quickly became clear that yes, we need to teach it".

Parents stress that digital competence among primary level students is not necessarily at an advanced level. A parent of primary and secondary school students said: "Remote learning is more difficult for younger children. They are not so self-efficient. Older children have a sufficient level of digital competence to navigate in various digital environments. With younger children, what became an issue was that they had not practiced digital competence very much". A primary level student said: "Once I had a very difficult task. A musical note I had to make. I did not understand how. Quite pointless. /.../ I asked my dad, but he does not know about Music. I looked it up in Google a few things, so I figured it out myself". Parents, similarly to teachers, emphasised students' self-efficacy and self-regulation skills as factors for success in remote learning.

Teachers had mixed views on the level of self-efficacy among students and competences to regulate learning. Some teachers considered the previous learning patterns became crucial for success in the remote learning process. A primary and lower secondary teacher: "If students are used to regulate studies and to take

responsibility for schoolwork, then they were better prepared. If parents are used to sit by a student all the time while doing homework, then those students experienced more challenges".

Teachers perceived it challenging to keep students motivated due to the habits students developed using digital devices. A lower secondary level teacher: "In digital competence, many students are way above you and me in this, but they do not have similar control mechanism as adults. So, when lessons start at nine, they turn on their gadgets and think that this is the same tool that I use for gaming. /.../ teachers do not really have measures to check how engaged students are behind the screens". Some teachers mentioned it is demotivating to teach online without seeing most student faces. Additionally, unclarity about the presence and engagement of students was tiresome and distracted the teacher's focus from the content. Designing more group work to create communication opportunities and increase active engagement were possible solutions. Some (secondary) schools established a rule that students must turn on a camera and show themselves during online lessons.

Some students, especially at primary level explained that they started learning in the morning, as they would do when schools were open. Teachers noted that older students preferred to sleep longer and started schoolwork around noon. A lower secondary student confirmed this preference: "It was great that I did not have to wake up at seven. I woke up late and then started learning." At the same time, it was not so much the schedule but following the routine of completing the tasks given for that day that kept the students on track or made them fall behind considerably.

Professional support staff highlighted that remote learning improved primary level students' self-regulation skills. "I noticed in video lessons development among very young students who had difficulties in self-regulation at school, but having to find their own way via screen connection without me pointing out with finger where and what increased their self-regulation skills, so they really did well".

Although there were examples of teachers building social skill development into study design, development of social skills did not appear to be purposeful or self-evident. Some teachers explained that this is something that they did not think about, but student feedback drew attention to the need to focus on social skills and group work. "Not purposefully, but perhaps it was there unintentionally, in Zoom lessons and so forth. We organised some activities, like a virtual exhibitions of pet drawings to bring students together" (a subject teacher from secondary school). To address social skills, some schools organised virtual events for the whole class (virtual class parties, virtual sports day, art exhibition). A primary and lower secondary school teacher said: "I think teachers panicked about study outcomes of their subjects, so the focus shifted to academic knowledge. Many do not have a clear understanding on how to develop social skills during remote learning". A primary level student highlighted maintaining contact for study purposes: "I did not ask from a teacher. Sometimes I worked together with my friend, I called him up."

Students started losing the habit of live communication. Some teachers noticed in video classes that students experienced some discomfort in communicating to each other when provided a chance for group work. Nevertheless, after a few weeks some students at primary level said they started missing going to school and seeing friends. A primary level class teacher: "Physical contact was the main issue, particularly for younger children. They are used to play together during the breaks".

The first few weeks of remote schooling appeared to be interesting for some students and teachers but after two weeks, a novelty of the process faded, and teachers and parents noticed fall in student motivation. Teachers noticed increasing amount of unsubmitted tasks and addressed this with additional online lessons or inclusion of new digital environments to boost student motivation. At the same time, an assistant teacher and a special education teacher described a different pattern in which some primary students struggled very much at the beginning mainly due to long guidelines and limited reading skills. When class teachers became aware of this issue, the change in guideline style enabled primary level students to follow these independently andfacilitated motivation growth as students.

Parents recognise that most teachers followed student progress and contacted them if something started to go wrong. Yet, parents express concerns the communication channel focused on teacher-parent channel, rather than teacher-student contact. A parent of primary and secondary school students: "What I missed was teacher´s personal communication directly to my child, this did not happen very often. It appeared that teachers felt appropriate to talk to the parent instead. I think the first step should be to turn directly to the child and ask how s/he is doing."

Class teachers had the central role in school-home communication. They served as the main point of contact for students, parents and school leadership. Therefore, class teachers were essential in designing the frame and content for communication. Additionally, school leaders emphasised the partnership with professional

support teams, especially in creating solutions for student who needed assistance. Facebook groups, phone conversations, digital platforms, and a section on "frequently asked questions" on the school website are some examples of school-home communication design.

Some parents raised a concern that assistance in schoolwork mostly fell on them rather than on teachers, especially at primary and lower secondary level. This put a lot of pressure on parents. A parent of primary and secondary level students said: "I felt the main expectation for parents from school was that children would complete their homework and that parents should monitor and support". Another parent had a different view: "My child did not ask for support from a teacher but turned to me even though guidelines from the ministry were that it should be the other way round". A primary level student declared: "I asked my father [for assistance]. My mother was all the time at work. My father did not always know what I asked. He was like, try it first and then I can help you. /…/ sometimes he got a bit angry and asked why I have not done it and then I said that I will do it later."

Some parents pointed out that for their children postponing tasks came very easily, especially when self-regulation and self-efficacy skills were modest. At home environment, as parents described, there are many distractions and it is difficult to motivate children to study, especially if there are numerous children in the family. Parents admit they had to motivate themselves and it was challenging in a situation where they did not understand the purpose of tasks. A parent of primary and secondary level student said: "There is constantly a load of study tasks to be completed and my only thought is to have these done for the evening, but why is it necessary? Why are we doing this?"

Some schools systematically collected feedback from parents via online questionnaires or virtual meetings, mostly biweekly or triweekly. Others did it less systematically, but all schools reached out to parents to get feedback on the process. School leaders, teachers and professional support staff made efforts to adjust the remote learning process based on this feedback, for instance concerning student workload, instructional design and support patterns.

3.5 Certification and assessment

Teachers found assessment to be one of the most challenging aspects during remote learning. "It is a complicated topic, all the time in the air. At the beginning, the ministry did not decide anything and the message from school was to try to include summative grading because we do not know what the end of semester will bring. Then, the feedback was that we do not actually know whom we are grading /…/ followed by a decision to use pass/fail system" (a primary and lower secondary school teacher). As there was not a central principle to follow, some teachers/schools made changes in the evaluation process during the remote learning period, while others did not see the need to change it. After some weeks, teachers increasingly started to raise doubts about student actual contribution to the task they were grading, as examples of parents completing student tasks emerged.

Student effort became an important element in evaluation. "My aim was to alleviate pressure among students, so if the student had submitted the work which indicated to me that s/he had put effort into it, then I did not give a negative grade. If there were mistakes, I pointed these out and provided feedback, allowing an opportunity to resubmit without having an effect on the grade" (a secondary school teacher). Another teacher highlighted that she brought a positive feedback for taking responsibility and submitting work timely in the final evaluation principles of the subject, which is not the usual practice for her during contact learning.

Teachers were largely divided into two groups: some teachers strongly supported grading and felt confident about checking student contribution to create the basis for evaluation. Others found it impossible to have confidence in student contribution and were unconvinced about grading. School leaders explained that preference for numerical grades among some teachers emerged regardless of school guidelines: "You can see that a teacher wants to control very much to make sure that a student really studies - it was a concern and needed attention". A special education teacher: "I really liked this debate on evaluation and assessment, it clearly brought out how grade-oriented teaching and learning sometimes is".

Testing student achievement was modified in some cases. A secondary school teacher: "I had to create three to five different versions of a test for the same group to avoid the situation in which a smarter student will solve the test, and everyone can send me a copy-based version. It still happened, but to a lesser extent I would like to think." Some schools adapted mixed assessment at individual level: most students received a summative grade, while a few students a pass or fail result.

Student monitoring and provision of formative feedback on student progress is a naturally emerging element in face-to-face learning at school. To achieve the same effect during remote learning, several teachers spent

considerably more time on providing formative feedback in written format. A primary and lower secondary school subject teacher: "I spent considerably more time on providing formative feedback. Of course, I created such a huge feedback amount myself because I wanted students to complete tasks immediately in every online lesson and I gave a specific amount of time to submit their work. This was my way to ensure that work would not pile up for students. That required taking a picture or sharing with me smaller bits of a task for which I constantly provided feedback." A professional support staff member noticed that providing formative feedback came easily for those teachers who had strong literacy analytical skills.

Some teachers used exclamation marks to denote undone schoolwork as school policy. Assistant teachers pointed out that it was demotivating for student participation to look at the list of incomplete tasks and exclamation marks that served as indicator for undone schoolwork. "Once we had got rid of this long list of exclamation marks replaced by positive results, then student motivation increased immediately"..

There were some examples of using peer-assessment among students. A mathematics teacher asked students to upload some of their tasks and students were encouraged to look at each other's solution to various mathematical problems. "I uploaded tasks with the aim to demonstrate that there can be several correct solutions and they could see each other's work. Some students quickly noticed mistakes. It was rather popular at the beginning, students were actively involved in checking out tasks" (a secondary school teacher).

3.6 Mental Health

Stress among teachers was high at the beginning due the workload. A primary and lower secondary school teacher said: "The first two weeks were insane in terms of time management: you open the screens at 8 a.m. and continue until late, just to have a short break to grab something to eat. During the second half of the day, completed tasks started to come in and I had to provide feedback and assistance. It was a never-ending flow. I did not know how to protect myself at the time". Meanwhile, some other teachers were anxious at the beginning because of uncertainty and fears related to the possibility of catching COVID-19.

Some teachers were able to work from school premises during the first weeks. Some teachers pointed out that keeping work and home environments physically separate served as a shield for stress: "For me having to stay at home was the toughest possible scenario; at work I was able to see some colleagues and I was able to switch from one environment to another. However, to wake up and immediately start working and meeting only one person throughout the day, it was not working well for me and at some point, I felt it started to affect my health" (a secondary school teacher).

School staff points to the main stress factor to be the time-consuming process coupled with physical discomfort caused by maintaining a forced sitting position the whole day. A few teachers got glasses after the remote learning period as their eyesight had reduced significantly over this period.

School leaders confirmed that teachers got very tired at the end of the remote learning period. It usually happens at the end of the academic year anyway, but this tiredness and fatigue was greater. It had a strong effect especially on teachers who lived alone and had limited opportunities for live communication. The remote learning period was particularly stressful for those teachers whose digital competence was rather modest or who did not have a habit to include digital tools and technologies in teaching practice.

School leaders recognised that some teachers showed clear signs of burnout. A few weeks in the remote learning, some teachers noticed their stress level had influenced them so that they were in quite a fragile or sensitive state of mind. A primary and secondary school teacher said: "It was at the end of April when I said that I feel I do not want it anymore, I do not want to use the Internet, I do not want to see students or colleagues. I felt very down, and I presume some students felt the same. It was like a dead point that I had to overcome; it was very difficult." Teachers also mentioned parents' attitude and confrontational communication style as sources of stress.

A support pattern emerged through maintaining individual contact. Schools created the following policy: a school leader or a colleague contacted every teacher weekly to find out how they were doing and if there needed any assistance. A secondary school leader declared: "I called teachers a lot to find out how they were doing, and I felt it provided teachers a lot of support, they were like, oh, how nice that someone calls me and is interested in how I am doing". A primary and secondary school teacher explained: "Communication went mostly through typing, so verbal communication skills started to fade and when I received a phone call from a colleague, it was the best moment of my day. /.../ I did consider for a moment that perhaps someone has complained, but I realized quickly it is collegial support and it worked". At times, specific instructions on how to create healthy patterns was needed. A school leader of primary and lower secondary voiced: "I sometimes offered very concrete guidelines, for instance: do not worry about evaluations, simplify your work, close the

screens at 5 p.m. and it does not matter if a student sends tasks at 8 p.m., you do not have to provide feedback the same day, the next day is perfectly fine." Virtual teacher rooms were created where teachers could share what they regularly share at school, and sometimes photos, gifs and jokes.

Teachers who had previously particpated in training related to mental health or self-efficacy argued that their knowledge helped them to recognise and address stress factors during the remote learning. Several teachers concluded that there were plenty of material on this topic in various formats (videos, infographics, articles, social media) to find assistance if one desired. However, readiness to use these materials or even recognise the need for it relied largely on individual teachers' attitude.

School leaders experienced stress too. A school leader expressed that "this incredible amount of responsibility was a huge load of stress". For them, the mitigating factor was communication with colleagues and school owners. "Communication with my teachers and other school leaders helped me a lot. Despite it, I ended up with regular visits to the psychologist outside school who insisted that I should take a break right away" (a school leader of primary and secondary school).

Even though most teachers recognised there was a psychologist working in their school, many of them did not really realise that this person could help them to mitigate stress. However, school psychologists shared recommendations on how to take care of mental health, sleep and exercise routine, and set limits on professional availability and communication. Some teachers found it very helpful to have long walks in the nature and choose a specific time of the day where they would go alone or with a colleague, friend or family to the nature and remove themselves from a work mindset/environment. A primary and lower secondary school teacher said: "You start in the morning before nine already at least until two, perhaps with short stretching pauses. Yet, it is pretty much all in a row which takes a toll. So, if you do plan time for walks in the nature or something, then I do not think I would have lasted". Some schools implemented screen-free remote learning days with using methods involving other means and methods than screens to mitigate negative effects.

Teachers observed that student stress levels varied greatly both at individual level and in specific period of the remote learning. While some students got visibly stressed and tired after some weeks, others, who were lost at the beginning, found their rhythm, and enjoyed the new arrangement and ability to design their own schedule. Students expressed that they mostly enjoyed the remote learning.

Parents had a similar view: it was more stressful for parents than for students. A parent of a primary school student declared: "It was rather getting on my nerves than on hers. When we sometimes had fights, it was because of me, not her really, as I felt it went over my head at times. My child was happy". A parent of primary and secondary students voiced: "I noticed my child had school-related anxiety before the COVID-19 situation, some psychosomatic signs. Therefore, home environment was calm and more suitable." A parent of primary and lower secondary school students expressed the fear of lagging behind in the process: "I felt the stress of completing all tasks and this fear that I do not want my kids to fall behind, while at times it is challenging to pull myself together to have a go again."

School staff members highlighted cases of students who had video game addiction and/or were socially disconnected. This hindered their studies. A teacher shared an example from upper secondary level: "We have several students with screen addiction who play video games at night then during the day in the online lessons they are basically dozing." Teachers noted some students, who had been academically successful and great communicators, did not do very well in remote learning. Teachers thought being isolated with minimal social contact had a strong effect on these students' performance.

Teachers noted that students with anxiety were able to get help from the school psychologist. Students at primary level were not aware of the opportunity to get help from a psychologist or counsellor and perceived their class teacher as the main point of help. Some teachers stated that behaviour problems in face-to-face classroom were alleviated and the main responsibility for that fell on parents during the remote learning. Teachers' role became to discuss the solutions for this issue at online parents' meeting. A school leader of primary and secondary school said: "If it had lasted more than two months, it would not have worked it out. It is just not sustainable in terms of student mental health and motivation."

4 Discussion and policy actions

4.1 Assessment of the situation by main stakeholders

Students expressed that the remote learning experience was rather positive, indicating they appreciated flexible arrangements. Similarly, another study found (Lauristin et al 2020) that students perceived the remote learning experience most positively compared to teachers and parents.

School leaders were impressed with teaching staff effort to participate in the remote learning. Teachers tried to create helpful links between colleagues at school, home-school, school owners. While they missed specific instructions from the State at times, school leaders found a way how to fill in the gap in co-creation with colleagues, students and parents at school during these anxious times. School leaders demonstrated confidence in implementing new practices and more open collaboration among all parties.

For parents, active involvement provided a good opportunity to reflect on teaching and learning: for some students, parental assistance was the only way to stay connected in education. Research shows that more than a fifth (22%) of parents admitted that their children needed constant assistance from parents (Lauristin et al 2020). Yet exactly the same amount (22%) stated that remote learning fit very well for their children, even better than contact learning (Lauristin et al 2020).

In the context of rapid digital competence development among all – students, school staff members and even parents - understanding how to set limits and choose priorities came through difficult experiences. Remote learning boosted teachers' personal and professional confidence, encouraged collaboration in and out of school and enabled seeking new approaches to education. Teachers struggled finding an appropriate balance in familiar-unfamiliar digital environments, online sessions-individual tasks, formative-numerical assessment and work-personal life.

State level organizations provided instructions largely in the format of guidelines and recommendations, following the principle of school and teacher professional autonomy, which is highly appreciated in the Estonian education system. At the same time, during the unexpected and anxious period of remote learning, school leaders and some teachers expressed it would have been helpful to have some more concrete and uniform decisions for all schools to mitigate their responsibility. School staff recognised the Ministry's effort to gather systematic feedback from schools' progress and calling up all schools from time to time. Feedback from students and parents was regularly collected also in various schools. As parents expressed further use of this information remained unknown or guessed, then it would benefit home-school partnership to provide information on the collected feedback and its use.

Assessment and evaluation appeared to divide teachers into two groups - proponents and opponents of summative evaluation and testing during the remote learning period. On a positive note, the discussion that sparked about evaluation principles enabled rethinking the current approach to evaluation in education, especially in the context of remote learning, digital pedagogy, and lesson design. As the state provided recommendations rather than instructions, it may be worth considering providing more detailed instructions for assessment and/or diverse scenarios. Moreover, school leaders have expressed expectations for state level instructions to indicate adaptation in curricula and changes in curricula requirement without compromising education quality in the remote schooling situation. School leadership consider it would have been a mitigating factor for teacher burnout and school-home partnership. Clear uniform instructions would have served as a concise message for both teachers and parents that the Ministry of Education and Research had decided to adjust that for curricula for the remote learning period (for instance focusing only on the core subjects and core skills). Thus, the results reveals a need to redefine learning outcomes and assessment design during remote learning.

4.2 Lessons learned

Teachers and students prefer few digital learning environments. Abundance of various digital environments that some students had to use during the first weeks caused confusion in both students and parents. In the future schools should use fewer digital environments and decide at school level which ones are the most suitable, based on students' and teachers' familiarity of these environments among.

Collegial support provides individual plans that help students to continue with education. The remote learning experience highlighted several initiatives that stemmed from collegial support. They did not require major changes in the system, yet provided extensive support for students to continue education. An individual approach - especially with students who had learning difficulties -proved efficient even for teachers

who did not really think of it as priority. The idea stemmed from professional support staff and their nudges towards their colleagues alongside consistent effort to guide colleagues to focus on individual work plan design, coupled with critical review of core competencies in their subject field.

School staff members and parents need instructional support and assistance to address students' well-being and socio-emotional needs. Emotional health has been considered one of the most challenging aspects in education response to the COVID-19 pandemic (Reimers and Schleicher, 2020). Nevertheless, educational design appeared to focus more on education continuity and academic progress and less on student/teacher well-being and socio-emotional development. Emotional support and assistance can be achieved through collegial support, mentoring, professional networking, coaching to build capacity at scale and teacher professional development in the area. There were several good examples where school teams succeeded in addressing student individual needs, both in terms of academic development and socio-emotional well-being.

Direct contact between teacher and student may enhance both quality of education and communication. Several teachers and students mentioned that some students liked to have an overview of tasks and goals for a longer period (for example, a week) which gave them independence in study organisation and served as a motivational boost. Thus, it may be useful to prepare workplans and share it with students for a longer period rather than a day or two.

More flexible teaching and learning is possible and can be efficient. Flexible arrangements that worked well during remote learning have inspired school leaders to increase flexibility in contact learning. The remote learning experience provided a great opportunity to test a situation in which teachers must teach from a physically different location. Policy trends point to a likely shortage of teachers in the near future. This is already happening in rural areas. Distance teaching and learning from a distance proved to be successful when needed. It is possible to provide good quality education even in a situation where not all teaching staff and/or students are physically in the same location, if this model is developed a bit further. School leaders emphasise that these changes need to rely on an evidence-based approach and consider both student and teacher needs.

Basic cybersecurity sills should be provided in general education. With advanced digital environments, e-materials, regular use of digital platforms and tools, the results revealed somewhat surprisingly that online risks and privacy were not a priority focus, even though school staff acknowledged the mportance of the topic. During the remote learning period, as several concerns were raised, school teams started to pay more attention to online risks, but now this appears to largely depend on school IT support, educational technologists and students' skills in the area. School leaders appear willing to address this challenge but did not have a clear vision on how to do it. Research points out that cyber security skills are mainly acquired outside of formal education through hobby groups or self-learning (Melesk et al., 2019). Thus, more systematic guidance in formal education is necessary. There are some optional courses on cyber security at upper secondary level, but access is random rather than systematic. Providing basic cyber security skills in general education, however, as Melesk et al. (2019) argued, would require integrating this topic into teacher training programmes to support qualified teachers and educational technologists.

4.3 What helped to adapt to the situation

The Estonian education system benefitted from remarkable state investments in digital education. For instance, the Digital Revolution Programme (Digipööre) supports development of students' and teachers' digital competence, digital learning materials and introduction of IT learning in all schools It has an overall allocation of 47 million euro, of which 13 million euro was budgeted in 2019. Digital equipment was there to support access to remote learning, but poor internet connection, limited data size and uneven digital skills among students and teachers coupled with gaps in instructional practice may have hindered participation in remote learning. The positive outcomes were achieved not only due to satisfactory level of digital skills among students and teachers, but when digital skills were coupled with self-efficacy and motivation.

The education provision was complemented with private sector, EdTech companies and non-formal sector support. Through it, the national system received immediate material contributions such as waving fees on digital education solutions or computers for large families. While some teachers welcomed the opportunity to learn about new digital solutions, others felt overwhelmed. Collegial assistance to the latter group can help them to take advantage of this opportunity and consider new options for their practice. Inter-sectoral cooperation has demonstrated a huge potential in providing fast and efficient solutions to education and social challenges.

For school leaders, remote learning experiences have triggered new perspectives to include in learning design and organisation of studies. They have gained confidence through confirmation that some bold elements that were applied during remote learning might facilitate contact learning. Maintaining mental health and preventing burnout requires setting time limits and establishing routine patterns in everyday work environment. This needs instructional support among all stakeholders. The remote learning experience highlighted successful steps such as building into study design specific times for online session, task completion, outdoors activities and teacher-student and/or teacher-parent communication. As flexible arrangements were often mentioned as one of the positive sides of remote learning, then optimal balance between flexibility and fixed patterns must be found.

Table 1 below provides an overview of these strengths and opportunities described, together with the weaknesses and threats of remote learning in Estonia.

Table 1. Impact of COVID-19 in schooling in primary and secondary education in Estonia: SWOT ANALYSIS

Strengths	*Weaknesses*
• Sufficient digital equipment • Regular use of e-diary Stuudium and eKool • Habit of using digital technologies among many students and teachers • Professional support at individual level and collaboration with teachers • Appropriate digital materials to a large extent • Systematic support of IT team (educational technologist and/or IT help person) • Flexibility of teaching/learning time and place • Flexible arrangements and work-personal life balance • Strong home-school partnership as key for success • Collegial support measures for systematically keeping in contact and providing assistance	• poor internet connection in some areas, limited data and broadband connection • abundance of (new) digital environments • no integrated platform of process monitoring and user-friendly interactive learning • insufficient digital materials in some subject areas • possible shortcomings in study outcomes due to uneven quality of teaching and learning • one-sided digital skills among students • low digital competence and unsystematic practice among primary level students • development of social skills not purposeful and self-evident, limited social contacts • priority focus on study-outcomes rather balancing it with socio-emotional skills • different availability and capacity from parents to support students • lack of direct teacher-student communication/contact
Opportunities	*Threats*
• More sophisticated digital equipment • Various platforms, digital environments opened up free of charge • educational provision complemented with EdTech companies support • intensified teacher collaboration • introducing schools-wide adjusted curricula focusing on core subjects/ competences during the remote learning • collaboration with external partners – networks, youth centres, private organizations • rapid development in digital competence among students and school staff, also parents • digital environments that enable applicability of cross-subject approach • learning analytics teaching to develop an individualised approach and increase student engagement • increased use of peer-assessment • tested measures for rural schools to practice	• considerably heavier workload related to novelty of a situation, arbitrary use of instructional practice, lack of digital pedagogy skills and uneven level of digital skills • mental and physical stress, lack of skills for resilience • ambivalent focus on online safety, data privacy and cybersecurity • work-life imbalance • losing habit of live communication • fall in motivation among students, teachers, leaders, parents over time • high level of anxiety and stress due to heavy workload, insufficient instructional support, minimal social contact and uncertainty

blended learning to mitigate the challenge of teacher shortage • strengthening student-teacher partnership and communication • flexibility of arrangements	

4.4 Considerations for the future

With some hesitations, most teachers have a positive mindset about the blended learning possibility in the future. Especially the ones who consider the remote learning experience successful. Teachers' and school leaders' views on its extent and proportions, however, vary. Teacher appear to agree that the blended learning option is more suitable for secondary students than primary students.

Suggestions for upper secondary level (grades 10-12) include having one day a week of remote education with the aim to develop useful skills for self-organization and time management with the resources available for a student. Suggestions for primary and lower secondary education are more modest in terms of blended learning. Some teachers suggest that once a month it could be useful to practice remote learning, making sure the workload for that day would be appropriate and "not overwhelmingly to the end and not providing room for opinions that this is a day off without having to do anything". School leaders find that blended learning would not be ideal for primary and lower secondary students but acknowledge it is a good opportunity for some individuals, for example students who excelled in remote learning and not in contact learning. For many teachers (especially those who live in the countryside) the time usually spent on logistics and commuting during the contact learning was left for work or personal use during the remote learning. This is definitely a supporting factor for a blended learning approach in the future. Even though most teachers expressed they are not looking forward to potential remote learning periods anymore, they asserted that they do not see the point of commuting back and forth to school every day and spend all this time on logistics given that they have experienced a better arrangement. Students were rather positive about the possibility of blended learning for a short period of time.

Arguments against blended learning among school staff included that it is not fit for all students and support from home and/or physical environment always appropriate. Both school leaders and teachers pointed out examples of students who came to school after the lockdown and often they had to start from the point where remote learning started as they had not progressed much ever since. Teachers, school leaders and parents raised concerns about the quality of teaching and learning as well as study outcomes in the remote learning. School staff and parents did not have an overview of how much students have really learned during the remote learning period. Parents and children who had positive experience in spring were clearly in favour of implementing blended learning. Parents, whose children had modest opportunities for online contact-sessions are particularly critical of blended learning, especially at primary level. Therefore, there is apparent hesitation about sustainability of the remote learning.

Some school leaders highlighted that the idea of blended learning requires a shift in the overall conception of education - that the physical environment or organisation that we call school is not always necessary. As one school leader put it, "it was very difficult for me to accept that our school building is empty /.../ I am responsible for school but how can I be leading without my students, it was a weird feeling". It is clear that blended learning assumes high quality in terms of digital pedagogy, digital lesson design and instructional practice on remote learning. This is not comparable to previously implemented e-learning days and has not consistently been the case during the remote learning. Once shortcomings are addressed, there appears to be readiness and flexibility for the blended learning practice.

Learning analytics can bring teaching innovation that enables advanced individual approach and higher quality in student engagement. Smart interactive digital environments based on learning analytics should address the concern of recognising student development needs in digital environment with immediate

opportunity to provide appropriate assistance. Hardware and software to enable this type of solutions already exist. The next steps will be to create connections with education system and technology as well as strengthen links with digital pedagogy. The latter can be developed in public-private partnership and cooperation with EdTech companies.

4.5 Recommendations for policy actions

Conclusively, remote learning highlighted the need to integrate digital competence into education at all levels and to strengthen student-teacher partnership, school-home partnership and public-private partnership. Individual learning paths, flexibility and implementing individual approach would also provide added value.

References

Reps, M. (2020). If one student is infected, whole class will start distance learning 19.08.2020. https://news.err.ee/1125385/reps-if-one-student-is-infected-whole-class-will-start-distance-learning

Ministry of Education and Research, (2020a). Vaatamata viirusohule on koolid õppeaasta algusega hästi hakkama saanud. (Regardless of virus threats our schools have managed very well at the beginning of this academic year).

Ministry of Education and Research, (2020b). School year begins as normal as possible, digital transformation has become a focal point of school life. https://www.hm.ee/en/news/minister-mailis-reps-school-year-begins-normal-possible-digital-transformation-has-become-focal

Lauristin, M., Loogma, K., Erss, M., Vernik-Tuubel, E.-M., Sarv, E.-S. (2020). Õpilaste, õpetajate ja lapsevanemate toimetulek koroonakriisi aegses kaugõppes. Eesti Haridusfoorum.

Fritz, J., Persson, H. A., (2020). Children's Experiences with Digital Learning during COVID-19 Period – Findings from the Children's Advisory Panel. https://digitark.ee/wp-content/uploads/Telia-CAP-Digital-Learning-Report_2020-June.pdf

Treial, K. 2020. Õpilaste kogemused kiusamisega 2020. aasta KiVa programmi õpilasküsitluse põhjal. Tulemused eriolukorra kevadel. SA Kiusamisvaba Kool. https://kiusamisvaba.ee/wp-content/uploads/2020/09/%C3%95pilaste-kogemused-kiusamisega-2020-KiVa-programmi-RAPORT.pdf

Reimers, F.M. and Schleicher, A. 2020. A Framework to Guide an Education Response to the COVID-19 Pandemic of 2020. OECD, Paris.

Melesk, Kirsti; Mägi, Eve; Koppel, Kaupo; Michelson, Aleksandr 2019. Küberturbe valdkonna tööjõuvajaduse ja hariduse uuring. (Labour force and skills needs in cyber security in Estonia) Tallinn: Poliitikauuringute Keskus Praxis.

Annex: Methodology of the study

The target

This report is based on qualitative research carried out in Estonia in July and August 2020. 28 semi-structured in-depth interviews were carried out with the main stakeholders in the remote learning period in spring 2020. In total, 11 teachers (10 female and 1 male), 4 professional support staff members (all female), 4 school leaders (all female), 4 students (2 female and 2 male), 4 parents (3 female and 1 male) and one private sector educational technology company representative were interviewed. The aim was to target diverse groups of stakeholders from urban and countryside setting, primary and secondary level schools, public and private entities. Parents with different number and age of children in the family were approached. Number of children per parent varied between one and three. Teaching experience among teaching staff varied from less than a year to thirty years. Please see table 2 for positions, school type, contact and interview format.

Table 2. Interview sample by position, school type, contact and interview format

Position	School type and contact	Interview format
Class teacher	Public, primary and lower secondary	online
Class teacher, social sciences	Public, primary and lower secondary	online
Class teacher	Public, primary	face to face
Science teacher	Public, primary and lower secondary	online
Mathematics teacher	Public, secondary	online
Class teacher	Public, primary	online
Physics and Chemistry teacher	Public, secondary	face to face
Music teacher	Public, primary and lower secondary	face to face
Sciences teacher	Private, lower secondary	face to face
Class teacher	Public, primary and lower secondary	online
Mathematics teacher	Public, secondary	online
Teacher, career coordinator	Public, secondary	online
Special education teacher	Public, primary and lower secondary	face to face
Educational technologist	Public, primary and lower secondary	online
Social pedagogue/assistant teacher	Public, primary and lower secondary	face to face
School leader	Public, secondary	online
	Private, primary and lower secondary	face to face
	Public, primary and lower secondary	online
	Public, primary and lower secondary	online
Parent	Public, secondary	online
	Private, primary	face to face
	Public, primary and lower secondary	face to face
	Public, primary and secondary	face to face
Student	Public, lower secondary	face to face
	Public, lower secondary	face to face
	Private, primary	face to face

	Public, upper secondary	face to face
Private sector representative	N/A	online

The interview scenario

Interview scenario was developed by international group of experts and validated with the research team. Interview questions were designed for the main stakeholders: students, teachers, parents, school leaders. Countries translated and adapted questions considering national education system context.

Data collection/field work

The convenience sample was drawn from those individuals who were available and/or willing to be interviewed. For students, parental consent was acquired. Half of the interviews (14) took place online using Zoom and 14 were conducted face-to-face format, mostly outdoors where it was convenient for interviewee. All interviews were recorded and transcribed. All interviews retained anonymity. Interviews with teachers, professional support staff and school leaders lasted between 38 minutes and 1 hour 26 minutes, on average about an hour. Interviews with parents lasted between 41 and 58 minutes, on average around 45 minutes. Interviews with students were the shortest, lasting between 16 to 33 minutes, on average around 20 minutes. Two interviews with parents with multiple children were interrupted by kids for a few minute communication between parents and children.

Data analysis

The initial coding of collected information followed the structure of interview scenario. Data was coded into categories using thematic analysis to develop narratives. Quotes from various stakeholders were used to highlight key messages. The length of quotes from interviews was reduced to the essential message due to the limited length of the report. The interview data were analysed using the qualitative data analysis software NVivo 12.

Limitations of the study

In using a convenience sampling method, the findings cannot be considered representative of the whole population. However, the data obtained are rich and allow mapping along with certain comparisons to be made between the views of teaching staff, students, school leaders and parents based on the remote learning period experience.

Country report on the impact of COVID-19 lockdown on schooling in primary and secondary education: Greece. Author: Adonis Bessios

Contents

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Antonios Bessios

Executive summary

Since 10 March 2020, when the pandemic moved all education and training activities to emergency remote mode, the Greek government has taken a range of measures to ensure continuity of education and training and put emphasis on digital learning and delivery, but low-tech tools such as educational TV were also used. Previous studies have already pointed to challenges in Greek remote schooling due to COVID-19 lockdown related to network overload problems, lack of necessary equipment for teachers and students, teachers' low level of digital competence, as well as students' social isolation (World Education Blog, 2020; Παπαματθαίου, 2020).

This report presents the findings from interviewing 29 school-related stakeholders in Greece, including students and parents, on how unexpected remote schooling imposed by the COVID-19 lockdown measures in primary and secondary education affected inequality in schooling, teaching tools and content, competences, students' certification and assessment, and stakeholders' mental health. The aim was to learn some lessons in view of a return to school or a new lockdown. The interviews took place in summer 2020.

The findings of our study show that the sudden shift from the traditional classroom-based teaching to an emergency remote teaching mode posed a great challenge for the Greek education system. This was partly because almost a decade of cuts in education funding due to the financial crisis had strongly affected both the digital infrastructure of schools and the training provision for teachers. Emergency remote teaching and learning were not obligatory for the period from March to May 2020 when school buildings were closed, either for teachers or for students. This decision of the Ministry of Education created many controversies, as there was no common approach between and within schools. This lack of clear instructions gave, at the same time, space for experimentation and the opportunity for teachers and schools to try new ways of teaching.

In relation to **inequality**, some students were not able to participate in remote learning due to insufficient equipment and/or broadband connection or simply because they were not offered any remote learning opportunity. By contrast, students with minor learning difficulties, minor behavioural issues or lack of confidence found a different learning environment where they "flourished".

As regards **teaching tools and contents**, providing up-to-date and quality digital teaching material was another challenge for remote teaching and learning besides the existence of several repositories provided by the Ministry of Education and third parties. For most of the teachers, digital education is here to stay as they find that it can complement classroom-based teaching. According to teachers of primary and secondary education, the main benefit of the emergency remote teaching was that it helped to maintain a sense of belonging to the school, especially for younger students, by offering remote solutions to substitute the classroom. Concerns regarding issues of personal data protection and internet safety were raised, which were fuelled by mass and social media.

In terms of **competences**, the COVID-19 crisis showed the need for improving the digital competence of all education stakeholders, especially for parents who had to play an active role in supporting the remote learning of their children, in particular the younger ones.

Concerning **mental health**, probably the most salient of all the findings of this study is the anxiety caused by the sudden shift to remote teaching and learning without a previous preparation, which all the interviewees mentioned several times. Some of the stress factors were: personal health, isolation, time management, lack of digital competences, concerns about properly conducting distance learning, professional and financial insecurity (for teachers).

To sum up, the **findings of this study** show that, in Greece, emergency remote teaching helped students to maintain a sense of belonging to the school, built new collaboration mechanisms among teachers, fostered new ways of communication among families and schools, and accelerated the digital development of the education system (including the teachers' digital competence). Indeed, the remote schooling period made it possible to develop remote learning materials that can be now available to use during a new remote schooling or blended learning period. Indeed, for most of the teachers and school leaders, digital education is here to stay as they find it can complement well the classroom-based teaching. Nevertheless, beside the lack of previous experience or planning for dealing with such an emergency move to remote schooling, the insufficient digital infrastructure and competence – both at school and family level – as well as limited know-how on remote teaching prevented a proper remote education. Even if most teachers responded creatively, covering significant gaps, the unexpected remote schooling proved to be a stressful experience for most of the stakeholders.

The lessons learned from remote schooling in Greece call for **policy actions** to upgrade all the required national and school digital infrastructures, and to ensure that every student has the necessary digital equipment and resources, as well as to guarantee a structured and inclusive remote schooling. These actions would allow every school, teacher and student to fully participate in education and thus reduce. Moreover, teachers' regular training in the use of new educational digital technologies, and activities to improve the digital competences of all education stakeholders – teachers, students, parents – are actions that would also help to fully reap the benefits of digital teaching and learning.

1 Aim and scope of the report

The aim of this report is to learn lessons on how the unexpected, obligatory shift from face-to-face to remote schooling has affected primary and secondary education, as well as to evaluate the existing solutions in place for remote teaching and learning from the perspective of different school-related stakeholders. The report collects information in Greece obtained by interviewing 29 stakeholders (3 students, 3 parents, 15 teachers, 7 school leaders, 1 director of education, and 2 education coordinators) on the following topics: inequality; teaching, learning contents and tools; digital, and social and emotional competences; certification and assessment; and mental health (more information can be found in the annex on the methodology of the study).

In order to set the scene, a general overview of national research covering the impact of the COVID-19 lockdown measures on schooling as well as the educational policies developed due to the lockdown for remote schooling in the country are presented in section 2. The main findings of the interviews to stakeholders are presented in section 3. A final section 4 discusses the findings and draws some lessons learned from the lockdown in Greece.

2 Current policy situation and national research on COVID-19 and remote schooling

2.1 Institutional context and policy situation at national level

In March 2020, when all education and training activities moved to emergency remote mode as a result of the pandemic, the Greek government took a range of measures to ensure continuity of education and training (see Table 1 for an overview of the main policy measures for compulsory education). There was an emphasis on digital learning and delivery, but low-tech tools such as educational TV were also used[36]. At present, when the pandemic is still ongoing, very little is known on whether and how the distance and online learning practices put in place in response to the COVID-19 crisis ensure adequate and equitable access to quality learning opportunities for all.

Table 1. Overview of the policy responses to the Covid-19 crisis from March to June 2020

Date	Policy response
10/3/2020	Closure of all educational institutions is announced.
16/3/2020, 20/3/2020	Directions for asynchronous remote teaching are sent to schools.
9/4/2020	The Government Representative announces 1,885,000 participations of students in digital classrooms (Webex); 71,701 teachers have created their personal digital classroom; 113,974 digital classrooms have been created; 913,000 students and 166,000 teachers have been registered on the Greek school Network; 100,000 students on average watch the educational TV programme daily via E.R.T. (the Hellenic Broadcasting Corporation).
29/4/2020	It is announced that the students of the 3rd grade of Senior High School will return to school on the 11th of May 2020 and the other grades of Senior High School, as well as Junior High School, on the 18th of May 2020. The school year for High Schools is extended until 12th of June 2020.
29/4/2020	It is announced that the final examinations for all grades of Junior and Senior High School are cancelled.
11/5/2020	Students in the 3rd grade of Senior High School return to school.
18/5/2020	Students in the other grades of Senior High School, as well as Junior High School, return to school.
24/5/2020	It is announced that kindergartens and primary schools reopen.
25/5/2020	It is announced that the school year for Primary Schools is extended until 26th of June 2020, with increased protective measures[1].
26/5/2020	It is announced that the National Examinations for entering tertiary education will start on 15th of June 2020.
1/6/2020	Primary education students return to school.

Source: author's own elaboration

[36] http://www.edutv.gr

According to European Schoolnet (2020), which presents an overview of the policy responses to the COVID-19 crisis since the confinement in March 2020, the Greek Ministry of Education (MoE) has structured distance education through three modalities:

1. Asynchronous teaching and learning, which is now compulsory, with every teacher expected to upload their lessons and assignments, supported by resources, such as interactive textbooks (e-books) and other learning materials (which are collected in an aggregator called Photodendro) as well as digital lesson plans (Aesop) and digital educational complementary resources (study4exams). Two digital educational platforms, e-me and e-class, are targeted to students and teachers.
2. Synchronous teaching and learning supported through CISCO WebEx services through the School Network's lessons.sch.gr platform.
3. Daily classes for primary education broadcasted by the Greek State Television and Radio (ERT) in collaboration with the Department of Educational Radiotelevision of the Ministry of Education and Religious Affairs.

In principle, schools can develop the programme of distance learning, with the possibility of using a combination of all the available tools, resources, and methods of delivery.

In the school year 2020-2021, schools opened on September 14th instead of September 7th as initially announced. Particularly strict preventative and protection measures have been issued, such as clarification and discussion about faithfully adhering to the application of hygiene rules and other protective measures, free distribution and mandatory use of masks by students and teachers, different break periods for each class, etc. Each class can have up to 25 students without following the rotation model applied in June 2020, when schools opened after the confinement (where the maximum number was up to 15 students per class)[37]. An intensive 20-hour training course for teachers on distance learning has also been announced, but it was not implemented until September 15th.

The MoE is attempting to provide for the recruitment of teachers under three-month contracts so that they can teach remotely the students who cannot attend school. The reaction by the teacher unions was immediate and negative[38].

2.2 National research on the impact of COVID-19 on the school

Several studies have been conducted by Greek researchers to investigate the situation in Greek schools during the covid-19 pandemic. International organisations, such as the European Schoolnet, UNESCO and OECD also provide useful information in their country reports. Numerous articles and blog posts have been published online since March providing additional information and opinions about the impact of Covid-19 on the Greek compulsory education[39].

According to the World Education Blog[40] (2020), the Greek Ministry of Education has shown that the crisis can be an opportunity to bring forward long-awaited reforms for promoting digital education in Greece. The post by the World Education Blog also emphasises the other big challenge of the Ministry of Education, beside delivering emergency distance education: managing the postponement of the high-stake examinations for the tertiary education that generally took place end of May (distance education for the last grade of secondary school was prioritised and the exams postponed for the 15th of June). The post also reports other several challenges, similar to the ones in other EU countries, such as network overload problems, lack of necessary equipment for teachers and students, and teachers' need for better training on digital education. Among the

[37] Up to 15 students in the classroom; 2 sub-classes and attendance on a rotating basis if the number of students is over 15; cleaning the premises twice a day; special legislative act providing for financial allocations for cleaning services; different break periods for the avoidance of overcrowding; optional use of masks – special guidelines by the National Public Health Organization (EODY); provision for special leave from work for educators that belong to vulnerable groups; possibility of students not attending physically based on solemnly declaring that there is a person in their family that belongs to a vulnerable group; possibility of distance learning according to the required supporting documents; all-day schooling not operating during the extension period until 26th of June 2020.

[38] See for instance, https://www.ipaidia.gr/paideia/ekpaideutikoi-proothoun-3mines-simvaseis-anapliroton-gia-to-sxoleio-tis-tilekpaideusis

[39] See for instance, https://www.alfavita.gr/ekpaideysi/318079_i-anagkaiotita-tis-ex-apostaseos-ekpaideysis-en-meso-pandimias

[40] The blog is hosted by the team working on the Global Education Monitoring Report (GEM Report), an editorially independent, authoritative and evidence-based annual report published by UNESCO.

peculiarities of the Covid-19 crisis in Greece has been the closure of hotels, which often host temporary teachers in islands outside the summer months, the controversy over the obligation of parents to pay fees in private and shadow schools that created much tension in private education, as well as the controversy between centrally imposed and teacher-selected platforms for remote teaching.

Avgerinou & Moros (2020) designed a 5-Phase Process as a research-based action on the disruptive transition into a virtual classroom, transforming learning experiences, routines, and perspectives in the Elementary School at the American Community Schools (ACS) Athens, Greece. Preliminary results show that the 5-Phase Process led to an improvement in the overall school climate and the sense of community.

Foti (2020) conducted a survey exploring the perceptions, possibilities and limitations regarding the implementation of distance learning for 101 teachers in kindergarten schools. The vast majority of the participating teachers organised asynchronous distance education to maintain communication with the students and their parents supporting families in this unprecedented situation.

The Centre for the Greek Language in collaboration with the Aristotle University of Thessaloniki surveyed 912 students of compulsory education (Παπαματθαίου, 2020). One of the key findings is that only 39.4% of students have a personal computer, while 9% has no access to any computer at home. Two out of three students (65.1%) reported that they used their smartphones for remote learning. Students reported that they rarely collaborated with their classmates and that they missed mainly their friends during the confinement.

3 Results

3.1 General information

The first week of schools' closure was, in general, a week of inaction. Some school leaders were exploring ways and means to communicate with the teachers, and the teachers were exploring ways and means to communicate with their students. Shortly, the situation changed: "Okay, relaxing is nice, but I think we overdid it," says a mother of a high school student. "I started to feel sad for my students," says a math teacher. "The relief is gone, and the teacher's anxiety is here," says a teacher. "I miss my friends," says a student.

On March 16th and 20th schools received detailed instructions by the Ministry of Education and Religious Affairs (YPETH) to employ synchronous and asynchronous distance learning means. Teachers were required to create digital classrooms via the Greek School Network (GSN) platforms, and students needed to sign up creating their personal, free accounts. At the same time, links to various websites with digital educational resources were suggested. Emergency distance learning was not obligatory, neither for teachers nor for students. This was also confirmed by the teachers' unions that informed teaching staff about the non-obligatory nature of distance learning[41]. "Indeed, how could it be?" A unionist and member of the Administrative Board in a teachers' union wonders, "the Ministry is aware that teachers have not received any training in online/remote teaching and the infrastructures around the country are extremely inadequate to support such a venture".

Schools embarked on a speed race without precedent. They informed, trained and supported their teachers, communicated with all the families of their students, assisted with the registration of students in the platforms and the creation of digital classrooms, coordinated remote teaching. They all emphasised about their long working hours during this period: "I was working more than 16 hours a day every day," says a school leader. "I was working from 8 in the morning till 10 in the evening every day," says education coordinator in a big city.

The teachers in our sample tried to follow the guidelines and communicated with parents and students, instructing them on how to create an account on the GSN, creating digital classrooms and registering their students, finding resources or creating original digital material and forwarding it to their students.

It was an arduous endeavour. Teachers' digital skills were insufficient, and their knowledge regarding the particularities of distance learning was minimum. Several families never communicated with the teachers or could not connect to the platforms due to insufficient resources and/or equipment at home. The virtual learning environment provided by the Ministry of Education could not respond to the increased demand, and it was either too slow or did not function at all. Some areas of the country did not have reliable internet connections: "Some friends from my school could not even use their mobile data to get connected, they could not log in because the signal was so weak in their area," says a student.

The teachers of our sample were zealous and persevering, and they were eager to restore their professional authority, which was questioned by the mass media.[42] They created collaboration networks, they exchanged experiences and good practices, and they helped one another. They massively attended online seminars held by scientific institutions and Ministry bodies, and they covered significant knowledge gaps in a short period of time.

Some teachers resorted to the software programmes that they were using for communicating with other teachers and organised regular teleconferences with their students. The Ministry of Education contracted Cisco WebEx Meetings as the designated platform, appropriate for distance learning. Most teachers complied with this guideline, but others kept using the software they had initially selected (Zoom, Skype, Messenger, Viber, etc.). As a result, an admittedly disparate situation was developed, with 40-50% of primary teachers performing asynchronous teaching from 1 up to 5 times a week, having a concentration trend of 2-3 times a week and synchronous remote teaching from once a month to every day, approaching as an average 1-2

[41] The replacement of the first clause of par.1, article 63, law 4686/2020 (Official Gazette Issue A' 96) was voted in May 2020 by the parliament and published on 10/08/2020. The new wording provides for the inclusion of distance learning as well during the operation of schools on a rotating basis and replaces the phrase *is possible*, which made remote teaching optional, with the phrase *is offered*. This regulation caused the teachers' unions to react.

[42] For example: Private sector workers must live on 800 euros by the end of April, doctors with nurses raising the cross of torture for crumbs endangering their lives and health, and teachers (and other DMs) simply taking vacations. Anastasios Telloglou, 19 March 2020, @telloglou, Twitter

times a week. 40-50% of primary teachers engaged only in asynchronous remote teaching and a small percentage of primary teachers – it is estimated around 10% - did neither. In the context of the present study, it was not possible to analyse further this last group to better understand the reasons for inaction.

In lower and upper secondary education (Junior and Senior High School), the percentages change. Two parents with children both in primary and secondary education, feel that more work was done in primary education. In secondary education, a smaller number of digital classrooms were created with few students registering, and there was less synchronous distance learning which was attended by a limited number of students. A mother of a high school student said "At some point, we learned from the children that there was a platform, e-class. I registered, asked L. (daughter) to log in too, and we saw that there were very few students from our school. On the e-class platform, there were a couple of materials for revision uploaded by some teachers. One or two – not many things. There were some videos for the P.E. class. In general, nothing much. The children did not use the available material, and most of them had not even registered,". "Regarding the primary school, I felt that the children were doing some work, in high school, several children stopped at some point because there was no supervision, it was not obligatory, they did not take attendance, and there was no risk of having to repeat the class," says a mother of two children.

The reason why there were such significant differences between schools and neighbourhoods was the fact that there was no clear policy framework for obligatory remote teaching and learning for all teachers and students in compulsory education. K.V., a primary teacher in Athens, describes it eloquently: "First of all, there was the direction given by the school's administration. Secondly, the legislative framework, which also offered a degree of flexibility since it did not make distance learning obligatory. Then, another factor is the personality of each teacher, whether they think of their profession as a job or a service". As a primary school leader stressed it: "there were great differences, and we were talking about it with our IT teacher who used to work not only with us but also at two more schools. We were ready within ten days, after much work. The neighbouring school started to do something after a month, and the third school that our colleague worked at did absolutely nothing, they told him not even to bother".

After two extensions of the schools' closure and a total of 82 days of absence for Primary Schools, 68 days for Junior High Schools and the first two grades of Senior High School and 61 days for the third grade of Senior High School, teachers and students gradually started to go back to school (see Table 1 for exact dates). Teachers expressly claimed that they were going back to school to get some rest, students were glad to be back, even though somewhat perplexed: "I am telling you that we were talking with some of my colleagues and we were saying: "Great, thankfully we came back to school, and we are going to get some rest!". It is definitely true for me. I came back to school to have some rest," says a teacher.

3.2 Inequality

During the emergency remote teaching and learning, several issues of inequality came to the surface.

Some teachers, and consequently, their students, did not engage in distance learning. According to some of the interviewees, teachers that did not engage in distance teaching mentioned as justification the fact that they did not want to increase the time students spend in front of a screen, which they consider already too much. "I think that 70-80% (editor's note: of the teachers) responded positively, but this clearly shows the inequality in education. I mean, when you know that 20% of them did nothing... There is no excuse for that. I can tell you a thousand reasons that somebody could use, but I do not believe that any of them is true. It is about willpower and the sense of decency in each one that makes them eager to participate in something that affects their children. When I say children, I mean their students. I heard that they had the support of some unionists," says a director of education.

A discrepancy that clearly did not occur due to the lockdown is the difference between public and private schools. However, with the contribution of the mass media this has currently arisen as a crucial issue in Greece. Most private schools had already developed or promptly developed an action plan, the proper infrastructure and know-how, and they started from the very beginning to have daily contact with their students. "I have cases from my immediate family, whose children go to public schools and, at some point, they started giving homework once a week, or they had their first online lessons one week before we open, something like that. I heard that in other schools, things were more regular, not every day or as many hours as we did, but they did substantial work. This is a matter of the private sector where I work, the demands of the parents and the owner are different, as are my own of myself, because I basically compete with myself. I do not want to be unfair with teachers working in public schools because there were people who worked really hard all this time," says a teacher in a private primary school.

Students who did not manage to participate in distance learning due to insufficient resources and equipment at home were less than 10-15% as the teachers of our sample estimate. The government had announced at least twice that they would provide the required equipment to those that did not have the necessary means, but they did not proceed with it: "We filled them out over and over again (author's note: the forms documenting the needs of the students), but nothing ever came of it,"says a primary school leader. "Lies and mockery," says another primary school leader.

Three of the teachers and two of the school leaders mentioned the fact that some students had expensive game consoles but not tablets or laptops. Also, they reported that many students had to stay during the confinement at their grandparents' houses, where there was no internet connection, as their parents could not take a leave of absence from work and stay at home to look after them. "The parents who continued to work regularly took the children to their grandparents in the morning, where they did not have an internet connection or a computer and as a result, the children were rarely logging in on the online lessons or not at all," says a father.

The provision of free access via mobile networks to the 17 educational platforms that the Ministry of Education had secured from the internet service providers was a positive measure in the right direction but not functional enough, as it required a smartphone or a device that uses a sim card.

Roma students did not participate in distance learning. "Roma children did not have the necessary equipment. They could not get connected through mobile phones because their parents would have to give them their own, and that was not possible. The attendance of these students is not regular even under normal circumstances. They do not believe that education and school can change anything in their life," argues a primary school leader.

According to international studies[43], refugee children do not attend school regularly. During the lockdown in Greece, a lot of foreign children and especially refugee children did not participate in distance learning either. It was certain that they could not understand the instructions for registering on the platforms or attending the online lessons. A few weeks before the lockdown, the NGOs that were providing interpreting services stopped supporting foreign students due to lack of funding. Moreover, even some families that could participate showed to the teachers that they did not want to get "exposed": "In the end, they did not join out of fear, as we learned afterwards by personally discussing with them, because they did not have the required documentation, the required residence permits for staying in Greece," says a school leader.

Distance learning seems not ideal for children with special educational needs. However, it is not proven that these students faced some form of inequality or injustice. They successfully attended the remote lessons as they were supported by their parents who were at home and continuously by their side. Students with minor learning difficulties, minor behavioural issues or lack of confidence found a different learning environment where they "flourished". "During the period of remote teaching, we had children that prospered through it, and there were families that truly supported the children. In the classroom, they were more reserved, and now you saw them sprouting. Why? Because mum and dad were next to them, helping them. And this had results. The child started to do well and flourished! This is not true for every child. I do not want to be misunderstood and say that this happened with all the children and everything was perfect, but that was the case with some children, and we saw it!" Says a primary teacher.

Children with autism and Attention Deficit Hyperactivity Disorder (ADHD) responded as much as possible as long as they kept their attention focused on the learning process, also having the assistance of their parents. Some special education teachers had individual online lessons with their students after they had discretely attended the class lesson. "I believe that students with special education needs benefited from this situation. Besides my support, they also had online assistance from the integration class teacher and the class support teacher. Some received assistance from two or three people," K.V., primary teacher, says. "These groups as well functioned to some extent, mainly not with my help but with the support of the integration class teacher," says a teacher and a member of a teachers' union.

3.3 Teaching, learning content and tools

Apart from some private schools, no other school represented in this study was prepared to conduct remote teaching. "The school acted swiftly, thanks to the eagerness and efforts of its teachers," says a primary

[43] See for instance, https://www.sofokleousin.gr/ohe-i-pandimia-periorizei-tin-prosvasi-ton-paidion-metanaston-sti

teacher. The teachers of our sample started creating digital classrooms on the e-class and e-me platforms offered by the Greek School Network (GSN). Very few knew their existence before that moment. It is indicative of the situation that out of 29 people who were interviewed for this research, only 4 – all of them Educational coordinators – knew about digital classrooms, and no one had ever used them. The two platforms mentioned above could not support the simultaneous use by thousands of users, and they were quickly rejected by teachers and families who did not have the patience to use them. Ten days later, their operation was considerably improved, but their credibility had been lost. "You had to stay up late," says a special education teacher in a primary school. "We set the alarm clock at the crack of dawn, at 4 in the morning and we gave and appointment with Aphrodite," says a primary teacher. "We only uploaded the homework on e-class as a formality, since no one logged in, we were using students' e-mail to send them their homework," says a special education teacher.

The virtual learning environment (VLE) of the GSN had no content, and everything needed to be set up once again. In the beginning, teachers searched for material on the educational material websites (Digital School, Photodentro, etc.) of the Ministry of Education, which contain abundant material. Yet, it is old fashioned concerning its aesthetics and teaching methods: "It could be better, there is plenty of room for improvement, it is there for ten years," says G.K., a maths teacher. "Most of them are in java, and you cannot play them everywhere, they need to be converted into html," says an N.T., IT teacher. The teachers we asked to confess to us as well that they used material from private websites without strictly adhering to the ethics rules regarding licences of use. Some – very few – attempted to create original digital material. They were creative and used presentation software, web2 tools, images, audio, and short videos, while they learned how to use filters on the hyperlinks they send to the students. "It was a long process, an arduous one. I saw that other colleagues as well were concerned, because now we are more visible than ever, so the work we send must be very thoroughly processed. Not everyone. Some, however, were like that, they had this concern too," says a S.I., primary teacher. A massive volume of work addressed to students was of low quality and exhausted both students and parents, who were often the intermediary in the process of material circulation. "Some went over their limits. In the beginning, parents were calling me to reduce the homework teachers gave to students," says a school leader N.M.

Teachers collaborated with their colleagues teaching the same grade, exchanged views and material, and this practice reduced the workload to some extent.

The teaching methods that were generally employed bear minimum relevance for distance learning. When the teleconferences started, the proposed software did not support group function, and the frontal teaching that usually takes place in the classroom was transferred to the videoconference. No alternative or innovative teaching approaches were attempted (cooperative, problem based, learning by doing). In general terms, teachers were exaggerating providing positive feedback even in cases when work was not of high-quality taking into account the stressful situation that students and families were facing: "All the teachers were exaggerating concerning the praise towards students, firstly in order to boost students' morale and secondly, because they were exposed to the parents, so everybody had to be praised even if they were not worth it" a teacher says.

Concerns regarding issues of personal data protection and internet safety were raised, which were fuelled by mass and social media and agitated the families. Many students in secondary education never turned on their cameras following the approval or even the encouragement of their teachers, even though teachers simply needed to remind students of the rules for safely using the internet. Over the last years, all schools in the country have done significant work on this subject. "I learned that in other schools, they were not allowed to turn on their cameras. We discussed it with our teacher, and only 2-3 people did not want to turn it on. Those who wanted to turn it on could, the rest had to send an e-mail to our teacher saying that they do not turn it on because of the personal data protection," says a student.

Support groups were created at schools, which included the school leader and the IT teacher. Their contribution to the process varied from excellent to non-existent, depending on the knowledge and skills of their members and the number of schools supported by the IT teacher. Nonetheless, the teachers expressly claimed that only their colleagues helped them with this situation. They attended online seminars, formed online groups where they supported each other and exchanged information and good practices. "We have to mention that there were communities of learning, training, how can I say it? Of interest? Call it whatever you like. Informal, on Facebook, Messenger, and we joined and helped one another. Whatever we accomplished, we did it on our own; that is the truth. Especially in the beginning when the ground was shaking under our feet – I am a bit dramatic – what saved us was this communication among us," says a primary teacher.

The Ministry of Education was clearly aware of the fact that the innumerable digital classrooms and digital lessons were inactive, without any content and with few registered students and that distance learning is not reaching all students. The main instruction by the Ministry was for the teachers to revise the already taught material, and afterwards to proceed as much as they could with the new material, as long as they reviewed it once the schools reopened. Parents and students thought that their efforts were pointless, and after the first month, the initially eager participation was on the decline. "Parents thought that, since we are going to revise the material, why bother now, the directive of the Ministry restricted our work," says a teacher.

As teaching was limited to revision, primary school students were losing their focus after a short period of time. "From the beginning till the end, the lessons were the same. After a while, we were feeling tired. We had to look constantly at the screen to understand some things; I understood them all right, but it was tiring. This happened because we were both tired and bored. Especially towards the end of the lesson, we were about 13 students attending, out of 23. We were a bit bored too. I do not think my teacher could have done something to keep us all logged in till the end. During the lockdown, everybody talked about this on social media, how boring this process was," says a student.

The syllabus for the third grade of upper secondary education was shortened by approximately 40%. "I was concerned about it. I had already finished studying the material before the lockdown, all of it, including the 40% that was excluded. I saw later that there were some positive things too. Studying and revising was easier for me, I had fewer things to remember..." says a student in the last grade of upper secondary education.

On March 30th Educational Television programmes started to broadcast daily from 10am to noon. The programmes had record ratings with both young and older viewers watching them. *In the familiar environment of a school classroom, teachers of all levels stand before the camera and give remote lessons to primary school students, sustaining the children's "learning agility" until the schools reopen. Clearly, the objective of this effort is not to replace traditional classroom-based learning. This is the reason why the lessons are oriented towards revision and consolidation of the already taught material (source: alfavita)*

This endeavour is supervised by the Institute of Educational Policy, which invites volunteer teachers of various fields to record their shows/lessons, presenting different subjects.

3.4 Competences

According to the interviewees, most of the teachers did not have any particular skills regarding the general and pedagogical use of digital technologies. "We had teachers who had to create an e-mail account during the lockdown, as they did not have one before," says the director of education. Their digital skills were usually inversely proportional to their age. "Regarding digital skills, even though I did not have any specialised knowledge of new technologies, I thought I am safer than my older colleagues due to my age" a (young) special education teacher says.

Teachers acquired the necessary competences on their initiative and with much effort, well before the institutional bodies were activated. "The education coordinators informed us too late. They came to tell us what we should do after we had done it already," says a school leader.

They were trained by their school leaders, read relevant guidelines on the internet, asked their support groups, but mainly they were aided by those colleagues that had more knowledge. "We were assisted by our counterparts, not by our higher-ups. This is the model followed in France as well: when someone at school knows something, they inform their colleagues about it, and probably this model works best," says a teacher.

The participants in the study consider students as digital natives that did not need training on the use of digital technologies for learning, except probably for the youngest ones. They reported that students had sufficient skills to use the internet and communicate digitally. What they often needed to learn was the use of the computer for learning purposes, e.g. how to use the keyboard or insert a hyperlink in a text. "They didn't need any guidance, children are familiar with the internet and its functions," says a math teacher.

Parents, who played an indispensable role for, at least, the launch of distance learning, proved to be the weakest link in the chain. According to the participants in the study, most of the parents did not have the necessary digital skills or the means to get informed and trained. Their need for guidance caused an additional burden on teachers and their inability to contribute effectively to the process resulted in significant delays regarding participation of students in distance learning. "The difficult part was in the beginning, how to contact my students through their parents. And parents were not familiar with technology at all," says a teacher.

The parents of our sample occasionally needed to play the teacher role , explaining to their children difficult concepts. This was not pleasant for them. "There was an issue, especially in asynchronous teaching, when they did not understand some assignments, I had to find, as a parent, the theory of the exercise so that I can direct my child on how to do it when they had not understood. We dealt with technical matters, but we had to be the teacher sometimes. This was burdening because it is something I do not want to do. I am also afraid that I will say something that is not correct concerning methodology, but in general, I do not like it," says a parent.

Distance learning takes place through special educational practices and with the collaboration of several groups with different specialisations. Moreover, it requires a high level of training and lengthy preparation. Despite their sincere efforts and their extensive participation in numerous online seminars and training courses, it was not possible for teachers to do on their own the work of a multidisciplinary team of experts that requires expertise and lengthy preparation, especially in the extremely short time they had available. So, what happened during the closure of the schools was an emergency remote teaching model. This model includes the use of fully remote solutions for teaching the material that would have been taught at school, and that will continue to take place at school once the crisis is over and remote teaching is no longer necessary (Hodges, et al., 2020; Tsinakos, 2020).

As regards this endeavour, the teachers who engaged in remote teaching responded adequately. They quickly detected and developed the required competences, which communicated unreservedly to their colleagues, while simultaneously training parents and students. "Nobody helped me; on the contrary, I helped many colleagues at school to familiarise themselves with the tools of distance learning and all the applications. Moreover, we shared experiences and information with a couple of colleagues from other schools who also did the same thing," says a teacher.

The social and emotional skills that the students needed to develop for their participation in the teleconferences, such as flexibility, adaptability, patience, mutuality, politeness and everything else that constitute the ethics of online communication should have been taught at school, as it was difficult to convey them remotely. "The school should have trained all students during the IT courses," says a school leader.

3.5 Certification and assessment

The final examinations for all grades of lower and upper secondary education were cancelled. It was provided that the grades of students in secondary education for the last period would be awarded based on their performance during the period of distance learning or through a written assessment upon returning to school or even not be awarded at all. Many children took advantage of the favourable regulation on high-risk groups and never went back to school. Teachers gave their students higher grades than they had done in the previous term, or they did not grade them at all. "What did we do? We graded them one or two points higher. What we always do anyway," says a math teacher.

As for primary schools, the teachers were instructed to take into account both the students' learning course, following their return to school until the end of the lessons, and the effort that they made throughout the year, their motivation, incentives, creativity and collaboration with their fellow students.

During the period of emergency remote teaching, monitoring the students' work was challenging. The work that students sent during the asynchronous teaching should necessarily have at least one positive piece of feedback. "Monitoring the students was not the same, we got the worksheets back, and they were correct, but it could also be the work of the parents. I could not embarrass them in front of their children," says a teacher.

During the remote lessons with students in secondary education, monitoring and supervision were rarely required. "I never had to rebuke somebody. Whoever engaged in the process was fully aware of what was required of them," says a maths teacher. In primary education, teachers were very reserved with reprimands and very generous with praises for every student. "I believed that there was someone else there, watching the lesson. I knew that their parents were around as well," says a teacher.

3.6 Mental Health

Probably the most salient of all the findings of this study is anxiety, which is automatically mentioned several times by all the interviewees without exception.

Teachers went through a highly stressful period. Their main concern was whether they could successfully respond to their responsibilities; they did not know if what they were doing was appropriate, sufficient, pedagogically sound or effective. It is clear that this fear was the result of the lack of knowledge and experience regarding distance learning and, obviously, because of the absence of a coherent working

framework, a protocol of actions and responsibilities of all those involved in a similar situation (See figure 1). "Teachers felt that they had to respond flawlessly to something they knew nothing about, they did not have any expertise," says a school leader.

Teachers did not receive from the outset clear instructions for performing emergency remote teaching, and when they were eventually issued, the remote teaching was optional. The result was big differences in how schools and teachers implemented (or not) the policies for remote teaching. These big differences, even between schools in the same area, created a social automatism, also reinforced by some mass media, leading in some cases to tensions between parents and teachers. Teachers under limited-term contracts, were worried about their professional, and consequently financial, situation the next day.

"I believe that the first cause of stress is professional while being attacked by the media and the people around them because they get paid during the pandemic, while many people are unemployed, that there are teachers that do not work and get paid. I was really stressed about what people think," says a teacher.

"I mostly felt that social pressure was a stress factor. I could not make sense of it, if it came from parents, colleagues, children or the society, from the prevailing atmosphere that surrounded teachers," says a teacher.

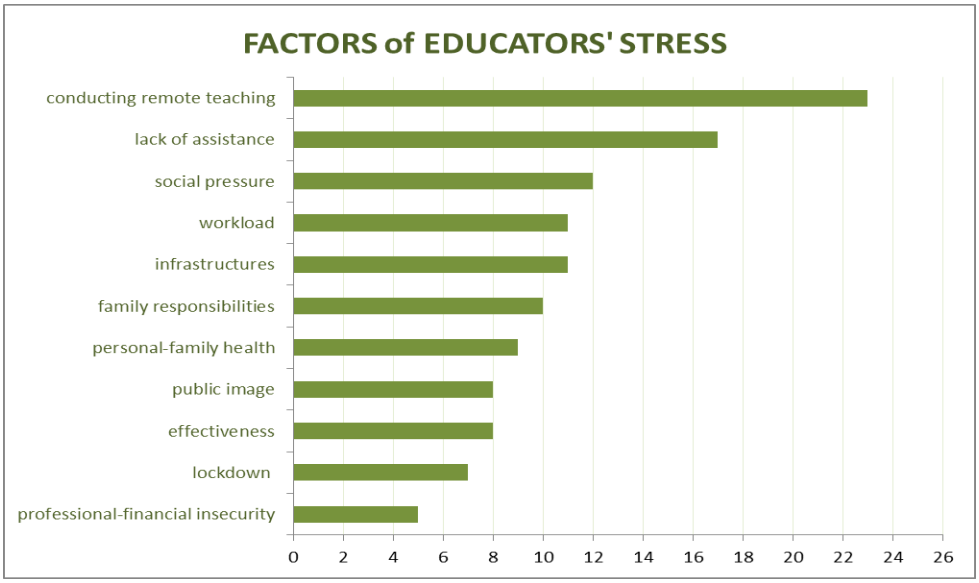

Figure 1. Number of interviewees who mentioned each stress factor

The workload was staggering. School leaders and teachers responded without any complaint. Then, they faced the dysfunction of infrastructures, the lack of support by the state, the indifference of some families. They felt alone, fighting the waves. Teachers who have children dealt with an additional major problem. They were constantly at home, where they worked more than before, they had to do the housework, and at the same time, they had to take care of their children. "It was much more intense for female teachers who had young children, regardless of whether they did synchronous or asynchronous remote teaching. It was really difficult because of their workplace and their responsibilities as parents coincided. It was obvious when they came back to school. Teachers were clearly tired, and now they were feeling relieved," says a school leader.

Other stress factors were personal health, time management, lack of digital competences, concerns about properly conducting distance learning, effectiveness, public image, social recognition, parents' expectations, the lockdown/isolation, professional and financial insecurity.

The only antidote mentioned by interviewees to this widespread stressful situation was the online meetings with other teachers. Most school leaders and teachers had regular teleconferences – on a school unit basis – where they exchanged opinions and handled the issues that they faced. "The collaboration among the teachers was crucial for improving our mental health. Very often during our teleconferences, whenever someone said: I can't do it! there was a sense of solidarity and support for these colleagues," says a teacher. "Collaboration with the other teachers played its part in dealing with this situation. I feel that the most

important part was that we had a shoulder to cry on. To share our troubles, and that is really important so that you do not feel that something is wrong with you," says a teacher.

At the beginning of the lockdown and up to the introduction of remote teaching, parents were seriously concerned about the learning gaps of their children. "Parents kept asking me: When will our teacher start on WebEx? They were stressed, and that caused the teacher to be stressed as well," says a special education teacher.

Another important matter was the change in students' routine. Secondary-school students woke up late and did not join the school's online lessons, whereas they attended the online lessons held by their private tutoring institutions, watched TV series on subscription TV[44] platforms for hours on end and played videogames. "Then I said: No more waking up at noon and going to bed at dawn because we watch Netflix! I fear the extreme violence in the movies they watch. Nobody in our family watches such movies so that I could say she was influenced somehow. They are extremely familiarised with violence and especially that Netflix is a school of violence. Most of the films they watched were full of violence and decadence," says a mother.

Primary-school students also changed their everyday habits, and this significantly affected their emotional state and calmness, as well as the situation in the family. "Afterwards we discussed it, that we lost control; the students' schedule and routine disappeared. Children went to sleep and woke up whenever they wanted, and they studied whenever they wanted. Their family schedule had been derailed," says an education coordinator. "Children need to have a routine. That is why it helped us when the school gave us a programme. We did other things on a schedule as well, such as what time we would go for a walk or the weekend activities, what time they would go to sleep and wake up. This helped the children to be calm," says a parent.

Something that certainly cannot be used as a generalisation, but it is worth noting is the story of a student in the third grade of upper secondary education, who informs us that she had a panic attack during the lockdown. She was helped by talking and going for walks with her father, while the mother knows about two cases of adolescent girls in different families close to her who suffered from depression during the lockdown and are under psychiatric treatment. “There was a general feeling of depression, perhaps a bit of oppression with the incarceration, constantly inside. I experienced it a little more intensely. In the first week of quarantine I had taken it too seriously, that we are in great danger, we must all stay inside, I preached to my brothers, I had taken the matter seriously. At the end of the first week, I had a panic attack. I did not remember anything, my father told me later, he took me, took me for a ride in the car, I started to go out a little and, in the process, a little more. Then it flowed quite normally I can say”. It would probably be interesting for a more thorough research on the mental health of adolescents during the lockdown to be conducted.

The return to school is also interesting in relation to mental health. On June1st, half of the primary-school students went back to a "new normal" and on June2nd, the other half did the same. Every teacher, without exception, noticed the changes in students' behaviour, at least the first days (see Figure 2 below). To describe the children, they used the words: different (3 times), unlike before (1 time), changed (2 times), disciplined (1 time), serious (1 time), obedient (1 time), informed (1 time), more mature (1 time), numb (6 times). For teachers, a tormenting period came to an end. "We were finally relieved when we went back to school in June. The stress and uncertainty were over," says a teacher.

[44] See for instance, https://economictimes.indiatimes.com/magazines/panache/quarantine-and-chill-netflix-gains-16-mn-new-subscribers/articleshow/75286360.cms

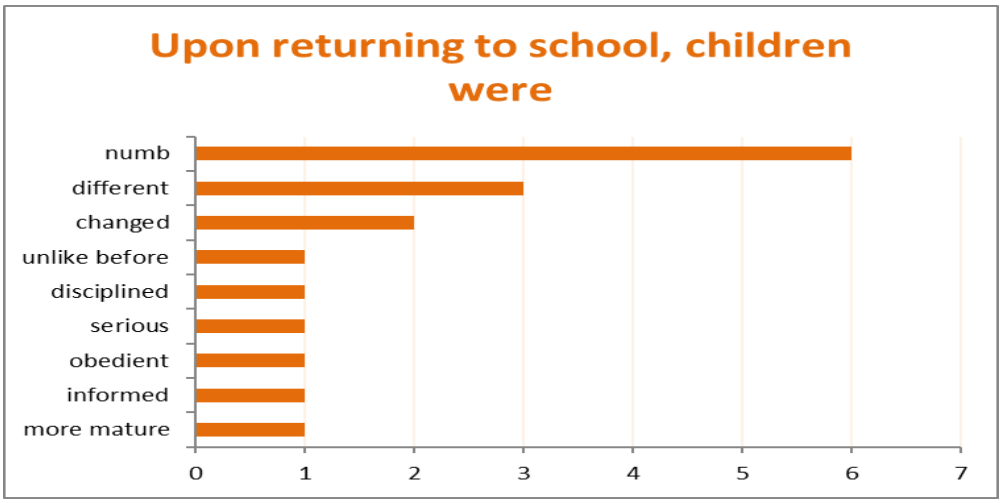

Figure 2. Number of interviewees who described students after the confinement

4 Discussion and policy actions

4.1 Assessment of the situation by main stakeholders

In Greece, like in many other countries around the world, a large-scale experiment took place as thousands of teachers and students moved suddenly and without any preparation for an emergency remote learning mode. The Greek educational system had never had a similar experience; therefore, there was no previous experience or planning for dealing with such an emergency. In addition to the absence of previous experience or a plan, it was not possible for the emergency remote teaching to be supported due to insufficient digital infrastructure – both at school and home level – and know-how either. Most teachers responded creatively, covering significant gaps in digital competences. They restored the much-needed relationship of students with the school for a big part of the student population and offered an elemental school routine, necessary for the families.

Private schools, as businesses whose sustainability depends on the degree of parent/client satisfaction, reacted promptly and, since most of them had already developed their infrastructure and know-how to some extent, provided their students with many hours of engagement in emergency remote learning.

Teachers and education officials were seriously burdened, physically, intellectually, and mentally, and they were publicly congratulated twice by the Minister of Education, Niki Kerameos. On June1st, students and teachers returned to schools. What did happen in terms of students and teachers participating in teaching and learning activities and learning outcomes in these two and a half months emergency remote learning has not been evaluated yet and no such evaluation (ongoing or planned) has been announced by the MoE.

4.2 Lessons learned

Our study reveals lessons learnt from this period, both on what we should avoid in a similar situation in the future and also good practices and solutions that are worth being given prominence to and included in the administrative and teaching repertoire of education to enrich it.

Digital classrooms are not used only for remote teaching. Teachers created presentations with videos, images, audio, shapes, graphs, hyperlinks, texts; they learned how easy it is to do them and how aesthetically attractive and educationally effective they are. Presentations are here to stay: "PowerPoint presentations became our favourite pastime. It was swift, the lesson became more pleasant for the children and much more constructive, we demystified several tools that are not so difficult to use after all," says a teacher. The administration realised that an open channel of communication with the parents is required. No teacher or school leader in Greece is going to search for an e-mail address in the future. They all claim that it will be asked by the parents upon the student's registration.

Teachers and students find it really convenient to return home from school and be able to see the lesson of the day and the consolidation exercises uploaded online, easily accessible by all for studying and revising. A practice which is commonplace in other educational systems, daily routine for Greek private schools, was neither known nor accepted until the pandemic took place. The end of photocopying is near, enormous amounts of paper, graphite and relevant resources will be saved, which will cover more essential needs. "I will suggest to my teachers that we keep the digital classrooms operating throughout the year," says a school leader.

The lockdown has also revealed the advantages of meetings via teleconference versus physical meetings. Teachers met online with students, parents, education coordinators, trainers, their school leaders, other teachers, etc. "My district is huge. Why making somebody travel all the way here for a half-hour meeting? We will teleconference," says a director of education.

Remote teaching can complement traditional classroom-based learning. Emergency remote teaching proved to be an effective solution for teaching and learning during the closure of schools from March to May 2020 to contain the spread of the COVID-19 pandemic. According to teachers of primary and secondary education, the main benefit of the emergency remote teaching was that it helped to maintain a sense of belonging to the school, especially for younger students, offering remote solutions to substitute classroom teaching, for as long students and teachers cannot be together. However, according to most of the participants in the study, it could never fully replace teaching in-person. "Teaching in-person evolves it occurs within a dynamic environment with many children. They are not passive receptors, their presence unequivocally affects the teaching process, they learn by working together, they test their interpersonal

relationships, the teacher can see everything and subtly intervene with intricate pedagogical action in a situation, this cannot be replaced," says a school leader.

Teachers often refer to the danger that lies in embedding distance learning methods in the teaching practice and the consequences that this may have on their working conditions, labour rights, and compensation. "This should not become a permanent working condition and adopt the features of teleworking. Working remotely could mean working for less money," says a unionist.

Parents do not seem to have a particular issue with remote teaching per se if it ensures the progress of their children. However, they understand that school is the most systematic institution of socialisation for children and that its pedagogical responsibility is non-transferrable (Tsoulias, 2016).

Ensuring access to distance learning for all. The emergency remote teaching and learning proved to be a stressful experience for most of the stakeholders that took part in this study while in some cases it was not provided at all, or it was provided only partially leading to inequalities. Therefore there appears to be room for upgrading all the required infrastructure, both at the state level and of each school unit individually. For all the students to be able to take part in the process, it must be ensured that every student has the necessary equipment and resources. "We need to avoid the chaos and stress created by the competent authorities in the Ministry, and they should take responsibility. The infrastructure and equipment at schools need to improve, and they should take action so that every child can participate for free," says a teacher.

The digital content should also be assessed and enriched, so that every virtual learning environment, including the archives of educational television, is fully updated and relevant to all subjects, grades, and levels. The broadband connection required for synchronous remote teaching should be solved for both schools and households. The initiative of free access to distance learning platforms proved a good practice. On the contrary, offering emergency remote teaching but allowing the students to abstain, undermined the whole process leading to inequalities and exposing students to several risks. The school year 2020-2021 the policy of the Ministry of Education has changed, making both the provision of remote teaching as well as the participation to it by students obligatory. The law, and in particular the provision on live broadcasting of the lesson in the homes of the absent students, provokes strong reactions from the teachers' unions who say that they will annul the law in practice.

Ensuring professional learning for teachers. Teachers need to regularly be trained in the use of new technologies since new technologies constantly evolve and play an increasingly important part of teaching and learning. The period of remote teaching and learning proved very demanding for the teachers of our sample. They worked hard, having to employ unknown methods and tools, and they successfully accomplished a challenging task. All the teachers who participated in the study confirmed that they learned a lot of different things from this period, and they now have a useful experience which constitutes an asset for their future. "I didn't like it. I prefer being in my class, at my school, but I think I benefited greatly from learning loads of things, and I gained new knowledge, acquired new skills, probably became more resilient emotionally. I learned to support my children in other ways and psychologically as well. I believe it was vital for us, teachers," says a teacher.

Prospective teachers should be prepared for distance learning teaching techniques. Teaching young children through distance learning is not an easy task and may involve significant changes in teaching practices. Promising practices from the "unplanned education experiment" that took place from March to May 2020 can offer valuable insights on what works and what is needed. Given that in-service teachers' training is underway, according to the announcements of the MoE, what is needed is to consider the lessons learnt and provide all teachers, permanent and temporary ones alike, with up-to-date and high-quality training on remote teaching and learning.

Ensuring that all education stakeholders have the required digital skills. 23 out of 29 interviewees mentioned "training" as one of the things that need to be done in the future, making clear that they need to improve their digital competence. This is in line with data from international studies, such as the OECD TALIS survey of 2018, where only two out of five teachers feel "well prepared" or "very well prepared" for the use of digital technologies for teaching.

As presented in the results section, young people are considered digital natives that are inherently competent and confident with digital technologies. However, research evidence (e.g. Kirschner & Bruyckere, 2017) shows that there is no such thing as a digital native. According to a recent international study (Fraillon et al., 2019), young people do not develop advanced digital skills through exposure to and use of digital devices alone. Besides, only 2% of grade 8 students demonstrated an ability to assess information found online critically. Therefore, students also need to improve their digital competence, especially in terms of safety, privacy and

content creation and learn how to effectively use equipment and platforms for both synchronous and asynchronous distance learning without needing the help of the parents or anyone else.

Furthermore, as pointed out by many participants in the study, parents/guardians need also to develop their digital competence. However, available data of the Digital Society and Society Index (DESI) of the European Commission[45] shows that still one out of two Greek citizens (49.5%) from 16 to 65 years old do not have even the basic digital skills needed to participate in the digital society. According to the same Index, the share of people in Greece that never gone online in 2019 is 22%[46], approximately one out of five citizens. To tackle with this challenge, the Greek Ministry of eGovernance has developed a well-constructed self-assessment tool, based on the European Digital Competence Framework for Citizens[47], offering, so far, 214 courses that citizens can follow to improve their digital competence. This is a good start and a promising practice.

4.3 What helped to adapt to the situation

The emergency remote teaching and learning during the confinement put to the front the weaknesses of the Greek education systems and the threats for the learning outcomes but also the well-being of students and teachers. However, as can be seen in the SWOT analysis (Table 2), it also revealed the strengths of the system and the opportunities to accelerate the digital transformation and innovation of teaching and learning practices.

Table 2 – SWOT analysis

Strengths	**Weaknesses**
• Emergency remote teaching filled the gap caused by the school closure and maintained the feeling of belonging to the school • Emergency remote teaching offered an excellent opportunity for improving the digital competence of teachers • Significant mechanisms of communication, collaboration and training of teachers emerged • New ways for communication between school and families were established • The digital transformation of the Greek education systems has been accelerated	• Emergency remote teaching was optional in the school year 2019-2020 • Emergency remote teaching involved only revisions and not new knowledge • Due to the lack of infrastructure and equipment, students who wanted to participate, could not attend the lessons • Not all teachers, students, and parents had the necessary digital competences to fully participate in remote teaching and learning • In most of the cases, the traditional classroom-based frontal teaching model applied to the online lessons. • Emergency remote teaching caused great stress and exhaustion to school leaders and teachers
Opportunities	**Threats**
• The good practices during remote teaching (presentations, uploading of assignments on a website, communication with digital media, etc.) can be documented, disseminated, and included in the repertoire of every teacher • Every teacher should be trained in (emergency) remote teaching	• Emergency remote teaching, on the pretext that it involves fewer working hours, affected the labour rights of teachers • Issues related to privacy and data protection need to be addressed by the Ministry of Education, including training for school leaders and teachers.

[45] https://bit.ly/2RCuVDR
[46] https://bit.ly/3c8GYSE
[47] https://ec.europa.eu/jrc/en/digcomp

• Original and quality digital teaching material created-adapted during the remote teaching can be included on the repositories of the Ministry of Education • Lessons learnt on what worked and what did not, should inform the upgrade of digital infrastructure, including the equipment needed for ensuring equitable access for all students	

4.4 Considerations for the future

Emergency remote teaching could appear again at some point in our life. Next time, there will not be a grace period. From the beginning, everything will have to be better. "There will be greater expectations and demands from everybody. It will not be a trial period any longer. We will require a higher quality and more quantity. Nobody will be able to skive off, the system will throw them out," says a teacher.

The educational authorities ought to prepare an action plan for all levels of hierarchy, i.e. state, prefecture, municipality, school, which will be uploaded on the schools' websites and communicated broadly, to all the students' families. "The first thing I would do is an action plan for a potential lockdown. I would prepare the whole school community, students, teachers and parents: we will do these specific things. So that the whole group, what we call the school, can be more than ready for our next move. Moreover, the municipal authorities should be involved. Anyway, that is where I would start, from getting more organised," says a school leader.

Remote teaching cannot be optional like in March-May period of "experimentation". It needs to be well structured and inclusive, enabling every school, teacher and student to fully participate in reducing inequalities and the digital divide. It needs to be compulsory, to have a curriculum and schedule, to enable educational monitoring and assessment. Accordingly, its' content cannot focus solely on revision; it should move forward with the material that has not been taught yet. "The pillars of collapse were two. The first was its non-compulsory nature - for both teachers and students - and the other was the never-ending revision... Well, we can do a bit more, so that it is not like we are on the playground all the time," says a teacher.

4.5 Recommendations for policy actions

During the emergency remote teaching from March to May 2020 there was no consultation between the Ministry of Education and the stakeholders, teachers' unions or parents, before implementing the different policies. This is understandable to some extent, due to the urgent need to react to an unprecedented situation. For the future there is a clear need to critically evaluate what happened, what worked and what did not, and follow a participatory design process for preparing the Greek education system for a seamless integration of digital technologies for undisrupted and inclusive teaching and learning.

In that sense, this study confirms the importance of guaranteeing a structured and inclusive remote schooling framework and fostering the digital development of remote schooling. The latter could be attained through improving digital infrastructures and competences of schools and their stakeholders including parents, ensuring the access to digital equipment mostly for students, as well as fostering professional development of teachers on digital learning and teaching.

References

Avgerinou, M. & Moros, S. (2020). The 5-Phase Process as a Balancing Act during Times of Disruption: Transitioning to Virtual Teaching at an International JK-5 School. In Ferdig, R.E., Baumgartner, E., Hartshorne, R., Kaplan-Rakowski, R. & Mouza, C. (Eds). (2020). Teaching, Technology, and Teacher Education During the COVID-19 Pandemic: Stories from the Field. Association for the Advancement of Computing in Education (AACE). Retrieved 15 June, 2020, from https://bit.ly/2FvQ8wW

Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., ... Mano, M., & Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 Pandemic: Navigating in a time of uncertainty and crisis. Asian Journal of Distance Education, 15(1), 1-126.

Cohen, L., Manion, L., & Morrison, K. (2007). Research methods in education. London: Routledge.

European Schoolnet. (2020). Response to Covid-19 during the school year 2019-2020 and 2020-2021 – Greece. Retrieved 5 September, from https://covid19-edu.eun.org/countries/greece

European Training Foundation, Coping with covid-19, Distance Digital Learning during COVID-19 in ETF partner countries, retrieved 28 August, 2020 , from https://epale.ec.europa.eu/en/resource-centre/content/coping-covid-19-distance-digital-learning-during-covid19-etf-partnerETF, 2020

Foti, P. (2020). Research in distance learning in Greek kindergarten schools during the pandemic of COVID-19: possibilities, dilemmas, limitations. European Journal of Open Education and e-Learning Studies, 5(1), 19-40.

Fraillon, J., Ainley, J., Schulz, W., Friedman, T., & Duckworth, D. (2019). Preparing for Life in a Digital World - IEA International Computer and Information Literacy Study 2018 International Report. Retrieved 08 November 2019, from https://bit.ly/2rWbGM9

Hodges, C., Moore, S., Lockee, B., Trust T. & Bond, A. (2020). The Difference Between Emergency Remote Teaching and Online Learning - EDUCAUSE Review. Retrieved 28 August, 2020, from https://bit.ly/3c58iBg

Kirschner, P. A., & Bruyckere, P. D. (2017). The myths of the digital native and the multitasker. Teaching and Teacher Education, 67, 135-142.

OECD. (2020a). Education responses to covid-19: Embracing digital learning and online collaboration. Retrieved 28 August, 2020, from https://bit.ly/3kqUq7g

OECD. (2020b). School education during Covid -19: were teachers and students ready? Retrieved 28 August, 2020, from http://www.oecd.org/education/coronavirus-education-country-notes.htm

Reimers, M. F., & Schleicher A. (2020): A framework to guide an education response to the COVID-19 Pandemic of 2020. Paris: OECD Publishing

Robson, C. (2007). Η έρευνα του πραγματικού κόσμου. Αθήνα: Gutenberg

World Education Blog. (2020). Covid-19: How is Greece coping with school closure? Retrieved 10 September, from https://bit.ly/2FDjj0P

Ίσαρη, Φ., & Πουρκός, Μ. (2015). Ποιοτική μεθοδολογία έρευνας. [ηλεκτρ. βιβλ.] Αθήνα: Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών. Διαθέσιμο στο: http://hdl.handle.net/11419/5826

Παπαματθαίου, Μ. (2020). Πώς λειτούργησε το εκπαιδευτικό σύστημα στην καραντίνα. Εφημερίδα το Βήμα, 13/09/2020. Ανακτήθηκε στις 14 Σεπτεμβρίου, από https://www.tovima.gr/2020/09/17/society/pos-leitourgise-to-ekpaideytiko-systima-stin-karantina

Παρασκευοπούλου-Κόλλια, Ε. (2020). Μεθοδολογία ποιοτικής έρευνας: συνεντεύξεις και συνεντεύξεις μέσω διαδικτύου. Ανοικτή Εκπαίδευση: το περιοδικό για την Ανοικτή και εξ Αποστάσεως Εκπαίδευση και την Εκπαιδευτική Τεχνολογία, 15(2), 24-37.

Τσινάκος, Αύ. (2020, Απρίλιος 2). Εξ Αποστάσεως Διδασκαλία: Τι είναι αυτό που γίνεται στην Ελλάδα και σε όλο τον κόσμο αυτή τη στιγμή, fresh-education, https://bit.ly/2E704dB

Τσούλιας, Ν. (2016). Ο ρόλος του σχολείου στην κοινωνικοποίηση των νέων. στο https://www.alfavita.gr/ekpaideysi/201322_o-rolos-toy-sholeioy-stin-koinonikopoiisi-ton-neon

Annex: Methodology of the study

The target

Overall, 35 education stakeholders were invited to take part in the study from whom 29 accepted the invitation to be interviewed between 30th of June and 31st of July 2020. Table 3 provides more information about the profile of the participants.

Table 3 – Interviewees and their profiles

Role	Education sector	Gender	Location
teacher	Public primary school	male	urban area
teacher	Public Primary School	female	urban area
teacher	Public Primary School	female	urban area
teacher	Public Primary School	female	urban area
teacher, unionist	Public Primary School	male	urban area
teacher	Public Primary School	female	urban area
special education teacher	Public Primary School	male	urban area
special education teacher	Public Primary School	female	urban area
teacher	private Primary School	female	urban area
teacher	private Primary School	female	urban area
IT teacher	Junior High School	male	rural area
language and literature teacher	Junior High School	female	rural area
math teacher	Senior High School	male	rural area
math teacher	Senior High School	male	urban area
school leader, unionist	Public Primary School	male	urban area
school leader	Public Primary School	male	urban area
school leader	Public Primary School	male	urban area
school leader	Public Primary School	female	urban area
school leader	Public Primary School	male	rural area
school leader	Public Primary School	female	rural area

director of education[48]	Public sector	male	semi-urban area
education coordinator[49]	Public sector	male	urban area
education coordinator	Public sector	female	urban area
student in the 6th grade	Public Primary School	female	urban area
student in the 6th grade	Public Primary School	female	urban area
student in the 3d grade	Senior High School	female	rural area
mother of students in primary and senior high school		female	semi-urban area
mother of student in 2nd grade of senior high school		female	urban area
father of students in a private school		male	urban area

The criteria for selecting the interviewees were the following: age, gender, educational attainment, role (i.e. teacher, school leader, coordinator, student, parent, unionist), living/working in an urban or rural region, attending/working at a private or public school. The criteria were applied to ensure the best possible diversity and representativeness of this convenience sample of education stakeholders. Most of the participants were teachers and school leaders (see Figure 3 below).

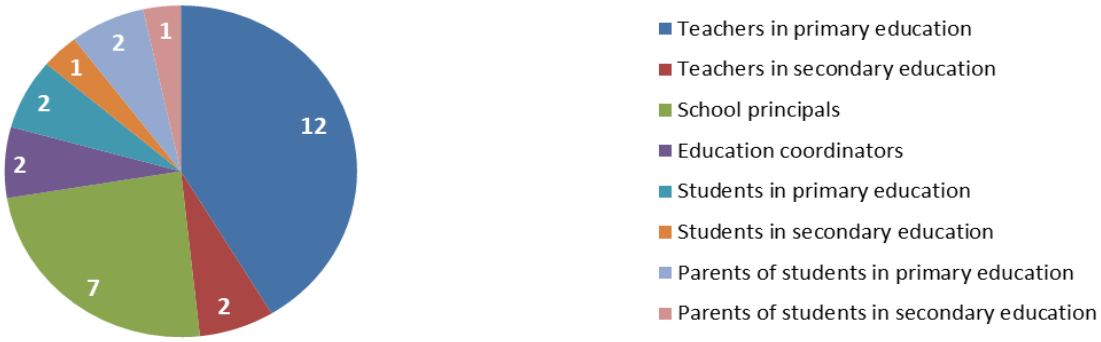

Figure 3. Distribution of interviewees

The interview scenario

The interview protocol was the output of a close collaboration between the JRC scientific officers and the five national experts undertaking the interviews. The protocol took its final form in June 2020 constituting the common instrument for conducting the interviews, in parallel, in Italy, Estonia, Poland, Belgium and Greece.

[48] In Greece, the educational policy is implemented and specified at local level by the Directorates of primary and secondary education under the competence of the regional directorate of education. https://eacea.ec.europa.eu/national-policies/eurydice/content/greece_en

[49] Educational coordinators promote the aims of educational policy and facilitate its implementation through scientific and pedagogical support of public and private schools, Laboratory Centres (EK), Educational and Counselling Centres (KESY), Environmental Education Centres (KPE) and Natural Sciences Laboratory Centres (EKFE). At the same time, they contribute to the formation of the national educational policy and they recommend to the competent bodies of the Ministry of Education educational measures and changes on the educational subjects regarding their duties. https://eacea.ec.europa.eu/national-policies/eurydice/content/greece_en

As it is expected in semi-structured interviews, some adaptation of the interview protocol is possible. For instance, an additional question asked most of the interviewees was if they had any teacher in their school who did not engage in distance teaching? If yes, did s/he provide a justification for his/her stance?

Data collection/field work

Videoconferencing has been employed as a tool for conducting the interviews for this study. It is argued that the participants feel unreserved when they respond to questions through videoconference, they do not feel awkward, they have more time and remain in a "safe position", without having to prevail in "the other party's personal space" (Hanna, as cited in Paraskevopoulou-Kollia, 2020, p. 241).

The interviews were conducted remotely through Zoom videoconferencing application. The interviews lasted from 45 minutes, with primary-school students to 1 hour and 30 minutes with teachers and other adult participants. The interviews were recorded directly in Zoom, which automatically generates 4 files: 1 video file, 1 audio file with both participants' voices, 1 audio file with the questions of the interviewer and 1 audio file only with the responses of the interviewee.

Before starting, the interviewer was informing the interviewees about the scope of the study and assured them that their views would be treated with respect and discretion. The interviewees were also asked for their consent to include anonymous excerpts from their interviews in reports or other scientific publications. Also, they were informed that the recordings and all relevant documentation would be deleted upon finalization of the study.

During the interviews, the interviewer was keeping notes on the time points when something interesting was mentioned. The recordings of the interviews were partly transcribed, based on the notes of the interviewer, and the transcriptions were inserted in a spreadsheet for further analysis.

Three of the interviews are fragmented into smaller files as they were interrupted. Two due to a power outage while talking to teachers and the third due to a sudden obligation of a school leader.

Data analysis

The analysis of the interviews conducted through Microsoft Excel. In total, 417 excerpts from the transcription of the interviews and interviewer's notes were inserted in the spreadsheet. Each excerpt coded using keywords such as inequality, policy, training need etc. From analysing further and merging the codes, themes were emerged that are presented as sections and sub-sections of this report. For each them, some of the most interesting excerpts highlighted for incorporating them in the report, providing the participants "voice" and offering valuable insights on their experiences and viewpoints on the impact that Covid-19 had in their teaching and learning practices.

Limitations of the study

- The sample was non-representative as it constitutes only a small part of the population involved in emergency remote teaching. However, there was an effort to apply a variety the criteria in the Sample section above so to ensure the best possible variety of participants' profiles. Despite the efforts to also interview refugee parents, and even though a translator of Arabic was available to facilitate the communication, three families contacted but refused the invitations to participate in the study. Also, there was no attempt to speak to students with special needs or handicaps or their parents. This target group requires specialised knowledge and communication skills which fall outside the scope of this research. Finally, although two teachers who did not engage in remote teaching invited for an interview, they did not accept the invitation to participate in the study.
- This research has been carried out at a time when the results of remote learning have not been recorded, while the fear of the pandemic and the uncertainty about tomorrow are still fresh. The surrounding atmosphere has affected the interviewees' psychological state, as many of them reported during the interviews.
- Finally, the interviews were conducted in the Greek language, but their transcription and reporting were done in English. Therefore, some misinterpretation of the collected data may have occurred.

Country report on the impact of COVID-19 lockdown on schooling in primary and secondary education: Italy. Author: Maria Ranieri

Contents

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Authors

Maria Ranieri

Executive summary

In Italy, due to the COVID-19 pandemic, the school closure was announced on 4 March 2020. Remote schooling was recommended by the government, and on 28 March 2020, the Ministry of Education allocated 85 million euro to schools to ensure remote teaching through digital tools and platforms. On 6 April the Ministry published a teacher guide for remote teaching.

In practice, research showed that in Italy during the lockdown, schools used a diversity of digital tools, and kept on applying their usual pedagogy, books and curricula (INDIRE, 2020; Ranieri et al.; 2020; SIRD, 2020). Teachers and school leaders reported being overloaded with multiple urgent responsibilities to adapt quickly to remote schooling (Giovannella et al., 2020; SIRD, 2020), and found difficulties in student assessment (Ranieri et al., 2020; SIRD, 2020). Moreover, many students (6-18%) as well as some teachers (2-5% in April 2020) were not involved in remote schooling (SIRD, 2020; CENSIS, 2020). The remote schooling period due to the COVID-19 lockdown was also seen as a way to learn and rethink the future of teaching and learning (CENSIS, 2020).

This report presents the findings from interviewing 29 school-related stakeholders in Italy, including students and parents, on how unexpected remote schooling imposed by the COVID-19 lockdown measures in primary and secondary education affected inequality in schooling, teaching tools and content, competences, students 'certification and assessment, and stakeholders' mental health. The aim was to learn some lessons in view of a return to school or a new lockdown. The interviews were made in summer 2020.

The findings of our study show that although Italian schools and teachers did not receive specific instructions at the beginning of the lockdown on how to face the emergency situation, big efforts were made by the different stakeholders not to interrupt the schooling activities and ensure educational continuity. Some schools reacted more promptly, especially those who had previous experiences with digital education and strong leadership and who were associated to a network of schools. Other schools were less prepared, especially from a digital point of view. However, after a first period of disorientation, all organizational activities were undertaken to provide students and families with educational experiences. Coming to specific aspects, the main findings and the lessons learned are summarised below.

In relation to inequality, the digital divide is still an obstacle for online teaching. Even though the Italian government provided funds to ensure that no child is left behind, these funds were not always sufficient or were late. Another challenge is the Internet connection that transversally affected the fruition of synchronous activities. We can therefore learn that national investments in digital infrastructure are necessary to ensure the full participation of students to the school life. As for students with disabilities or with a vulnerable background, the mediation of their families was crucial either in a positive or negative way: when the family was supportive, inclusive processes were implemented, while when the family was not, the children were left behind. However, some teachers pointed out that the students lost were already lost (i.e. those students who were performing poorly in class, were not performing better after the obliged switch from face-to-face to online education), regardless of remote teaching. This was especially due to their socio-economic conditions. As for students with special educational needs, different experiences were reported: sometimes the screen proved to be a real barrier to communication, other times the screen served as a protection for the students to increase their level of participation and "flourish again".

For teaching tools and contents, no unique digital platform providing contents was available for Italian teachers. Consequently, the teachers confronted with different strategies of content delivery, either by creating digital contents themselves or combining them with digital resources provided by the school publishers. The curriculum was generally reshaped with a reduction in content and hours. A key message the school leaders asked to transmit to students was emotional in nature: the school is here! Usually the teachers preferred to deliver synchronous video lessons and keep an interaction with the students. Sometimes small groups were organised according to the age of students, as teachers learned that this seemed more efficient for synchronous teaching than to deal with large groups. Basically, rather than reshaping their teaching for the digital setting, most teachers just duplicated the traditional face-to-face lecture for remote teaching. More attention should be paid in the future to the redesign of teaching and learning taking into account the specific pedagogical affordances of digital devices. As for student's motivation, a decrease was noted. However, especially older students reported an increase in autonomy, which is relevant for their personal growth. In that sense, although digital remote teaching cannot replace face-to-face school, digital technologies may bring several benefits (more autonomy but also more flexibility, improved contacts with school, innovative digital contents, etc.), but it would require to reshape school organisation in order to avoid an excessive workload.

In terms of **competences**, both students and teachers showed low levels of digital competences, especially in using digital technologies for teaching and learning. Although only a limited sample of cases of internet abuse was reported, the overall impression is that both schools and families underestimated the issues of internet safety and online privacy. Indeed, all stakeholders were aware that online learning requires a certain level of digital competence and agreed that more training is needed to improve this competence and support a digital change in the Italian school. School leaders and teachers shared the view that training courses on the digital challenges would be necessary to prepare also parents to support their children in the use of digital technologies.

The communication between schools and families was generally positive. Based both on formal and informal tools, it allowed teachers to better communicate with their students and the parents to understand the teachers' and the children's work. Tensions were also tangible but to a relatively limited extent. Moreover, collaboration among schools as well as among teachers and families appeared as a main competence that eases the process of remote schooling. Collaboration allows schools to be better prepared in terms of tools and content, and all stakeholders to be resilient and continue with a proper learning process.

Meanwhile, **assessment** was reported as the most complicated aspect of this remote teaching experience. Traditional assessment tools were perceived as inappropriate to the new teaching and learning context. The main lesson was that new forms of e-assessment must be developed. The best experiences were based on formative assessment with teachers strongly committed to providing feedback to the students highlighting their strengths and weaknesses, explaining the reasons of errors, and providing suggestions on how to improve. The exams for final certification were changed, especially for high schools where students only sat face-to-face oral exams with social distancing. This was disappointing for them since they expected to have a richer exchange with both their teachers and their classmates after four months of physical school closure.

As regards mental health, serious situations of psychological disease were limited. However, all stakeholders felt stressed by the situation. The following factors were mentioned as sources of stress: the balance between personal and professional life; the lack of digital competence for teaching; the judgment of others, particularly the parents; technical problems with the digital tools and internet connection; the fear of getting sick; the work overload linked to preparing the lessons (on the teachers' side) or staying in front of a screen for several hours (on the students' side); the nostalgia of the class mates and the fear of losing face-to-face schooling for the next years. Psychological support desks were available only in some schools. All agreed that they would have been useful. School leaders will ensure that this service will be present in their schools the next year.

To sum up, the **findings of this study show** that the unexpected and obliged remote schooling in Italy due to the COVID-19 lockdown gave the opportunity to students to be more autonomous and to some students with special needs to be more involved, besides increasing stakeholders' digital competence level as well as collaboration among teachers and schools. The implementation of remote schooling also allowed to increase contacts and communication among schools and families, and flexibility in life organisation. Nevertheless, increased stress, difficulties for parents to balance school and work duties and teachers' resistance to change to distance teaching were threats for remote schooling. Digital barriers (poor internet access, lack of digital equipment, low level of digital competence), poor school organisation and lack of physical contacts, especially with the youngest groups, appeared as weaknesses of the remote schooling period. In the future, a single nationwide digital platform, more guidance and easier access to digital equipment would be beneficial. Additionally, parents asked for more support and students for better organisation of learning activities. In light of this situation, school leaders also agreed that they will use more digital technologies in the next 2020/2021 school year.

These lessons learned from remote schooling in Italy call for policy actions to close the digital divide, make socio-emotional competences and psychological support more relevant for schools, as well as to support disadvantaged families and students.

1 Aim and scope of the report

The aim of this report is to learn lessons on how the unexpected, obligatory shift from face-to-face to remote schooling has affected primary and secondary education, as well as to evaluate the existing solutions in place for remote teaching and learning from the perspective of different school-related stakeholders. The report collects information in Italy obtained by interviewing 29 stakeholders (5 students, 5 parents, 13 teachers and 6 school school leaders) on the following topics: inequality; teaching, learning contents and tools; digital, and social and emotional competences; certification and assessment; and mental health. More information can be found in the Annex on the methodology of the study.

In order to set the scene, a general overview of national research covering the impact of the COVID-19 lockdown measures on schooling, as well as the educational policies for remote schooling developed during the lockdown in the country are presented in section 2. Section 3 presents the main findings of the interviews to stakeholders. Section 4 analyses the findings and draws some lessons from the lockdown in Italy.

2 Current policy situation and national research on COVID-19 and remote schooling

2.1 Institutional context and policy situation at national level

On 4 March 2020, due to the particularly contagious nature of COVID-19 and the increase in cases on the Italian territory, the Italian Prime Minister, Giuseppe Conte, signed the decree establishing, among other things, the school closure and the interruption of face-to-face activities at all school levels. In parallel, school leaders were invited to activate remote schooling for the entire period of school closure (DPCM 4 March 2020, Article 1, Paragraph 1). Since then, several decrees, notes and ministerial ordinances have been approved providing more specific instructions for schools.

With the Note of 28 March 2020, the Ministry of Education (MoE) (Note 562/2020) allocated 85 million euro to schools to allow them to face the health emergency and ensure remote teaching through digital tools and platforms. In particular, the funds aimed to: equip schools with digital tools or to encourage the use of e-learning platforms; lend - for free -, individual digital devices and Internet connectivity, to students from disadvantaged families; and provide teachers with training on distance teaching methodologies and techniques. The use of the digital platforms, tools and contents provided by the MoE was not mandatory. Indeed, schools were free to define their policies: they could integrate the new devices with the pre-existing ones (if any) or replace the pre-existing tools with the new ones or also adopt the digital tools for the first time.

In the meantime, the National Institute for Documentation, Innovation and Educational Research (INDIRE) and the schools heading the Avanguardie educative (Educational Avant-garde) movement drew up a "Manifesto for never stopping schools" ("Manifesto della scuola che non si ferma", INDIRE, 2020). It encompasses six fundamental principles: 1) (children's') development must be supported by the school in a healthy, responsible and competent way; 2) the community of teachers, managers, school staff, families and students has to collaborate to face the health emergency; 3) responsibility, i.e. no one will be left behind; 4) no improvisation, but systematic plans; 5) not a single school, but a network of schools available to share good practices; 6) innovative methodologies for both face-to-face and online and teacher training.

On 6 April 2020, the MoE published a teachers' guide ("Distance learning and students' rights. A guide for teachers") dealing with different issues related to COVID-19, from facing the digital divide to providing emotional support to pupils in emergency situations, to remote teaching. In particular, It provided suggestions about teaching activities. These include: planning sessions to listening to students' doubts and fears; helping students to focus on the positive aspects; inviting students to propose learning activities; engaging students in a reflection on the new learning experience; involving the youngest students in visual activities; reassuring the students that aids from the State and schools will be provided; encouraging physical education; fostering creative activities; alternating educational sessions with more playful moments; promoting positive thinking by engaging students in storytelling activities with happy endings; ensuring educational continuity; and organising collaborative activities in small groups.

2.2 National research on the impact of COVID-19 on the school

Several surveys were conducted, from either individual researchers or national institutions, to evaluate the impact of COVID-19 on teaching and learning. Narrowing the focus on studies promoted by national institutions, three reports deserve attention, elaborated by the Italian Society of Educational Research (Società Italiana di Ricerca Didattica, (SIRD), INDIRE and the Social Investments Research Centre (CENSIS)), respectively.

SIRD carried out its survey between April and June 2020. 16 133 respondents from all school levels voluntarily answered the questionnaire. These were the main findings from the study (SIRD, 2020): 1) the technological tools used were: individual communication tools (such as phone, SMS) and presentation tools (such as Youtube, RaiPlay, etc.) and synchronous communication tools (as platforms, interactive app, virtual classroom); 2) during remote learning, the same teaching strategies of face-to face school have been proposed (such as video lessons with explanations, homework, handbooks, etc.); 3) training on remote teaching before COVID-19 ranged from 10% at kindergarten level to 30% at the secondary school level; 4) the biggest problems highlighted by teachers are: the increase in working time, due to teaching rescheduling; the challenges of managing the learning environment and involving the students; relationships with families; 5) teachers declared that they experienced difficulties in student assessment, particularly referring to self-

assessment and peer assessment. The most common assessment tools were written tests and oral exams; 6) for students with specific learning disabilities and, more generally, for students with special educational needs, the individualised learning plan has been rescheduled in 55% of cases. In most cases, remote teaching has been personalised and more frequent contacts between teachers and the families took place; 7) in the perceptions of the teachers, the "no-reached" students were between 6-8% while the "partially-reached" students were between 16-18% of total students.

The INDIRE survey was administered in June 2020 and involved 3 774 teachers from all school levels who voluntarily filled in the questionnaire. The main findings of the study were: 1) regarding the teaching methods, video lessons and resources allocation for personal studying and exercises were favoured, from primary school on. The school time was re-scheduled, varying from less than 2 hours up to more than 8 hours per week; 2) from the technological point of view, most of the schools chose themselves the platform to be used; 3) the highest rate of participation was in primary education (76.3%), while the lowest at the kindergarten level (25.5%). The most common reason for not attending remote teaching was the digital divide, followed by socio-economic disadvantages and belonging to migrant families. The main interventions promoted to reach out to these students were related to devices' supply and collaboration with families; 4) as for educational contents, the handbook already adopted by the class was the most common tool; only in a few cases digital contents were self-produced. Considering the curriculum, most respondents declared that they did not introduce any relevant changes: they merely followed the programme; 5) the main assessment tools used during remote teaching were traditional oral/written examinations and teachers' notes (83.3%); other means were dialogue and participation (69.2%), production of an essay (65.1%), presentation of activities/homework (53.6%), online tests and questionnaires (50.3%). This is followed by self-assessment (37.3%) and peer-assessment (13.0%), which slightly increased during the remote teaching period; 6) finally, as for teacher continuing professional development, 84% of teachers claimed to have attended online training activities and to be motivated for attending further training modules.

The survey made by CENSIS took place in April 2020 and addressed 2 812 school leaders. The sample was representative of all school levels and geographical areas. The main findings of the study were: 1) at the end of April, 39.9% of school leaders recorded more than 5% of school dropouts during remote learning, a percentage that doubles in the south of the country; 2) at the end of April, 54.4% of school leaders declared that between 2-5% of teachers were not involved yet in remote teaching; 3) at the end of April, only 1.1% of school leaders declared not to have taken action in terms of equipment; 84.2% of school leaders underlined that they had to offer hardware and other equipment to students, while 23.5% of school leaders declared that they had to offer hardware and other equipment to teachers; 4) 78.8% of primary school leaders observed that there were differences among students in terms of learning acquisition according to the equipment owned and the families' and students' level of digital competence; 5) 53.5% of school leaders believed that remote teaching did not involve students with special educational needs; 6) 85.4% of school leaders expressed the need of a bigger parental commitment in school related events; 7) 98.6% of respondents stated that student assessment should include the commitment, the maturity and the transversal skills developed by the student; 8) 61.1% of the respondents confirmed that the school system was not culturally prepared for remote teaching; 9) 95.9% of the respondents agreed that the generalised use of remote teaching allowed the school to learn useful things for the future/to think about the future of teaching and learning.

Other studies reported that Italian schools and teachers appropriately reacted to the situation, although almost all experienced a significant increase in workload due to time management challenges (Giovannella et al., 2020). Like SIRD (2020) and INDIRE (2020), Ranieri et al. (2020) found that teachers in primary schools mostly adopted the typical strategies of face-to-face lecturing: rather than redesigning teaching for remote delivery, they preferred to use technologies for traditional practices (see also Giovannella et al., 2020). They also found that a big challenge for them was assessing students' learning for lack of adequate tools as well as for the uncertain responsibility for homework: to what extent did parents support their children and to what extent did they replaced them? Parents' role was crucial: as showed by EC (2020) and Save the Children (2020), educational inequalities are doomed to grow when parents are not able to support their children.

3 Results

3.1 General information

Besides the initial disorientation, worries for health and anxiety for the future of the school, the transition phase to remote schooling was dominated by the need to make students feeling the "presence of school" and address organisation and management issues. Teachers tried to act immediately and used of a variety of official school platforms (even using simultaneously more than one) and the electronic record. In some cases, the school leaders or the digital animators provided direct instructions, while in other cases teachers received no instructions and did their best with the tools they were already familiar with.

For the schools already equipped on a digital level, the transition to remote schooling was almost immediate, through the activation of a support group. In two cases they were also directly involved in the ministerial group that created the guidelines for remote teaching. Since no specific guidelines were immediately provided at central level for remote teaching, the leadership, the previous experience level and the involvement in a school network, played a crucial role with respect to the readiness level of the school. More clearly, as explained by a school leader, "we helped each other for management, organisation and professional support, and for me the most important thing in this phase was to be part of the network of INDIRE's Avanguardie Educative (Educational Avantgarde) movement, that reacted immediately. Then, our school helped the others and the staff of INDIRE involved us for the delivery of webinars, and we have been part of the Task Force of the Ministry for the support to remote teaching. Thus, in this situation of disorientation, several schools (including ours) were the point of reference for other schools and this was very useful also for us, because we had the possibility to compare each other".

The Task Force of MoE was created in an informal way, involving about 200 school leaders who helped the attributed schools with the support of their internal teams. As added another school leader: "[...] to everyone of these school leaders, other schools have been assigned from other regions, which asked for support and exchange. This system did work, and still now, the teachers of the digital team of my Institute are training some teachers of the two Institutes of Valle d'Aosta. Thus, there was a sort of twinning".

The schools that were not already prepared adopted different solutions, ranging from giving teachers the choice of the platforms to use among those the school was already using to not providing any information. The lack of instructions from schools also affected some students and families. In particular, the students complained about the lack of a clear organisation, especially in terms of digital platforms, since the use of multiple platforms at the same time generated overload and disorientation.

3.2 Inequality

For some students the digital divide was still an obstacle to access remote teaching. As teachers reported, students from secondary schools were generally better equipped, while students from vocational schools or from families with migrant background had fewer digital tools. In these last cases, the school supported them by lending computers, purchased thanks to ministerial funds, but sometimes these funds were late or insufficient: "the funds failed to cover all students needing support, many children didn't benefit from this support", a teacher commented. Even students from families with better social background declared that computers were not always available in their home because other members of the families (either parents or siblings) were using them, and they had to use a tablet and/or a smartphone.

Another challenge was the Internet connection that transversally affected the fruition of synchronous activities. For example, some students reported that low bandwidth hindered the connection to the platforms, while other students highlighted some overlap with family members. Parents, teachers and school leaders too mentioned Internet connection troubles. This was one of the reasons why video-recorded lectures were generally preferred to synchronous lecturing.

Despite this situation of digital divide, the interviewed teachers did not denounce a significant increase of dropout rates. A teacher commented: "I didn't lose anybody that was not already lost [...] students showing poor attention kept showing poor attention. In this case, I sent a message to the family [...] and this provoked some reactions. After having sent a few messages reporting students' absence in the video lessons, those students stopped being absent. So, I guess parents took the action to make them attend the video lessons". As it emerges from this story, families had a very important role, in a positive or negative sense, especially for younger students or for students with a vulnerable background. Therefore, besides the differences due to the digital divide, teachers underlined the differences between the children who were supported by their parents,

either in terms of time or cultural competence, and the children who could not be supported by their families (for example children with migrant parents who did not speak Italian). The mediation of parents was even more relevant for children with disabilities. As a teacher explained: "You have to consider that most of the children with disabilities are not able to use the computer autonomously. This entails that parents must be there [...] there are parents who continued to work under the control of a special needs teacher. But for children with disabilities this experience was devastating. It was clear that the only therapeutic use of technologies for disability is a limitation, while there is a need of using the computer for communication even in these cases. Indeed, despite several words spent on accessibility, there's no commitment into remote inclusion". In brief, for students with disabilities who continued being engaged with remote teaching, there was an increase in workload. The most common strategies to involve them were: personalised and diversified learning activities; additional support by teachers working on empowerment; delivery of devices; closeness and constant communication with families. In some cases, teachers also reported that a light collaboration occurred between special needs teachers and curricular teachers with positive implications for the students. Moreover, a teacher also referred positive stories of peer tutoring that students completely managed by themselves.

However, the respondents even highlighted positive surprises. Talking about students with learning disabilities such as dyslexia, a school leader observed "an improvement, as the students could manage to do things with more composure and there wasn't the competition that they usually felt in their class". Similarly, another school leader underlined how remote teaching was an opportunity to express themselves for some vulnerable students: "This teaching mode exalted the qualities of students who before were not able to participate in the class: being within the home walls, they felt more secure. Then, they can't wait to go to the class, thus in some cases they were more autonomous". To conclude, for some students the screen proved to be a barrier to communication, while for some vulnerable students the screen was a protection enabling increased level of students' participation.

3.3 Teaching, learning content and tools

No single digital platform providing contents was available during the lockdown period to Italian teachers. As a consequence, teachers either created digital contents themselves ("Teachers who had the competences created their own resources, using Padlet or aggregator systems for students") or combined them with digital resources provided by the school publishers ("I was used to use digital materials even before [...] I use them a lot, I use infographic, Power Point lessons from the digital version of the school handbook"). Other materials were retrieved on the web, although no teachers clearly mentioned having used open educational resources.

As regards the curriculum, almost all teachers had to reschedule the syllabus. They focused on the core contents or reshaped it by looking at interdisciplinary themes. For some teachers, the choice was not simple, due to the lack of exchanges with other teachers: "The content selection for me was a big dilemma [...] I did it but I had constant doubts and I needed to exchange views with someone, but I didn't know with whom". The same teacher underlined "the need for a frequent rescheduling, more than with face-to-face teaching".

A very common practice among the respondents was giving video lessons of 40-50 minutes to explain the contents, either in the synchronous or asynchronous format. A teacher from a secondary school declared that she never used asynchronous recorded video lessons for remote teaching because "I think that making students feel my presence is the most important thing, but being present entails an exchange. The recorded video lesson is a one- way approach and I think that it doesn't work". On the contrary, a primary school teacher said that, despite parents' pressures who would have preferred synchronous lessons through WhatsApp every morning to entertain their children, the synchronous work with the whole class of 7-year-old students was not possible: "I told them that I'd have done activities with small groups, since it wasn't possible to put 26 children in front of a screen for synchronous activities. This didn't make sense. Since their attention on the screen is limited, I delivered synchronous lessons to a lesser extent. For example, to debug exercises, children provided me with instructions on their coding and I programmed mini-robots". This teacher sent video-recorded lessons doing a kind of cognitive modelling. She did not give instructions on what to do but she showed children what they were supposed to do: "The first thing I thought about was that the children weren't autonomous [...] I simulated their tasks doing the same things they were supposed to do, I didn't give them only the instructions". Anyway, most teachers privileged the synchronous video lessons to guarantee a direct and constant relation, "to make students feel good", "to stimulate the discussion and debate as much as possible", "to give them voice", "to create a community", "to maintain the informal moment of Q&A" or also jokes to "maintain a fil rouge between students and teachers, school and home". The synchronous moments were further used for the collective revision of exercises, to answer doubts, to ask questions on the lesson, to

give a feedback to student works, and to give the space to work groups presentation in view of the oral exams.

Most teachers promoted collaborative work or work in small groups, in combination with more traditional strategies: obviously, the group work was more common with older students and relying on the subjects; for the primary schools students, working in small groups was organised, when possible, with "small Meet" ("piccoli Meet"), managed by the teachers.

Basically, rather than reshaping their teaching for the digital setting, most teachers just duplicated the traditional face-to-face lecture for remote teaching, although school leaders recommended, in certain cases, that they should rethink education in the light of the digital context: "For me it was fundamental to make teachers understand that remote teaching was very different from face-to-face lessons and therefore it could not be done in the same way".

As for students' motivation, all respondents claimed that students needed more support with remote teaching, because students had to be more participative and attentive, to stay behind a screen for hours or because younger students were not autonomous with PC access. For example, one mother stated that, even with constant parental support, distance teaching was not the same than face-to-face learning: "Even teachers in the final parent-teacher meeting told me the same thing, that they saw my daughter struggling to remain attentive, interested and motivated during the online lesson, which absolutely didn't happen during the face-to-face lessons". Reducing non-verbal communication had negative impact.

However, especially older students reported an increase in autonomy which is relevant for their personal development. As a school leader observed: "Remote teaching was an opportunity to develop autonomy in some subjects; however there are other subjects that required a more constant support. I refer to practical subjects, for example if you attend a hotel management school, watching a video on cooking is not the same as cooking. If you need to learn using a certain tool, you may watch the video but at home you don't have any tools for testing". There have been also some beautiful surprises: "For many children it was an incredible tour de force. However, I could note that some timid children, who previously didn't participate in the class, during this period of remote teaching they unravelled. This was because the screen has mediated their shyness" observed a school leader from Sicily.

Concerning the topic of internet safety and online privacy, the overall impression is that both schools and families underestimated it. Some respondents, especially parents and teachers, stressed that there were other priorities and that the platforms provided by the schools were supposed to be safe. Other teachers complained about a general shallow approach to privacy issues and minors' safety on the net: "There was a problem related to the generalised use of tools that were not adequate for children. This was really worrying. When the lockdown ended and I started to discuss with other colleagues, I heard some parents telling: 'we used Google Classroom, all children homework was published on stream." Publishing videos on stream means putting them in the public space". Episodes where unknown persons entered during a lesson into institutional platforms were reported and the solution was simply leaving the virtual room and setting a new one.

3.4 Competences

A general lack of digital competences emerged during the lockdown period. As far as students' competences, both school leaders and teachers claimed that students were familiar with digital devices for playful purposes, but they were not ready for remote teaching, with some exceptions due to students already using ICT for carrying out Internet search. A school leader reported that in the questionnaire he administered in April 2020 to monitor the trend of remote teaching, "teachers observed an increase in students' digital competence as if this topic didn't concern them before". He also added that not only the younger students were not familiar with using ICT for study reasons, but also the older ones learned how to use the computer for study purposes only during the lockdown.

Differently from teachers and school leaders, parents perceived children as generally skilled in the use of digital technologies, while seeing themselves sometimes not competent. For example, two parents declared themselves as "absolutely" not prepared for the digital world and asked their children, or also the teachers, for support. Coming to the latter, all teachers declared to use digital technologies in everyday life, but only a few teachers (i.e. the digital animators and the teacher of technical education) were really prepared to remote teaching. In other words, teachers showed a low level of digital competences for teaching and learning. Some parents complained about the low level of adoption of educational technologies in the "traditional school", due to teachers' lack of digital competences, while appreciated the digitisation of administrative activities, especially for time saving.

The communication between schools and families was generally positive. Different solutions were adopted. Some were more formal in nature such as sending letters, some less formal such as using WhatsApp, and others in between, like the use of "small-websites" ("mini-siti", based on Google-Sites) in parallel to the institutional websites. In two schools these "small-websites" were the main channel of communication with families, especially for the pre-primary and primary school lacking Google Classroom: here parents could find guidelines, official communications, and study materials. This idea was successful, as a school leader explained: "It was the most appreciated tool by families, especially because it was simple. And, also, it wasn't necessary to create an account; therefore, no need to remember any passwords". In some cases, the educators played an important role, mediating between the school and the family in problematic situations: as a teacher reported, "in a class there was a guy not attending the class at the beginning, the educator called his mother and she facilitated the communication with me and my colleagues".

For teachers, after the initial phase, communicating with parents was less important in case of older students, preferring a direct communication. By contrast, in case of smaller children, the constant communication and collaboration with families was essential and, despite some tensions, it led to better knowing each other: "Some parents told me that this situation allowed them to know me much better", a teacher observed.

As for the impact of this experience on students' motivation, teachers expressed contrasting opinions. Indeed, some teachers believed that students were more motivated because of multimedia based activities, while other teachers thought that students' motivation decreased. This depended either on the lack of direct interaction among students with a loss of interest for the school, or on the MoE announcement on March 2020 that all students would be passed to the next school year. Furthermore, some teachers noted a positive change in less motivated students or students with aggressive behaviours: in their words, these students "flourished". In particular, a teacher underlined that there were some interesting surprises: "despite Internet connection's difficulties, students were assiduous in terms of presence and participation, to a greater extent than face-to-face teaching, for two reasons related to the emotional dimension. Firstly, since they peers could not see them, they worked with increased serenity; second, they gave their best to fill this empty situation and this led to a release of energies, especially in younger students".

3.5 Certification and assessment

For all school leaders and teachers, assessment was the most critical issue of the experience with remote teaching, due to the lack of direct observation of students' behaviour and control over the class. As observed by a teacher: "This was the very problem of remote teaching because, for sure, you could trust the students and think that they are in good faith, but students at secondary level clearly helped each other". Another teacher defined it as "a very difficult aspect", while a school leader observed "the traditional assessment cannot work with remote teaching". Specific official instructions on assessment were missing, therefore up to around mid-May, schools did not know how to manage the issue. In some cases, the school leader forbid to give grades, because they were not reliable in his view. However, several teachers declared to regularly give formative feedback: "I did a formative evaluation of all students' activities, highlighting all the positive aspects. Students sent their activities by e-mail. I commented them and sent the work back. In the comments I was mentioning the students by names and saying, 'I recommend this and that….', or I asked why the work was done in a certain way, what was the problem. It was very dialogic, so the children sent me the activities and felt considered. Many mothers and friends complained that they didn't have any feedback from their teachers, and this was very bad". Another teacher confirmed to have given formative evaluation: "All was done with a formative intent, the lesson started with some questions on previous lessons… I used to say 'guys, have a look at your notes, what's the meaning of…?' This was an initial moment for assessing learning". Even a parent underlined that in the daughter's final report card the teacher reported that she could evaluate only some improvements made by the child due to the limitations of the medium.

Self-assessment and/or peer-assessment have been implemented, although to a limited extent, through: interviews and informal dialogues; tests with Google modules to increase students' awareness about their progresses; anonymous questionnaires with emoticons and other open questions; little hearts to put above the classmates' works; rapid questionnaires on an (already done) specific theme to monitor students' interest and understanding.

Regarding summative assessment, the message "all passed this year", circulated by the MoE, together with the recognition that student made bigger efforts for the difficult situation, led to a non-penalising assessment, "awarded rather than punished" with consequently higher grades. The criteria considered for the final evaluation were: commitment, attendance, behaviour, active participation, timely delivery of homework and the trend of the last four months. As a teacher explained: "we created a register with Excel, including

grades from the tests in the first sheet (certification) structured into synchronous tests (typically, the oral ones) and asynchronous tests (that is, the more structured ones). In this last case, we tried to be as cautious as possible, asking to keep the video and microphone on, but we weren't able to actually verify whether they were looking at a book or not [...] In the second sheet, we referred to formative assessment tools, adopting five indicators which brought to a grade, which in turn was used to calculate the final grade".

The student final certification in the last year was carried out in different ways. In primary education, online oral and written tests were administered. In lower secondary education, students prepared an interdisciplinary essay and gave an oral online presentation. In upper secondary education, only a final face-to-face oral exam (removing the written test) took place, with measures to ensure social distancing. The emotions that social distancing aroused were not positive: in the words of an upper secondary school student, "It was bad, after a lot of months that I didn't see teachers, that I didn't do any oral exam. I was there with six subjects to be examined!" Despite these negative emotions, the student was still happy with his final results and considered the final marks received as adequate.

3.6 Mental Health

Serious situations of psychological disease were limited. However, all stakeholders felt stressed by the situation. Students noticed a change in their own mood. A student defined herself as "disoriented" for the first period of remote teaching, while another student had some moments of sadness, mostly due to the isolation from classmates. Two students reported examples of negative changes of mood by some classmates. The first one described that "one colleague, in particular, experienced anxiety attacks and she did not sleep during the night". The other student noted that some classmates were "quite nervous, sad or angry". The interviewed students were able to manage these moments through the support of parents and teachers, or autonomously.

Focusing on parents' role, it emerged that the importance of their support varied according to the age of student, reflecting the traditional parent-child relational dynamics. The youngest interviewed student (10 years old) declared to have been supported by the mother and grandmother, not with direct help in doing homework, but rather in case of technical difficulties (disconnection, no Internet, etc.). The 14-year-old interviewed student told that parents helped her both for school homework and from the emotional and psychological point of view. The 15-year-old interviewed student never asked parents for help, neither for school homework, neither for emotional problems. The 16-year-old interviewed student confirmed that parents only sporadically helped and the 18-year-old student claimed that she did not ask for any help for school activities, but she received important psychological and emotional support.

As for parents, the main stress factors emerging from the interviews were: school-work balance, school support for children, educational continuity of children, family and relatives' contagion, digital inexperience, distancing from the daughters. The latter aspect was reported by a father who continued to work during the state of emergency by delivering pizzas and coming into daily contact with people outside the family. He decided to avoid any contact with his daughters and wife for a while. All respondents said they had not encountered any kind of danger in the use of digital technologies; however, one interviewee stated that she considered overexposure to digital technologies as a possible risk.

Teachers reported to be more stressed in this new form of teaching, for several reasons: the balance between personal and professional life ("We often forgot that we too were in lockdown – not only the students and their family - and worked in precarious conditions, with the children, our family and so on. It was hard, the colleagues weren't used to work in synchronous modalities and at the end they were exhausted"); the lack of digital competences for teaching, that required studying and updating skills with a consequent increase in workload and time devoted to work ("When you don't know how to do a certain task, you need to work harder"); the judgment of the other actors, particularly the parents ("For many colleagues, giving lessons with parents attending them with the children, was devastating"). Other reasons for being stressed were related to technical problems with digital tools and Internet connection, the fear to getting sick, the challenge to prepare the lessons and homework evaluation.

One teacher reported about cases of burnout, while another teacher admitted having had a crisis: "I had a crisis, never in front of the students, but surely they felt it. I thought I was like a leaf, that comes off the tree and dies. The caducity, the fragility, you cannot plan anything. I'm a person used to planning everything...". For almost all teachers the dialogue with colleagues was very important.

Coming to school leaders, the balance between professional and private life was a main theme generating stressful situations. As stated by a school leader: "undoubtedly, a big effort was needed, more than usual, because firstly it was a new and unexpected situation, secondly because we had to face changed life

conditions and we did the math to find a balance between professional life, totally changed, and private life". Other factors of stress were: the fear of not being able to face the situation; the need to ensure capillary communication; the increased responsibility; the pressure of having to hide one's fear from the teachers; the fear of illness (for themselves and colleagues); the management and planning of the school; the management of teachers who were little available to teaching remotely; the dangers from the excessive use of digital technologies. In some schools, a psychological service desk was available, even during the lockdown, but no critical mental issues were reported to it. In other schools, this service was not available, but the school leaders are planning to activate it in the 2020-21 school year.

4 Discussion and policy actions

4.1 Assessment of the situation by main stakeholders

Despite their digital unpreparedness (OECD, 2019), schools appropriately reacted to the lockdown with no interruption of the educational activities (see also Giovannella et al., 2020). As also documented in CENSIS (2020), school leaders and teachers did their best to communicate the message: the school is there! The results were globally positive in terms of students' involvement with a school leader underlying that the percentage of students who were not reached by remote teaching was equal to the one of students left behind the previous year.

Besides this general consideration, there were also differences among schools according to the educational level. Primary schools experienced a significant slowdown, due to the importance that physical contact has on children's development and learning. On the contrary, lower secondary students' autonomy and responsibility together with teachers' effort to adapt their subjects to the digital format, made some students "bloom" or "flourish again". This happened to students who usually participated less in classroom activities and who, in this particular situation, reacquired self-confidence with consequent improvements in their academic performance. Regarding students with special educational needs, the commitment of specialised teachers was considerable in order to guarantee the constant contact with them, as also emerged in SIRD (2020). However, the results are more contrasting: sometimes the use of screens created a protected situation for students with disabilities, favouring their participation; in other cases, the lack of direct contact determined a sense of abandonment.

Parents reinvented themselves as teachers and sustained their children despite their work duties. This led to one of the main challenges they had to face during the lockdown period: the work-family balance. Another important challenge was the use of technological devices, especially in families with more than one child and parents working from home. This experience increased the communication between schools and families, allowing parents to improve their knowledge of schoolwork, and to spend more time with their family. The tensions with teachers were not missing, but an overall positive evaluation prevailed - contrary to SIRD (2020) findings, where the communication with families was considered to be the biggest source of stress for teachers.

Regarding teachers, the situation forced them to update their skills, particularly their digital competence. Indeed, since the average level of teachers' digital competence was relatively low (SIRD, 2020), with only 52% of teachers having received formal training (OECD, 2019, TALIS), almost all teachers attended webinars, tutorials and online courses to self-update (see also INDIRE, 2020) and expressed the need for training (in Schleicher, 2020, teachers' training is indicated as a step for school reopening). Thanks to this digital immersion and the exchanges with their colleagues, they were able to deliver remote teaching but they did not reshape the education practice. In line with findings from other studies (Giovannella et al., 2020; INDIRE, 2020; Ranieri et al., 2020; SIRD, 2020), they replicated online the lecture they used to deliver face-to-face with no redesign of teaching , mainly due to lack of time and lack of digital competence for teaching.

The school leaders built a new school system, with no previous announcement nor preparation. Those who had already promoted digital innovation initiatives in their schools reacted with greater readiness and ease; the others encountered more barriers. The exchange with other schools was also important, to take inspiration and share tools and practices. At organisational level, some school leaders highlighted the advantages of digital technologies (for example, better communication with families, better coordination among teachers) and stressed that this was the tipping point. More generally, all stakeholders appreciated the increased level of flexibility, especially in terms of space and time, that characterises digital schooling. This had positive implications for coordination of activities, opportunities to attend meetings, and time saving. Some school leaders did hope more digital training would be available for teachers and families, without whom the necessary support to children for educational continuity in this exceptional circumstances would not have been possible.

Of course, the Italian remote teaching experience also led to some negative experiences. First, both teachers and school leaders felt a sense of institutional abandonment. According to them, MoE's support in providing guidance and help to schools was limited. In particular, the absence of national guidelines on the digital platform to be used for teaching was confusing to schools and teachers, who adopted different platforms at the same time. Therefore, some teachers advocated the adoption of a single school platform under the responsibility of MoE. However, there were also other school leaders claiming for a higher autonomy in the choice of platforms and teaching approaches.

Most importantly, although all stakeholders did their best not to stop schooling and highlighted the advantages of the digital school, all agreed that while digital technologies may improve teaching and learning, they cannot replace face-to-face schooling. Students declared they missed their classmates, parents were worried about children's sense of isolation, teachers underlined the importance of direct interaction to support motivation and learning, and school leaders believed that physical presence is fundamental, especially for the youngest students.

4.2 Lessons learned

Learning online requires appropriate digital infrastructure, including both digital devices and Internet connection. As reported in other studies (SIRD, 2020; INDIRE, 2020; CENSIS, 2020), some students were not equipped at all and other students had to share tools and connection with other members of their families. Funds provided by the government were not enough or came late. Increased investment is necessary to make all children participate in digital learning.

Learning online requires a certain level of digital competence on the side of both students and parents. During the school closures, students showed to be generally familiar with digital devices, especially for ludic purposes. However, they were much less familiar with using them for learning purposes. As a student underlined, even young people need training on digital competences for study activities rather than for leisure. Moreover, since in many cases (e.g., youngest children, children with disabilities) parents were crucial in mediating the communication with teachers and making the online school possible, they also need to have adequate levels of digital competence. When parents are not prepared to support their children at home, educational inequalities increase (EC, 2020).

Although digital remote teaching cannot replace face-to-face school, school modernisation through ICT has several benefits. All stakeholders agreed that schooling requires immediate contact, non-verbal communication, direct observation and physical presence to build positive relationships, provide emotional and cognitive support, nurture motivation and ensure proper assessment processes. However, all stakeholders also highlighted the benefits of an increased level of school digitisation. These include: more flexibility in terms of time and space, easier administrative procedures, improved contacts between the school and the families, innovative digital contents and increased safety in case of health emergencies.

Digitisation of schooling requires reshaping school organisation to avoid the risk of an increased workload for all actors. All stakeholders felt extremely tired at the end of the school year. On the one hand, this was due to the need for teachers to learn new teaching modalities (see also Giovannella et al., 2020; SIRD 2020), for students to study more autonomously, for school leaders to implement new organisational practices and for parents to manage the school-work balance. On the other hand, if teaching and working practices are not re-conceptualised to fit the new digital context, all activities will prove to be more demanding and challenging rather than providing benefits.

Teaching large groups synchronously seems less efficient than teaching smaller groups. It was not possible to organise synchronous learning for groups of more than 20 students, most often due to technical constraints. Organising synchronous teaching with small groups has the advantage of allowing teachers to keep students attention on higher levels than in bigger groups. Therefore it helps to increase students' motivation as it increases the one-to-one (face to face) time teachers spend with each student in a digital way. Synchronous teaching among smaller groups allowed also for more active communication and exchange of information with students. Examples include revising exercises, answering students' doubts, asking questions about the lesson, providing feedback to student works, giving the space to present students work and organising oral exams.

Digital learning is not about making the learning content digital. Some good practices on digital education were shared and readily accessible for teachers, who could take inspiration or re-using those resources. Likewise, some links to various websites with digital educational resources were shared among teachers. Some school leaders highlighted the importance of rethinking pedagogy when dealing with transformation of curricula topics into digital content: "For me it was fundamental to make teachers understand that remote teaching was very different from face-to-face lessons and therefore it could not be done in the same way". Most teachers were lacking pedagogical skills on how to use digital technologies and competences to translate specific thematic areas into remote teaching content. On some occasions, this transformation happened thanks to the knowledge of teachers who "experimented" various forms of communication to observe and later assess students' situation and learning journey.

The screen mediation may decrease the quality of communication and education, especially for students with special educational needs, but it may also improve their participation while protecting them. Teachers and school leaders underlined that digital remote schooling was very complicated for students with special educational needs. Being these students even less autonomous than their peers without special educational needs, they strongly needed support from their parents to access the digital learning space. Sometimes schools and teachers did not appropriately support parents in guiding their children, or they provided guidance too late with negative implications for students' participation. However, in other situations, teachers and school leaders noticed a greater student engagement, especially referring to students with learning disabilities who probably felt protected from the eyes of their peers through the screen, with lower levels of anxiety and competition.

Traditional assessment approaches are not appropriate to digital settings, which require new forms of e-assessment. Assessment was repeatedly mentioned among the major difficulties: the need to evaluate students' performance without direct observation and the interference of parents during the tests or when students were doing homework, made students' learning assessment a very challenging activity (see also Ranieri & Gaggioli, 2020; SIRD, 2020). Traditional approaches to assessment proved inadequate in the digital setting. By contrast, practices linked to formative assessment enabled not only more meaningful assessment processes but also a better interaction between the teacher and students within the digital classroom.

4.3 What helped to adapt to the situation

Although it was not sufficient and not immediate, the financial aid provided by the government to purchase digital devices for students with no equipment allowed them to attend the digital classroom and get involved in remote teaching.

Being in a network and collaborate with other schools proved to be effective for schools involved in national school movements aimed at pedagogic innovation and renewal of education. These schools shared guidelines on teaching methods, evaluation, school-family communication and organisation. They also shared digital resources, good practices and educational tools. Some of these schools were associated to other schools with less expertise. This was beneficial for both types of schools. More experienced schools got deeper knowledge of the problems which might arise during the innovation process, while less experienced schools learned about digital education through modelling and sharing activities like in a community of practice.

The collaboration between teachers and between schools and families was also of fundamental importance. Concerning teachers' collaboration, when teachers could share their concerns or be supported in the use of educational technologies, they reacted and adapted to the situation better. On the contrary, when this type of support was missing, teachers experienced major difficulties and, in some cases, a burnout. The relevance of teachers' collaboration in challenging situations is also highlighted in OECD (2020): prior to the COVID-19 emergency, only "the 18% of teachers reported participating in collaborative professional learning in their school at least once a month". Since during the lockdown collaboration among teachers facilitated teachers' adaptation, this should be encouraged in the future.

As for families, they were crucial in the mediation between students and teachers/schools, especially for the youngest children who could not access digital learning autonomously and for children with disabilities who needed help from their parents to turn on the computer. When families were collaborative, teachers were able to reach even vulnerable students and involve them in the learning process.

Finally, previous experience with the use of ICT for educational purposes made a difference between the schools that immediately reacted and those that took about a couple of weeks to send the first instructions to students and families. As a school leader pointed out: "Frankly, I hadn't any problems, we did what had to be done with the maximum speed and sharing it with my teachers. […] Fortunately, we already used Google Suite in the last 2 years, we were ready with the school on the cloud. Therefore, that week, we (teachers/school leaders/staff) just performed some simulations with Meet, in order to be ready for Monday, 2 March 2020". The skills of the school leader made a difference in the words of the teachers – some of them felt guided, some did not – alongside teachers' openness to innovation: according to TALIS 2018, "in Italy, 70% of teachers "agreed" or "strongly agreed" that most teachers in the school are open to change" (OECD, 2019, TALIS).

To sum up, the way in which the lockdown impacted schooling in Italy can be examined from the perspective of a SWOT analysis, including strengths vs weaknesses and external opportunities vs external threats (Table 1):

Table 1 - SWOT analysis of the lockdown impact on schooling in Italy

Strengths	Weaknesses
• Increased contacts with teachers and with the family: the emergency and the use of digital communication promoted the exchange, also individually, between teachers and students, and a better communication between school and family. • Increased level of flexibility: all stakeholders appreciated the time flexibility enabled by digital technologies. Students could better manage their time during the day, teachers reported a timely presence of students, parents could better plan their activities, and school leaders could manage the meetings in a more flexible way. • Digitisation of administrative activities: mostly parents appreciated it because they saved time. • Better understanding of children's' school effort by parents: they could enter "into the classroom", knowing much more about the school and directly observing how their children were committed to school.	• Issues related to Internet access: both students and teachers highlighted connection problems, that prevented to correctly log into video lessons or caused delays; this was a source of stress for all actors. • Issues related to lack of digital equipment: students, parents and teachers underlined the digital divide related to the lack of proper digital equipment. Many students had to use their mobile phone but not all activities could be done with this tool. Even some teachers did not have a proper equipment. • Lack of a clear organisation at school level: mostly students underlined that the school was not well organised; in particular, the use of different platforms or participation in video lessons with Internet connection problems confused them. • Lack of teachers' digital competence: parents complained about the lack of teachers' digital competence, as the main problem with remote teaching. • Issues related to assessment and certification: all stakeholders underlined that assessing students' outcomes was very challenging. Traditional methods are not appropriate to the digital setting, while formative evaluation was useful to improve the process. The emotional dimension of the final exam was lost. • Lack of physical contact and non-verbal communication: parents, teachers and school leaders found it especially difficult to cope with the lack of physical contacts and non-verbal communication, especially with younger students.
Opportunities	**Threats**
• Increased level of students' autonomy, especially for older students: students, parents and school leaders underlined that, through this experience, students increased their autonomy. • Increased level of participation of students who tend to show aggressive behaviours: for some reasons needing further investigation, the use of digital technologies for teaching and learning made students with problematic behaviours more participative and willing to learn. • Increased level of students' digital competence: the constant use of digital platforms and contents for studying activities improved students' digital competence. • Increased level of teachers' digital competence: the need to deliver their teaching under a digital modality forced teachers to update their	• Increased stress: all stakeholders highlighted increased stress due to health concerns, lack of competence and tools, isolation feelings and heavier workload. • School-work balance: almost all parents underlined that the school-work balance was very difficult with many overlaps between professional life and children's school activities. • Teachers' resistance: some school leaders indicated that the resistance of some teachers to remote teaching was one of the major concerns. This made it more difficult to face the emergency when the use of digital technologies was the only possibility.

digital competence. • Increased use of digital content: teachers not using digital resources of school handbooks did it for the first time or they autonomously created them, exploiting the advantages of multimedia and of re-usability of digital content. • Increased collaboration among teachers and schools: when collaboration among teachers took place or networking among schools was in action, teachers and school leaders felt encouraged to react, test, find solutions and improve their experience.	

4.4 Considerations for the future

Students stated that they would face once again remote teaching, if necessary, with a better study organisation, a greater attention in doing homework and during online lessons. One student declared that planning a training course on digital competences for students would be very helpful. Despite this general positive attitude towards remote teaching, almost all students declared to prefer face-to-face schooling.

Moving to parents, they claimed that to be prepared for remote teaching they would need: a better support from the school, a better digitalisation of school activities, particularly referring to the administrative ones, and a better teaching schedule. They further suggested to invest in teacher training, especially teaching methodologies, including remote teaching and the use of educational technologies, and to extend the school curriculum to digital education.

Regarding teachers, almost all underlined the importance of using a single platform, common to all schools, provided by MoE, in order to standardise the learning activities and improve students' transitions between different school levels. They also highlighted that the government should pay more attention to digital equipment and Internet connection. Furthermore, more guidelines for teachers should be provided, avoiding leaving them alone. Some teachers were more negative and would prefer to abolish remote teaching.

School leaders declared that they would be more prepared, in case of face-to-face teaching suspension during the 2020-21 school year. Regardless of remote teaching, they argued that a bigger use of digital technologies for ordinary teaching should be promoted. As explained by a school leader: "the next step is the use of technology also during face-to-face teaching; it should be not seen as something extraordinary, but it should be recognised as a fundamental component. Subgroups working as well on tablets or PCs should be created, as in face-to-face moments. Work modalities encouraging greater students' creativity should be implemented: in fewer words, teaching should be improved". Therefore, all school leaders reported their intention to develop courses or specific programmes on remote teaching. A school leader declared that this could be the keystone to integrate the digital competence in the school curriculum and to translate each subject into a digital modality.

4.5 Recommendations for policy actions

- Internet access: reinforcing the technological infrastructure of the country, guaranteeing a proper level of connection in all geographical areas (rural and urban, northern and southern).
- Digital equipment of schools: equipping all schools with enough PCs and tablets, to be delivered, when necessary, to the families with no means or who do not have enough digital equipment.
- Digital training for school leaders: it should include all aspects related to school management with digital technologies, as well as the knowledge of online and face-to-face communication and relational dynamics, for a better management of conflicts.
- Digital training for teachers: it should include the design of digital teaching, the knowledge of teaching strategies, the management of online educational relations, the management of time and of technological environments, the assessment with digital tools, the communication with families and the theme of privacy.

- Digital training for students: it should include the use of digital technologies for studying activities and, therefore, for improving the ability to: carry out online search, create and produce content, to collaborate with others, use digital technologies by respecting themselves and the others (privacy and management of personal data) and solve technological problems.
- Digital training for parents: it should encompass children's' safe use of digital technologies, the themes of privacy and protection of minors and the proper use of digital technologies for a correct communication with schools and teachers.
- Creation of an institutional repository for digital resources: since during the spring 2020 lockdown many digital resources have been produced, it would be beneficial to create an institutional repository for uploading, after selection, all products made by the teachers in order to grant them visibility.
- Sharing of good practices: promoting the sharing of good practices related to remote teaching from different schools, to be disseminated through an accessible portal, and trying to support networking and school exchanges.
- Creation of a psychological support desk in all schools to ensure the presence of qualified professionals able to support school leaders, teachers, students and their families in situations of high psychological stress.
- More integration between schools and the non-profit sector to deliver socio-educational services and support the families, especially those in difficult situations (migrant families, families with disabled children, families with no financial means).

References

CENSIS (2020). 16° Rapporto sulla comunicazione. I media e la costruzione dell'identità. https://www.censis.it/sites/default/files/downloads/Sintesi_27.pdf

European Commission (2020). Educational inequalities in Europe and physical school closures during COVID-19. https://ec.europa.eu/jrc/sites/jrcsh/files/fairness_pb2020_wave04_COVID_education_jrc_i1_19jun2020.pdf

Giovannella, C., Passarelli, M., & Persico, D. (2020). Measuring the effect of the COVID-19 pandemic on the Italian Learning Ecosystems at the steady state: a school teachers' perspective. Pre-print. https://www.researchgate.net/publication/343127257_Measuring_the_effect_of_the_COVID-19_pandemic_on_the_Italian_Learning_Ecosystems_at_the_steady_state_a_school_teachers%27_perspective

INDIRE (2020). Indagine tra i docenti italiani pratiche didattiche durante il lockdown. Report preliminare. http://www.indire.it/wp-content/uploads/2020/07/Pratiche-didattiche-durante-il-lockdown-Report-2.pdf

OECD (2019). TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners – TALIS. Paris: OECD Publishing.

OECD (2020a). School Education during COVID-19. Were teachers and students ready? Paris: OECD Publishing.

OECD (2020a). School Education during COVID-19. Were teachers and students ready? Paris: OECD Publishing.

Ranieri, M., Gaggioli, C. and Kaschny Borges, M. (2020). La didattica alla prova del COVID-19 in Italia: uno studio sulla Scuola Primaria/ A Didática à prova pelo COVID-19 na Itália: um estudo sobre os Anos Iniciais do Ensino Fundamental. PRÁXIS EDUCATIVA, 15, 1-20.

Save the Children (2020). Riscriviamo il futuro. L'impatto del coronavirus sulla povertà educativa. https://s3.savethechildren.it/public/files/uploads/pubblicazioni/limpatto-del-coronavirus-sulla-poverta-educativa_0.pdf

SIRD (2020). Per un confronto sulle modalità di didattica a distanza adottate nelle scuole italiane nel periodo di emergenza COVID-19. https://www.sird.it/wp-content/uploads/2020/07/Una_prima_panoramica_dei_dati.pdf

Schleicher, A. (2020). The impact of COVID-19 on education insights from education at a glance 2020. Paris: OECD Publishing.

Annex: Methodology of the study

The target

The sample group was made up of 29 participants, including 5 students, 5 parents, 13 teachers and 6 school leaders. For the selection of the participants the following criteria were taken into consideration:

- **Geographical area**: since there are differences in the country between northern, southern and central Italy in terms of infrastructures, school equipment and expertise, families' incomes, and so on, representatives of each area for the different target groups were involved in order to get a realistic picture of what happened in the Country.
- **Gender**: a balance between genders has been taken into consideration for all target groups to ensure, to the greatest possible extent, that all needs are captured. However, since teaching is a typical female job, at least in Italy and especially in primary school, the number of female teachers is higher than the male teachers.
- **Age**: as for the age, a special attention in the selection of the target groups has been put on students' age, involving children from 10 years old to 18 years old. Most of the teachers were in the range 45-60 years old, while the school leaders in the range of 50-60, while the parents were in the range of 40-50 years old.
- **School level**: all school levels from primary school to high school are represented by the target groups involved.

The table below includes the main characteristics of the sample.

Table 2 - Demographic data related to the sample

Target group	Number	Gender	Geographic Area	Age	School level
Students	5	F = 3 M = 2	North = 1 South = 2 Center = 2	10-13 = 1 14-16 = 3 17-19 = 1	Primary = 1 Lower secondary = 1 Upper secondary= 3
Parents	5	F = 3 M = 2	North = 2 South = 1 Center = 2	< 40 = 2 > 40 = 3	Primary = 2 Lower secondary = 2 Upper secondary = 1
Teachers	13	F = 9 M = 6	North = 5 South = 5 Center = 3	40-50 = 5 50- 60 = 8	Primary = 4 Lower secondary = 6 Upper secondary = 3
School leaders	6	F = 3 M = 3	North = 1 South = 2 Center = 3	40-50 = 1 50- 60 = 5	Primary/ Lower secondary = 3 Upper secondary = 3

The interview scenario

The interview scenarios were developed through a series of virtual meetings including the member of the research staff, that discussed the main dimensions and subdimensions to be considered in the interviews. Questions were adapted to the main stakeholders, that is students, parents, teachers and school leaders. For each question a keyword was identified to summarise the leading idea.

Once the research team agreed on the consolidated version of the questionnaire, this latter was translated into national language. The translation also entailed an adaptation to the national contexts. In the case of Italy, the following adaptations were taken into consideration:

- the Regional Scholastic Office was mentioned in one of the first questions concerning instructions received at institutional level because the Regional Scholastic Office came into action during the lockdown period providing support and resources for training.
- the expression "BES", meaning "bisogni educativi speciali" was explicitly mentioned in the question about the inclusion of students with disabilities since it is used in the Italian law and the role of teachers working exclusively with them, that is "insegnanti di sostegno" was further investigated.

Data collection/field work

The interviews were collected through video conference systems such as Google Meet, Skype or Zoom, depending on the preferences of the respondent. In two cases, the interviews were collected via phonecall. They were recorded and literally transcribed for thematic analysis. The excerpts mentioned in the report were translated into English trying to communicate the literal meaning of the sentences. Participants were informed about the aims of the study and informed consent was obtained for recording and storing of the interview.

The interviews lasted on average 60 minutes with some exceptions (the interview to a school leader took about 90 minutes). The interviewer asked the questions and, following the interviewed reasoning, advanced in the interview trying to cover all the topics. The keywords associated to the questions were of help to carry on the interview in a systematic way trying to cover all dimensions and subdimensions. When a particular interesting aspect emerged, the interviewer asked additional questions to make the interview more meaningful.

The main challenge during the interview was its' length: covering all aspect in less than 1 hour was difficult. Sometimes, when the time was running, looking at the keywords was useful to keep in mind the main aspects the interview was supposed to detect.

Data analysis: how the information from the interviews were analysed

Based on the dimensions and the keywords, a thematic analysis was carried out. The interviews were read repeatedly and through an iterative process of analysis and synthesis the main findings were identified and reported, firstly in descriptive terms and subsequently in analytical terms.

Limitations of the study

Although the sampling procedure tried to take into consideration meaningful criteria, strictly speaking the sample is not representative. It could be envisaged as a convenience sample that, in this case, was acceptable four two main reasons. Firstly, the research aimed at finding out interesting solutions for the challenges raised by the COVID-19 emergency: schools and teachers totally enable to implement any teaching solutions were estimated as not interesting for the purpose of the study.

Country report on the impact of COVID-19 lockdown on schooling in primary and secondary education: Poland. Author: Agnieszka Pugacewicz

Contents

Executive summary

In Poland, the school system lockdown started on 16 March 2020 and the Ministry of National Education introduced remote education in all schools from 25 March. A few governmental programmes addressed the equipment needs. Several platforms were made available, but without a national one-stop-shop website for tools and open educational resources. The guidelines for schedule and curricula arrangements advised schools to follow programmes without any cuts, with the possibility to postpone some elements for future semesters. The time schedule for final exams of last grades was postponed by the Government from May to June and their content changed. Available research show that, during remote schooling, there was a lack of sufficient or good quality equipment and internet access for a third of the students (Librus, 2020a, Centrum Cyfrowe, 2020). Moreover, the teaching methods during the lockdown period were mostly traditional (Krauze-Sikorska et al., 2020) with an intensive use of synchronized education, and students could develop greater independence but also suffer from lack of social contacts (Librus, 2020b).

This report presents the findings from interviewing 26 school-related stakeholders in Poland, including students and parents, on how unexpected remote schooling imposed by the COVID-19 lockdown measures in primary and secondary education affected inequality in schooling, teaching tools and content, competences, students' certification and assessment, and stakeholders' mental health. The aim was to learn some lessons in view of a return to school or a new lockdown. The interviews took place in summer 2020.

The **findings of this study** show that in Poland the national schooling system itself was neither prepared for remote education, nor has it developed much during the lockdown period. Many of the interviewees expected a return to the face-to-face system after the summer holidays. They seemed too exhausted to even think or talk about possible future strategies for remote or blended learning. A few stakeholders, nevertheless, dealt better with the situation. Those were non-public schools' stakeholders from wealthier socio-economic backgrounds and other teachers, who already before the lockdown established good relationships and cooperation based on trust with their students. They were able to diminish their stress and quickly apply solutions through close communication with students, their parents, and among their professional peers.

In terms of **inequality**, as centralised financial support to solve the problem of lack of equipment was only provided at a later stage, teachers and school heads contacted their communities and non-governmental institutions in order to find quick solutions for their students. Moreover, severe problems occurred in case of children with disabilities, who had no access to the community and dedicated instructions and were sometimes excluded from schooling even in the biggest cities.

Regarding **teaching tools and learning**, the pressure to continue with the whole curriculum was persistent, and remote schooling was exhausting for teachers and students. No one in the formal system was fully prepared for online learning. The lack of systematic and centralised help implied that schools had to rely on their networked partnerships. Open communication, planning and positive atmosphere for learning were essential in remote education. Many external partners (companies, NGOs) also joined the school community with their offer, where bigger companies allowed schools to use their tools in extended versions without additional costs.

Regarding **competences**, just before the schools' closure, teachers had the opportunity to attend trainings on digital competence and later on, they developed their knowledge of digital tools with help of their peers and distant specialised communities. The lockdown also allowed students to increase their formal writing skills and other skills which during the face-to-face schooling time were not much emphasised. Parents signalled significant problems regarding how to cope with time and assistance to remote learning for children from lower levels (<10 y.o.), or with lack of motivation for older children (12-15 y.o.). The students from secondary schools (>14y.o.) seemed to be the most responsible, self-regulating and best equipped to participate in remote schooling.

In relation to **certification and assessment**, the rules for assessment during the lockdown were not set up in all schools. Some schools assessed their students according to their attendance and homework assignments while others also included the quality of students' behaviour during online lessons. Other schools relied on last mid-year assessments or partial grades before the lockdown. Some collaborative schools - usually non-public and smaller ones – arranged online meetings with parents to discuss individual progress of a child and provided descriptive feedback instead of grading. Various internet platforms (e.g. testportal.pl, dyktanda.pl) assisted remote assessment. However, in no case described, the teachers were able to offer peer- or self-assessment methods.

Regarding **mental health**, the school lockdown was burdensome for many stakeholders. Teachers struggled with specific teaching methods, psychological support, adequate communication with parents, assessment and even sometimes the equipment or sufficient internet speed and stability for digital communication. School leaders were in a very difficult position, as the practical arrangement of remote schooling depended only on their decisions and they did not have any experience or good examples on how to plan it properly. Additional stress was put on them because of numerous controlling requests they frequently received from the regulatory authorities.

To sum up, the **findings of this study show** that the unexpected and obliged remote schooling in Poland due to the COVID-19 lockdown made more digital equipment available to poorer families and boosted the development of new digital learning models. A focus on more adapted environment for certain students with special needs would be needed. This remote schooling period also gave the opportunity to increase collaboration among all stakeholders, to develop their digital competence, and in general to develop a better digital engagement in teaching and learning. Nevertheless, pressure and overload were high, coming from different channels (e.g. lack of equipment, abundance of digital learning environments, focus on academic performance) coupled with poor psychological support. Moreover, some students from immigrant or non–polish-speaking families were excluded.

These lessons learned from remote schooling in Poland call for policy actions for a multi stakeholder approach. Clear instructions as well as a single nationwide platform for blended and remote teaching and learning, prioritising student engagement and motivation with a focus on whole person learning, and strengthening teachers' professional development for innovative pedagogies would be beneficial.

1 Aim and scope of the report

The aim of this report is to learn lessons on how the unexpected, obligatory shift from face-to-face to remote schooling has affected primary and secondary education, as well as to evaluate the existing solutions in place for remote teaching and learning from the perspective of different school-related stakeholders. The report collects information in Poland obtained by interviewing 26 stakeholders[50] on the following topics: inequality; teaching, learning contents and tools; digital and social and emotional competences; certification and assessment; and mental health. More information can be found in the Annex on the methodology of the study.

In order to set the scene, a general overview of national research covering the impact of the COVID-19 lockdown measures on schooling, as well as the educational policies for remote schooling developed during the lockdown in the country are presented in section 2. Section 3 presents the main findings of the interviews to stakeholders. Section 4 analyses the findings and draws some lessons from the lockdown in Poland.

[50] 7 teachers, including one English native speaker, 3 school headmasters, including one of a non-public school, 9 parents from various socio-economic backgrounds, including 1 the parent of one child with special needs, 3 students from primary and secondary schools, 4 other interviewees, including 1 speech therapist, 1 EdTech representative, 1 NGO, and 1 local educational authority representative.

2 Current policy situation and national research on COVID-19 and remote schooling

2.1 Institutional context and policy situation at national level

The school system[51] lockdown in Poland[52] started on March 16th 2020, when headmasters were obliged to suspend all classes for two weeks. From March 25th (Wednesday) an ordinance of the Ministry of National Education introduced distance education in all schools. From May 23rd primary school pupils (1-3rd grade) could attend school, but no schooling was offered, just professional care. Special needs schools were also allowed again to be open.

The Ministry of National Education monitored schools' access to remote education based on information from 16 Regional Education Authorities (REAs, *kuratoria*), that monitor the system in each Polish voivodship. According to their data, all schools reported their engagement in remote education[53]. There was no governmental data available, however, on the number of students at risk of exclusion from education due to COVID-19. The Ministry of National Education did not collect this evidence, and explained after the intervention of the Polish Commissioner for Human Rights that the school headmasters together with their respective local authorities (*samorząd*) were the formal institutions responsible for monitoring pupils at risk. Discrete data regarding no contact with students was gathered by the Ministry for two cities 0.2% in case of pupils in primary schools' students in Warsaw and 0.1% in Poznań[54].

There was no statewide one-stop-shop website for tools and open educational resources (OER), as they were distributed across institutions: two ministries, governmental agencies and institutes, partners from the business and the NGO sector, and by teachers and other individuals from their collections and online libraries. The Ministry of National Education developed a special platform https://www.gov.pl/web/zdalnelekcje, with a catalogue of various topics, themes, lesson scenarios, worksheets for students to print out and fill, and interactive materials for all educational levels. They were sorted according to a weekly schedule from March till June. Developed for the last 7 years, the platform epodreczniki.pl provided supportive content. Also, the Ministry of Digital Affairs prepared a broad selection of online tools and lesson sources (https://www.gov.pl/web/cyfryzacja/nauczycielu-poprowadz-lekcje-online). For students of last years of school (8th grade and matura exams), the Central Examination Commission prepared sets of revision tasks. Vocational schools could make use of 169 courses available in the ORE vocational education VLE platform kno.ore.edu.pl. However these courses applied to the previous 2012 qualification framework which differs from the current one, developed in 2017.

The guidelines for schedules and curricula arrangements were provided by the Ministry of National Education, which advised school headmasters and teachers to follow programs according to the national curriculum without any cuts. If some points were not possible to arrange remotely (e.g. vocational training) the Ministry indicated that these would be postponed for the next years of schooling. The Ministry published on its website general guidelines and recommended various resources for remote schooling[55]. The advice however was not specific, asking headmasters and teachers to act rationally (non-schematic and various methods of teaching) rather than presenting practical solutions:

The Ministry also delivered the following message to headmasters: "develop, in cooperation with teachers, the weekly scope of teaching content to be carried out in individual classes, taking into account, inter alia, the specificity of classes, equal load of students on individual days of the week, differentiation of classes on each day, psychophysical abilities of students to undertake intense mental effort depending on their age and educational stage, conducting education alternately with and without screen monitors". The Ministry reminded also about taking care of the general wellbeing of families at home.

The whole educational system resumed face-to-face schooling in September 2020. Blended or remote lessons are provided if there are diagnosed coronavirus cases in a class or classes, school year (in case of

[51] There are 24,5 thousand schools, 5 mln students and around 510 thousand teachers in Poland (GUS, 2019).
[52] Two major developments can be highlighted in the last two years in the Polish education system: first, the 2019 reform of primary and secondary education (from 5+3+3 back to 8+4 years of schooling) which was heavily criticised by the school community, and second the ensuing 4-week-long strike of public schools' teachers that ended without success. Many teachers frustrated with the outcome resigned, usually leaving for retirement. Source: Eurydice website https://eacea.ec.europa.eu/national-policies/eurydice/content/poland_en
[53] Ministry of National Education (2020a), p. 168.
[54] Own calculation, based on Minister of National Education response to the Commissioner for Human Rights request..., 29.06.2020.
[55] MEN, Kształcenie na odległość. Poradnik dla szkół, 25.03.2020.

bigger schools) or the whole school communities (in case of smaller schools). Formally accepted transfer to blended lessons requires the consent of the local sanitary and epidemiological unit of the state agency *Sanepid*. Several hundred closures have already been reported. Sanitary equipment has been distributed. However, no specific advice or budgeting was offered to schools for traditional or partially remote learning.

The government has only developed to a limited extent a specific strategy for blended or remote learning with appropriate pedagogical strategies, supported by adjusted capacity, continuous training, efficient budgeting and monitoring system. At the same time, multilevel virtual discussions are being held with business partners, non-governmental organisations, pedagogical experts and school communities. Specific solutions are constantly being developed and multiple trainings are being offered. Self-supporting groups of school management and teachers continue their knowledge sharing.

2.2 National research on the impact of COVID-19 on the school

Initial quantitative surveys[56] show that around 37% of students were lacking sufficient or good quality equipment for digital learning, as they needed to share devices in their families (Librus, 2020a, Centrum Cyfrowe, 2020). In early April, children had access to: a computer (86%), a telephone (75%), a printer (52%). In the subsequent months access to equipment grew by a few percentage points and 1-2% did not have any of these devices (Librus, 2020b). 32% of families declared having had problems with internet access.

Krauze-Sikorska et al. (2020)[57] show that learning was mostly traditional during the lockdown. 31% of learners used digital technologies every day, while only 18% used them at schools. 85% were well acquainted with online entertainment and appreciated situations when homework assignments required searching the internet. A majority of respondents (90%) reported that remote schooling is technically not difficult and almost half thinks that traditional teaching should be combined with remote and online forms. According to existing quantitative research, only 15% of teachers in Poland declared previous experience with distance education (Centrum Cyfrowe, 2020). According to parents, the rate of offline synchronous lessons decreased from 46% in April to 19% in May (Librus, 2020b). Consequently, the group of parents declaring that teachers handed over materials/tasks for their children decreased from 72% to 56% between April and May. The burden on parents decreased over time, thanks to greater children's independence and greater use of synchronized education by teachers. The percentage of parents checking student assignments dropped from 51% in April to 19% in May. At the same time, in May, 28% of children turned to their parents with questions if an issue was not clear to them (48% in April).

The social problem of the lack of direct contact with peers was observed throughout the whole period. In April, 59% of parents identified this problem, in May this percentage increased to 62%. Children did not appear to miss contact with teachers so much (in May this was indicated by 48%, compared to 54% in April). As much as 76% of surveyed parents declared that the amount of learning was too burdensome for students (Librus, 2020b). For 47% of teachers extended time spent on distance learning was the key problem during the lockdown (Centrum Cyfrowe, 2020).

[56] Librus (2020a, 2020b), the biggest digital register provider in Poland, surveyed 20,989 parents in April, of which 49% had children from grades 4-6 of primary school, 35% were parents of children in grades 1-3 of primary school, 23% were parents of students in grades 7-8 of primary school, and 17 % - parents of secondary school students. In May, the survey covered 18,346 respondents, including 41% of parents in grades 4-6, 22% in grades 1-3 and 22% in grades 7-8. 15% were the parents of secondary school students. Centrum Cyfrowe (2020) surveyed 984 teachers with a representative study method.

[57] Representative study of 4958 users of Vulcan electronic registry, aged 9-20.

3 Results

3.1 General information

The first general impression for the stakeholders interviewed was that remote schooling would not last long and the pupils and teachers would soon go back to school, after just two weeks of lockdown: “After suspension, the school did not take any action in the first two weeks. I suppose the Ministry of National Education did not have knowledge as for how long the schools will be closed. If they knew, we would probably start contacting children at once and the lessons would not be suspended” (a primary teacher from a rural public school).

However, the first reactions to the decision varied from school to school, according to their status (public, non-public), size, region and digital capacity. Some schools decided to take almost no action, treating the period as “corona holidays”, meaning two weeks of inactivity with sporadic contact between a few teachers and children. Other schools quickly introduced a comprehensive strategy: full online synchronous teaching with no schedule cuts: “We anticipated that something was going to happen, and the schools would be closed. In our management team, we made the decision to introduce distance learning after the first weekend. The assumption was that from the very beginning, the lessons would take place in real time, all lessons according to the timetable. After initial corrections, it turned out that it is okay, the children are happy, they log into the lessons, everything somehow worked out at the beginning and everyone approached it with enthusiasm” (a headmaster from a primary non-public city school).

Lack of digital competence posed greater barriers in some schools than the availability of the equipment itself. “When we started remote education it seemed that everything was perfectly prepared. Especially since a few years ago we equipped all schools with the MS system, so all teachers should be trained, and everything should work out great. Meanwhile, it turned out that in practice only one school went to full remote education and the task "every man for himself" began and everyone started applying to this school. After a while, we dealt with it” (a headmaster from a primary public city school).

As the initial situation was chaotic and complex to be resolved quickly, there were also many tensions between stakeholders, especially among parents, school headmasters and teachers. Some parents said straight away: “you have got to use this, to use that, in fact it was a sort of ordering the teachers what systems they had to use. Then the teachers met at school and sorted out how it should be arranged (a primary teacher from a city public school). The issue of “unproper” way of teaching and two weeks of suspension of schools, posed a problem with tuition fees: “Some of the parents of the younger grades didn't want to pay for teaching, if, they thought, they weren’t going to be “real-life” lessons” (a parent from a city non-public secondary school).

In other cases the ability of schools to start remote learning quickly, good communication with the families and psychological support offered to younger children played a role in smoothening the situation in the beginning: “We felt taken care of. The psychological support for children in the first period was crucial, because they might have been scared by the whole situation (a parent from a city non-public school). Moreover, parents of younger children had to immediately upgrade their digital knowledge to be able to support the students at home. This was assessed as stressful, but also beneficial opportunity: “It was a million new things to learn, something we want to send, it does not happen, we do not know why, it was difficult. We were satisfied later because we learned new things, but that first moment wasn't cool” (a parent from a city non-public primary school).

As regards home-schooled families, they continued their prior plans without any change due to confinement. What they worried about were the other families, those of regular schools, and the overall situation: “We realized that these kids "outside" (from schools), not us, are going to have to deal with this situation. For us, nothing has really changed. There was even a problem because the children and their friends thought that they could just use this "vacation" to meet with us, but it was March, when we are already planning for final exams. But we were worried about these other kids - if they would be okay with learning” (a parent of 3, primary and secondary students in home-schooling).

However, even in the most ambitious case, remote teaching in the form of online lessons was a new and sudden process to be introduced under stress and pressure. Up to the 2020 lockdown, remote, fully online schooling was only available for higher education programs and professional courses for adults.

The national schooling system itself was not prepared for remote education, and does not seem to have been sufficiently developed during the lockdown period. Initial problems with equipment were solved through

additional funds and there were steps taken to provide teachers with supporting material online or educational television programmes. This form of support was regarded by stakeholders as basic and not addressing the needs of the whole remote schooling process. Moreover, the curriculum was not adjusted by the Ministry of Education, and the teachers were advised to fulfil all learning requirements with the possibility of rescheduling some elements for future semesters (e.g vocational schools). Some stakeholders struggled to do as much as possible, which generally led to more stress on both sides of the learning process and burnout cases. Other stakeholders decided to postpone the program for the next semester, assessing the current form of education as "emergency and temporary" schooling. Many of the interviewees wished and expected a return to traditional, face to face system after the summer holidays. They seemed too exhausted to even think or talk about possible future strategies for remote or blended learning.

Few stakeholders appear to have dealt relatively better with the situation or even benefited from remote schooling. These were non-public schools' stakeholders and teachers who already before the lockdown had established a relationships of trust and cooperation with their students. They were able to diminish stress and quickly apply solutions through close communication with the families and among their peers. The management of non-public schools provided systemic support, integrated platforms for online learning and training opportunities already in the first few days of the lockdown.

Regardless of the socio-economic background of schools, essential help and knowledge sharing were available for those teachers who were using numerous open sources and thematic groups in social media and school fora. Immediate response with practical guidelines was available as an open sourced e-book from the pedagogical community[58]. Proactive life-long learners studied various platforms usually on their own, less directed by system support or by their school heads. Another group that coped well with remote schooling were students with slight special learning needs, who found individual homework more beneficial than in the crowded and noisy school environments.

The least affected by the lockdown were children learning in a home-schooling setup. In their case, only the yearly final oral exams were led differently than before, via online platforms. It is worth noticing that among "regular school" families interviewed, there were those that transited to home-schooling starting from the autumn semester. These families were so disappointed with the lockdown educational experience of their children that they decided to enrol them children in home-schooling programmes (on the condition of being able to reconcile schooling and remote jobs).

3.2 Inequality

Remote education addressing special needs of children[59] was the most difficult for families from schools with supportive therapies requireding individual monitoring and practical approach (e.g. speech therapy). In the case of one family and a child with autism, their public school did not contact them for the first few weeks, then the online platform was offered (MS Teams) but with a chaotic setup (no use of electronic calendar for scheduling the lessons, no invitations from the platform level, etc.). The contact through the screen and chat box was rejected by the child - he was fed up with constant questions posed by the teacher. The family asked for clear expectations for the student and more detailed information to the parents. The school headmaster refused and did not find any solution for this family: "The headmaster and teachers seem to only see problems, instead of opportunities and solutions. I asked them if they could provide more support to the children, instead of educational tasks, for example ask if every child had equipment. They did not".

In this case communication was not established between the family and the school, despite efforts undertaken. The parents, working remotely from home, were left alone for the rest of the semester, the child was excluded from education and did not pass to the next grade. The parents pointed out a lack of further cooperation from the school, despite help offered: "I opened a Facebook group for parents to work out solutions for disabled students during the lockdown. The school neglected my request to forward the invitation to other parents. This is dangerous, the school lives in "success propaganda", they only report that everything is all right, it is solely me, who is the problem". When the schools were open again on May 23rd the school, although spacious enough to keep the security distance, announced that there was no chance for kids to come back again due to the health-related problems.

[58] Pyżalski (ed.)., 2020.

[59] Special pedagogy professor, Zenon Gajdzica, (2011), describes them as "children whose educational needs should be addressed in a special way" instead of "children with special educational needs".

Practical exercises for speech therapy, usually offered at school with close monitoring and instant correction from teacher-therapists, was very limited during the lockdown. It was based only on material previously trained in the school building. In addition, families with small children disagreed to use the synchronous methods offered by the school, as it required parents' direct assistance. "Speech therapy requires high quality. It is a bit like rehabilitation, so you just must see it and choose exercises on a regular basis assisting the child" (a speech therapist from a town public school). In case of a new lockdown the above problem of special needs involving a therapy in parallel with teaching would require additional attention. Allowing a safe form of direct contact between the child and the therapists might be necessary.

The issue of exclusion from schooling for students with special needs depended also on the grade, therefore the contact was re-established in a twofold way. Teachers communicated with older pupils through social media channels: "in case of special needs families, it was easier to get along on, for example, directly through the Messenger. In the case of younger grades (up to 5-6th) that issue was solved by the school specialists: The psycho-pedagogical specialist kept an eye on the situation when someone was "lagging behind, and there was quick intervention and talks with the families" (a primary teacher from a town public school). However, some children remained outside the system, failing promotion to the next grade (see section 3.5. on Certification and Assessment).

Some schools were able to buy and lend essential equipment (laptops, tablets, other computers) through national grants[60]. Some schools were already well equipped: "Our school was in such a good situation that there were a lot of laptops. They were bought before as a result of some EU programs that the school applied for and when we entered the pandemic, these laptops were already there" (a primary teacher from a town public school).

For other schools, national support was not enough: "they arrived too late and the teachers struggled with supporting their pupils with equipment to start remote teaching. Only later there was such a proposal to lend school equipment to children. It was a ministerial decision. However, I did not wait and took my own actions - I published the request on my Facebook wall, then an NGO and an informal group Visible Hand (Widzialna Ręka) helped me, so just before Easter every child had a tablet available" (a primary teacher from a rural public school).

Much depended also on the number of children at home and whether the equipment was needed by parents for their remote work: "Half of the children are refugees. In the centre where they live, the situation was dramatic - they have access to the internet, but no computers. When a family in the centre has many children (e.g. 8 children, 5 of which go to school, each one to different class), has 5-6 subjects a day - there is no way that the student would contact the teacher by phone and do the homework" (a primary teacher from a rural public school). The problem of equipment was solved by using methods easily available on smartphones, via written communication on Facebook messenger: "I got rid of "no equipment" problem, because each of the students had their smartphone and everyone could send the pictures with their solutions via phone" (a primary teacher from a town public school).

Some miscommunication regarding equipment occurred between inspectors in the Regional Education Authorities (REA, kuratoria) and school directors: "One of the first questions we asked the principals was whether they were prepared for remote learning? Almost 100% in the region said "yes, we are prepared". It seems it was some absurd "top class syndrome" of the school headmasters who absolutely wanted to show up. Only later they started to complain: "the children do not have computers. We have a poor connection" (REA representative).

Internet connection was a problem for many schools. The first days of massive usage of electronic registers caused their crash. "We had great problems with internet connections not only at the beginning but also later" (a headmaster from a secondary public city school). The need for development of high quality, quick and stable broadband connection, especially in smaller and distance places is crucial: ""In my house, one side of the house has good internet, however no phone connection, that is only in the other side of the house. We have a fast internet land lines infrastructure but only this summer they promised to set up internet services on it" (a parent from a rural public primary school).

[60] See Section 2.

3.3 Teaching, learning content and tools

For teachers and headmasters, the lack of specific advice on which internet platform, what content and additional tools to use posed the biggest challenge. Sometimes the quality of internet connection influenced the form of communication and teaching – where the quality was bad, more content for self-learning was sent rather than synchronous teaching for better connections. In the first phase, schools that used electronic registers were able to regulate the communication with families, but it was not the case of smaller schools in distant locations: "The problem was that we didn't have one common platform for understanding. There wasn't even an electronic register in our little school. What can I say, the local government considered such an expense as unnecessary. During the suspension the money was found, the contract was signed, and we were trained. But finally, the electronic register had no effect whatsoever on our contact with children" (a primary teacher from a rural public school).

Most often, the teachers used their private laptop or computer, as they trusted that the software installed would work and the teaching would be most effective. This issue might have been crucial for teachers working in multiple schools (around 10% of teacher population, NIK, 2018): "I work at two schools, so it was more comfortable to have all the programs on my laptop, all logins and passwords saved, because it just takes too long to be on different platforms. One school used Office 365 and the other school – Google Classroom and Moodle. Both schools operated also with electronic registers Librus, in which we had to create a weekly lesson plan in advance to put topics. This generated an additional burden. I had also to set up a separate mailbox for children and they sent me all homework to this address" (a primary teacher from a town public school).

The lessons provided by public Polish Television (TVP) were deemed to be of low quality, especially at the beginning of the lockdown. It improved later, however, teachers interviewed did not use them for their teaching lessons and recommended them as additional, non-compulsory material: "We encourage children to use TVP lessons. Initially, these lessons were poor, not factually correct. They improved over time and some of the younger children used it at their own discretion. The teacher did not tell them what to watch" (a primary teacher from a rural public school).

The most useful material, quite frequently mentioned by school heads and teachers, were platforms provided by schoolbooks' publishers: "Operon and WSIP publishing houses cooperate with teachers, so we used these materials, they were good. In the library, we also have access to distance learning materials that were provided by one of the publishers" (a secondary teacher from a town public technical school). The teachers just adopted publisher-created content to their lessons plans. Also, external platforms (e.g. ed.ted.com, Khan Academy) were used for teaching and assessment, but they were used by individual teachers, not at the school level.

Teachers generally communicated with students through platforms (Teams, Meet) or ran mini-groups on Facebook. Meanwhile, no local solution was used for remote schooling, despite IT competences and already existing platforms (e.g. https://www.edukator.pl/) being introduced. Communication on Facebook allowed users to refer to archived dialogues, which was apparently not possible via platforms where after the class the chat box disappeared. Also, they searched supporting teaching materials in numerous Facebook groups, fanpages and discussion fora, where the content offered grew quickly, usually being offered as an open source. The teachers mentioned Facebook Messenger frequently as the most quick and efficient form of communication with students.

In the case of home-schooled children, they were very well acquainted with various internet educational platforms. Based on their experience, however, they tried not to exaggerate with too many sources and focus first on the traditional textbooks: "We have our own platforms that we use, however, I believe that in order to organize ourselves well, what helps us is order, and we get this by starting from textbooks" (a parent of 3, primary and secondary students in home-schooling).

In practice, teachers decided what program and in what way to arrange for their pupils. Teachers often tried to arrange less teaching, less time with screen contact (e.g. shorter lessons or less lessons per week) or rescheduled slots for individual feedback or non-compulsory lessons in place of teaching lessons: "As a teacher, I wouldn't have the heart telling my children to sit six hours in front of a computer." (a primary teacher from a rural public school). "For example, if there is a language lesson five times a week, we spent one of them for individual consultations. Back then, mostly those students who had some problems showed up" (a primary teacher from a town public school).

The teachers and headmasters interviewed declared that the framework for redesigning the courses depended on their sole opinion and – quite scarce – experience. There was no national level support or any specific guidelines available as regards learning redesign. The teachers adjusted the lessons' content up to their best knowledge and experimented with various forms of communication to observe and later assess students. Usually, they had to limit the material taught and had to focus on sustaining the contact.

Teaching content was limited to the minimum in the first two weeks of official "suspension of lessons". The teachers had to write down "suspension of the teaching according to the Ministry of National Education regulation" in their teaching registers. As a result, teachers interviewed struggled to stay in contact and at least repeat the material: "In the following months (April-June) the teachers tried to fulfil the most teaching requirements, however those who realized that sometimes it is too overwhelming decided to cut the program tasks to essential points that could still be taught remotely. The others continued with the plan, only balancing between synchronous and asynchronous lessons: "There was not much change in schedule. I had 2 contact and 1 non-contact lesson per week arranged. I was sending the work, they had 30 minutes to send me the answers. The director said that 3 contact lessons was too much for the children" (a primary teacher from a city public school).

Decisions regarding teaching content depended also on the subject taught. For example, maths teachers decided to provide easier material that had already been explained before the lockdown: "Only at the beginning, there was information not to implement the core curriculum. I found that I just practice what was acquired, short tasks, only with further content, this is nothing new" (a primary teacher from a town public school).

According to one of the interviewed teachers, they did not have the competence to adequately plan the time students would need to do the homework. Often, they asked for too much homework in too little time. A teacher even advised his peers with a poem published on his Facebook wall: "My dear friend: please (no offense), what you ask students for, do it on your own five times first" (a primary teacher from a rural public school).

After the remote schooling experience some teachers reflected on their lack of competence and the overloaded core curriculum: "When I cannot be in front of the child to give the feedback with my red pen, to explain the ideas further, some outcomes are unteachable, even in 3D or videoconference. My duty was to teach essentials, the most important things. For example: grammar, theoretical structures that are always difficult for children: I gave up teaching it remotely" (a primary teacher from a rural public school).

Synchronous and asynchronous ways of teaching depended on student competencies and their age. For younger children (grades (1-3rd), parents had to assist them during and after the lessons also in doing the homework. This revealed to be difficult and burdensome for them. After the failure of experimentation with synchronous lessons, the asynchronous weekly list of tasks was agreed. The older grades had the synchronous lessons. No one experienced advanced interactive methods (e.g. breakout rooms, only some off-line messenger team cooperation) and sometimes it worked better if the lessons were non-interactive, in the form of a lecture. The interactive way was efficient in case of consultation lessons, for those students who were preparing for final exams (e.g. 8th graders or matura exams). For one non-public school, the transition a full online schedule was too overwhelming, therefore the whole community invented the so called "light weeks", with less synchronous lessons.

For example, language teachers focused on visible results (e.g. proper writing of letters in the primary years of schooling) and required written material that was photographed by students and later sent back to the teacher: "The child took a picture of the notebook. I want to see it written because they have no right to forget how to put the letters" (a primary teacher from a rural public school).

For many teachers, the best and easiest channels for communication worked also as best tools for teaching. The teachers paid attention to reaching their class members either by phone or also through private contacts on Facebook. Frequently, in the interviews, the communication channels (messenger, groups) were declared as the best option for remote contact and education. Safety problems noticed in case of professional platforms discouraged teachers from switching to them. "Initially, I gave tasks to my classes though Facebook profile. We had students' phone numbers; we were friends on Facebook. Later we started to organize ourselves, somehow grouping, and we ended to have Facebook Messenger (as the main channel for contact). An attempt was made to communicate via ZOOM. The attempt failed, especially since there were warnings that this application allows people spying" (a primary teacher from a rural public school).

Privacy of digital platforms was not regarded as a problem or even an issue discussed while remote schooling. One headmaster pointed out that there were delays resulting from sorting out GDPR regulations

specifically for online learning. Other interviewees based their activities on previously signed agreements between school and parents. There were no cyberbullying issues. Some issues occurred with the news about Zoom privacy problems and the stakeholders were advised to use other platforms. "It wasn't a problem at all. One teacher didn't show her face, but I think it was more about whether she was, you know, in pyjamas, or she just didn't have the conditions at home because it was not because of her limitations. And so, everyone connected without a problem, no one asked about privacy consent" (a parent of 3, primary and secondary students in home-schooling).

Schools received support from big tech platforms: Microsoft Office 365, Microsoft Teams, G-Suite, Zoom or ClickMeeting. During the lockdown, the internet providers allowed free internet packages and many people shared their used equipment[61]. Support for vocational schools was provided from EdTech companies, that offered their digital platforms for free training. It was sanctioned later by the Ministry of Education as a legal way to pass required job assignment placements: "We provided our platform for online job place simulations totally for free till the end of August 2020. Until summer holidays we provided more than 100 thousand hours of online training to 15,000 pupils and students, engaging 1,000 lecturers and teachers" (EdTech company representative).

Community support in learning exchanges of competences and knowledge emerged thanks to social media networks: schools arranged lessons exchanges within the country[62]. For example, one teacher exchanged lessons with other schools through Zaproś mnie na lekcję (Invite me to your lesson) events, started by Irmina Żarska and Magda Krajewska on Facebook. In June, it got attention of around 3,3 thousand users. Digital solutions supported also international learning experiences. A 17-year-old student Zofia Kierner from Boston together with her community "Girls Future Ready" implemented a project #TogetherForTeachers. It enabled English lessons exchanges online between Polish students and North American peers: "This was our direct response at the Covid-19 pandemic and an effort to make learning English more practical, easier and more fun by using resources in the US and Canada. We had over 5 thousand people that were involved. The feedback was overwhelmingly positive, and students really benefited from having a mentor in the class and the mentors really loved learning about other cultures from our own house, but technically being halfway across the world – said Kierner".

3.4 Competences

Several opportunities were made available to develop teachers' digital competence. The Ministry of National Education provided a set of video webinars on how to use various digital tools and resources for remote teaching[63]. The schools offered basic skills trainings in video conferencing platforms (Google Classroom, MS Teams or Zoom) either in person in a school building just after the announcement of school closures (weekend of 14-15 March), or remotely. Nevertheless, teachers relied mostly on their own digital competences, and in the interviewees' opinion, more advanced upskilling in digital teaching methods depended on their individual effort. They further developed their knowledge about digital tools with the help of their digitally advanced and proactive peers and distant specialised communities, usually through specialised Facebook fanpages and Facebook groups.

In case of problems, teachers also looked up to their peers or family help rather than IT professionals at school: "When I had a problem, I wrote through personal Messenger to my peer language teacher for help. My children helped me the most" (a primary teacher from a city public school). The challenge was also present for parents of younger children and one interviewed family had to learn how to deal with it on their own: "We were completely not ready for it. As my wife and I work in the office and we use the computer just to handle domestic, everyday matters. So, for all these platforms, I don't have the skill … combining ten files into one, sending back materials that had to be sent back, it was a real challenge for us" (a parent of 2, primary non-public school).

It seemed there was no "transition time" to the online phase, as children were not really informed how to behave and engage in online lessons. The schools were ambitiously implementing teaching material and the new system required more training for less digitally aware students. Unused potential in computer classes

[61] Community based projects www.dajzekompa.pl and #poDARujkomputer collect and upgrade secondhand computers to be later transferred to children and teachers in need.
[62] Zaproś mnie na lekcję (Invite me to your lesson), Irmina Żarska, Magda Krajewska, 3,3 thousand users (18.06.2020).
[63] MEN, Kształcenie na odległość. Poradnik dla szkół, 25.03.2020. Also, in 2019 the government started a national digital trainings program (LekcjaEnter.pl). It is worth 49 mln PLN, co-financed from the European funds, and aimed to reach at least 75 thousand teachers and headmasters (15% in each region).

were mentioned by one parent: “Some children seem to have to learn how to function in this system from the very beginning and my older daughter, who was relatively active at school, did not speak up during online lessons even once. In turn, she said that the boy, who is not very active during lessons at school, did not close his mouth online. There was no such adaptation period that we implemented the tool and now we will test what works well and what not. The school went straight to teaching, and it didn't make such a transition, even though children had IT lessons in senior grades online from the start. Instead of teaching them to use these tools, to behave properly, they were learning some graphics program” (a parent of 2, primary public school).

That low level of basic digital competences was observed by the teachers: “one eighth grade pupil asked me a question, how to send the assignments when he has not got any email address. I was completely confused, I didn’t know what that person was talking about, they have computer science lessons that should solve the problem first. I also received the homework written in Word and corrected the errors by adding comments. The students were completely unable to cope with solving this” (a primary teacher from a town public school).

Despite digital deficits, remote schooling was an encouraging opportunity for children to learn new skills: “Thanks to the lockdown, we taught children to use commas, to start emails with a greeting and end with a nice goodbye. Initially, they started from “Hello, this is my homework, bye”. They got life-competences that will benefit them and their recipients in future life. They learnt it very well, it looked lovely” (a primary teacher from a rural public school). Also, the students themselves assessed their digital competence rapid growth: “Before the pandemic occurred, I used only the school electronic register to check messages from the teachers there, and now I use plenty of apps” (Google Meet, ClassRoom, Zoom, a student from a secondary non-public school).

As regards collaborative learning, teachers were willing to provide cooperation in teams but this was unsuccessful during the summer semester (no time or space to prepare such forms of education). However, this method of teaching was known only to those teachers who had practical experience with assigning tasks to project teams already before the lockdown. Some forms of collaborative learning were invented on the spot by the teachers active within Facebook tools, outside school digital systems: “I sent to students a photo with information how they were divided into groups on Messenger. There were designated leaders who started the group and added colleagues. Later they talked at a video conference, shared tasks there, sent each other photos of partial solutions, then put them together and sent them back to me” (a primary teacher from a town public school).

Moreover, “the increased benefits of self-learning in safe home environment was noticed by parents and teachers” (a parent of 4, primary public schools). An experienced home-school family pointed out to self-regulation competences as individual aspect of learning process of some children:” - My daughter was always learning on her own. At school when she was forced to learn how to do this, she followed the guidelines, but there was “no child”. The moment she got freedom, she really decides for herself. I've only taught her how to plan well”.

Regarding student motivation and sense of belonging to the school system, the general feeling was that remote education separates children from teachers, and they are not able to motivate themselves to continue schooling. They seemed not motivated enough to participate in online learning, doing homework or engaging in the school life.: “On Messenger, the student wrote back: he sent smiles to the teachers, "waved his paw" (Messenger function), but did not do the lesson. This means he knows the teacher is present” (a primary teacher from a rural public school). The motivation levels differed according to age – younger grades (1-6) were more motivated, compared to 7-8th graders. The crucial role of parents was mentioned in the former case. A teacher of public primary school said: “I also had the fifth grade, which was easier for me to work with than in the eighth grade, because there was more commitment, but it probably also resulted from the fact that the parents could interfere or support more their children”.

Parental assistance in reading, explaining, posing additional questions or keeping the time according to a learning plan might have also worked better in case of children who need special treatment: “I have a 6th grade student with special needs. When the student didn't answer, I called his father and asked for support. And then this student wrote to us more answers than during the previous 2.5 years... The class teacher of this student later told me that this student also did assignments in other subjects”.

3.5 Certification and assessment

The time schedule for final exams (8th grade exams[64] in primary schools and 4th grade "matura" exam in secondary schools) was postponed by the Government from May to June. There content required to pass also changed: for matura the usual oral exams were cancelled.

During the lockdown, students were assessed according to their attendance and homework assignments : "I gave them weekly assignments[65], they sent them back, and it was subject to evaluation" (a primary teacher from a city public school). There were schools that, apart from learning achievements, included also quality of students' behaviour during online lessons as an additional parameter for summative grades. The other schools relied on last mid-year assessments as a proxy for final grade in the summer or were able to include some partial grades received by students before the lockdown (January, February). Nevertheless, rules for assessment during the lockdown were not set up in all schools, as reported by parents who did not know on the basis of what tasks their children would be assessed. The rules regarding the final assessment were not clear: "I have heard that those children, with whom the school lost contact, did not pass to the next grade" (a parent of 1, primary public school).

There were doubts on whether the students did the tasks on their own, without adults' help. Usually, lacking any form of control, the interviewed teachers trusted their students. Some admitted easing their approach to testing: "I only gave two grades: "very good" and "very good- (minus)", and appreciated, instead of punishment, if students used their digital competences to search for the right answer" (a primary teacher from a rural public school). Other teachers kept the requirements unchanged.

Various internet platforms (e.g. testportal.pl, dyktanda.pl) assisted remote assessment. Online forms of testing were treated as insufficient in case of written exams: "If the teacher is not in the classroom, they cannot approach the child and correct his or her work with a colour pen, explain and ask additional questions, some things are very difficult to do remotely, even if it would be a videoconference" (a primary teacher from a rural public school).

The schools which kept closer contact with parents also before the closure - usually non-public and smaller ones – arranged online meetings with parents, during which they discussed individual progress of a child and provided descriptive feedback instead of grading. At the end of the semester there was an "exam" to which the children received material about a week in advance: "Some tests were on specific exam platforms, with 45 minutes time limit to complete these tests. The remaining testing had to be printed, scanned and sent back" (a parent of 2, primary non-public school).

In the case of one vocational secondary hospitality school interviewed the practical gastronomic classes were arranged by students at home. They received the recipe, had to wear appropriate costumes, cook and take photos and videos of the entire cooking process. A teacher said: "It worked well, however due to long time the cooking implied, the student's family was not able to use the kitchen. The other vocational schools, which program required specialised workshop equipment were advised by the Ministry of Education to assess theoretical knowledge".

Testing and evaluation at home-schooling differed significantly from formal schooling, as the students were passing only oral exams through synchronized video conferencing. A parent viewed this form of contact as beneficial and less stressful for his children: "The children turned on the cameras, but they didn't have to see the school or teachers in person. At ease, without stress, they praised the fact that this digital system serves them much more".

Peer- or self-assessment methods were not described by any of the respondents. Such methods have not been well established yet, also because of issues among children regarding grade comparisons: "I have tried a few years ago with peer assessment, however I think children were not ready for this. They assessed according to their likes or dislikes: "I do not like you; I'll kick you". It worked only with short tests in the classroom with checking according to the results written on the blackboard" (a primary teacher from a city public school). Also, the issue of assessing with grades (1 to 6) and lack of descriptive feedback methods influences children behaviour: "I struggle with their inclinations to boast about their grades. I always explain them that grade "good" for one pupil could be unsatisfactory, while grade "satisfactory" might make me feel

[64] At the end of grade 8 of primary school pupils take a compulsory external examination. The results of the exam together with end of school achievement influence admission to secondary schools.

[65] Only summative assessment is regulated by the Ministry of Education and formative assessment methods are agreed and published in the autonomous way in schools' statutes.

delighted - as I assess their progress rather, the effort they put into learning and a fact they did not give up – added that teacher.

3.6 Mental Health

Mental pressure was at highest levels at the beginning of the lockdown, when no specific time limit of schools' suspension was known, and decisions were based on the evolution of the pandemic. There were teachers who felt uncertain, uninformed and isolated during this period: "There was not much on the Internet at that time. Only after a month did the learning begin. Various tools, ideas for interesting lessons, but at first you were left on your own" (a primary teacher from a town public school). Within time, in further months, the stress was caused more by overworking due to intensive preparing and checking, and all stakeholders felt tired: "It was 200% of time spent compared to face-to-face teaching, "time madness"" (a primary teacher from a city public school).

At system level no specific diagnosis of individual needs was made, especially in the initial phase of the lockdown[66]. Psychological help was provided on specific requests of a student or parent, during group meetings or in situations where the student was not attending the online classes for a longer time or not responding with the homework done. In the latter case, help arrived sometimes too late or - in case of one parent respondent whose child needed special treatment - never.

Mental health and psychosocial support were addressed according to existing measures – school psychologists and pedagogues are employed by around 50% of Polish schools (their availability is not mandatory). Smaller and less wealthy regions do not have enough capacity for such support. Sometimes it was up to individual support, where the teachers shared psychological knowledge from open internet sources: "In case of my school and my colleague teachers, we were totally left on our own. There was no sign of psychological help. We were looking for specific information from Facebook and other Internet sources, how to deal with stress. I forwarded it later to other teachers and to my students" (a secondary teacher from a town public technical school).

Other teachers tried to set up wellbeing guidance for students sitting in front of the screen, as they themselves developed physical problems with their eyes: "We wrote and distributed specific code of conduct on how to safely use technology in learning" (a primary teacher from a rural public school).

Remote education left students without direct contact with psychology professionals, and the schools that had such competences on board solved the problem either through correspondence to students and parents (via electronic register or e-mails) offering the contact in case of needs, or through the meetings online. Special focus on mental health issues was put by non-professionals: class teachers during weekly meetings.

The lack of social relations was mentioned as the most problematic for students: "Most of my students I spoke to were fine, they did very well. They were fed up, they wanted to see their friends, but they did well. The ones who didn't, they were doing badly anyway, even before" (a primary teacher from a city public school). Nevertheless, the emotional problem of children missing social contact with their peers did not exist from the perspective of families where there were more children, of similar age: "Our kids were so happy they didn't have to go to school. That they do not get up early, but they are also quite symbiotic, one could say, tied, so for them it was not an obstacle that they would not see their friends".

The teachers and headmasters felt overloaded with requests and a directive approach from the controlling authorities. This reflects a highly hierarchical structure of the system, with lack of trust, collaboration and co-creation of valuable solutions. As a result, there was too much reporting and bureaucracy requested from schools: "Nobody asked us what we needed, we were non-stop controlled by thousands of questionnaires" (a headmaster from a primary public city school). Control measures set on school management were further distributed to teachers, who felt extremely frustrated: "Each teacher had to send a report of the entire work weekly schedule and lesson abstracts, the actual description of how the lesson went and homework description to the headmaster. I conducted all these lessons, and at the same time I felt terribly controlled that I still must write it in ten different ways, that I indeed had worked" (a primary teacher from a town public school).

[66] A quantitative analysis of students/ parents/ teachers (N=1284/ N=979/ N=671) experiences during the lockdown was done by a research group https://zdalnenauczanie.org/. Initial results show that general wellbeing decreased for each stakeholder group due to, among other things, digital tiredness and working overtime. Almost one third of students felt overwhelmed with sadness, solitude or depression. Source: Ptaszek et al. (2020).

Almost all teachers reported much more work, especially in front of the screens. The stress with meeting all the deadlines was also mentioned: "I wanted to prepare the material on time, and it was not possible, as there was a lot of it, especially with the 8th graders, as they required direct contact and individual approach. There was not enough time for it" (a primary teacher from a town public school). Experiencing pandemic circumstances, teachers were uncertain about assessment methods and learning outcomes: "We were not sure if this way of teaching is effective as regards the educational outcomes or if the assessment was objective" (a primary teacher from a town public school). One secondary school teacher was feeling relatively better in a remote setup, as he was supported by three assistants, executing their compulsory apprenticeship in that school.

The children schooled at home seemed best prepared for remote schooling or self-education, and the main stress factor in their case was related to the pandemic itself and possible consequences of breaking the lockdown measures[67]. "My oldest 14 y.o. son was afraid the most, as he feared of getting ill and being arrested due to breaching the lockdown law measures" (a parent of 3, primary and secondary students in home-schooling).

For parents, especially of younger graders, the biggest stress factors were insufficient competences on how to support children in their learning process, problems with equipment and dealing with remote work and remote schooling of their children simultaneously: "My son is 8 years and 3 months old, which means he is 'independent', I do not receive any care (allowance) as they are limited up to 8-year-olds. When I work, I feel guilty for not doing lessons with him, when I do lessons – I do not earn money. I have no talent for teaching or any pedagogical competences, it is a failure of the educational system "(a parent of 1, primary public schools).

For some children, and teachers as well, activating the camera was stressful: " I know my friends had trouble showing up because of it, but I didn't. I am a bit of a media person, I had experience in the theatre, so... but it required some diligence on my part, for example constant looking at the camera. However, it was quite exhausting, after having three online lessons a day" (a primary teacher from a town public school).

Stress resulting from learning workload was experienced by students too. Parents who realised their children were overwhelmed with teaching material decided independently to relax the contact with school. The strategy included minimum standards approach to final grades, and maximum time spent outside, learning practical concepts and skills, relieving stress: "We took care of the grades, but when we felt the kids were exhausted, we let them not attend some lessons or do certain things that were given by teachers" (a parent of 4, primary public school). Moreover, those who benefited from remote schooling were children whose needs required special treatment. Being at home in a convenient, quieter environment, setting up with parents their weekly education plan and learning according to that plan helped them progress their learning more effectively: "My daughter felt more self-confident after this experience. She found out that 'computer stuff' is also for girls. She also, staying on her own, in a quiet room, realised she can do the tasks quickly and efficiently" (a parent of 2, primary public school).

The positive side of remote schooling was related to self-organisation of the families. If the parents created the opportunities, also the students found learning new skills as valuable experience: "In the first 2 weeks of the total lockdown, I was playing a lot of ping-pong with my parents and my brother using our dining room table. We used paddles and the net set that was bought long time ago and we forgot about it. When the government made it possible to go outside, I immediately took advantage of it and started to cycle my bike daily and I started appreciating going out to cycle and do it more often than ever before. I learned also to use Stud.io. This is a program to build things from LEGO bricks but digitally and I did some MOCs (My Own Creation, this is how you call your own constructions from LEGO), like Star Wars scenery" (a student from a secondary non-public school).

The teachers also noticed that such change in student's engagement might be limited in the long term, when motivation decreases: "such students, who, under "normal" conditions, were somewhere withdrawn, intimidated, became more courageous and active in remote education. However, the fact that they were only put in front of the computer, after the first two or three weeks, they became discouraged" (a primary teacher from a rural public school).

For some families, the practical experience with the educational system organisation was one of disappointment, leading to a disenrollment of their children from traditional schooling. Two of the families

[67] From April 1st the children below 18 y.o. were not allowed to leave home on their own/without parents' assistance. The restriction was limited to children below 13 y.o. three weeks later (April 20th) and lasted until 17th of May 2020.

interviewed transferred their children to home schooling, starting formally from the winter semester 2020. As they described, they “unschooled” their thinking, and realised they can continue education within their local communities, with support of the local school in exams and in cooperation with the digital community around home-schooling (e.g. szkolawchmurze.org).

4 Discussion and policy actions

4.1 Assessment of the situation by main stakeholders

The COVID-19 lockdown was burdensome for every stakeholder interviewed. The majority of teachers mentioned substantial frustration with the amount of work and inefficiency in reaching learning goals in this form of education, confirmed also in quantitative studies (Plebańska et al., 2020). As the teachers were interviewed during their summer holidays season, they already switched on a "reset-mode" trying not to trouble more about school matters or losing motivation to discuss with their peers: "Basically, there is no discussion now. The information comes from the top management about what to do, because the discussion among schoolteachers is difficult, as the group is very diverse – some are willing to work, the others – unfortunately not. And the headmaster awaits the official regulation from the Government" (a primary teacher from a town public school). Many interviewees wished to return to a regular, face-to-face schooling starting from the next semester on September 1st with keeping appropriate safety measures. Teachers proposed e.g. extension of the number of shifts: "For me it should be even three shifts in schools to limit contact with students if the school is small, we should even take lessons from 8 a.m. to 8 p.m., and reduce the number of hours, because there are too many now" (a primary teacher from a town public school).

The COVID-19 crisis uncovered insufficient support on many levels and a directive form of organisation of the educational system in Poland. The interviewed stakeholders did not feel understood as regards their needs and possible solutions. Not only the headmasters, teachers and families suffered from lack of precise communication and support. In case of one regulatory institution opinion, the headmasters presented a "straight-A student syndrome", pretending they control everything on their own. As a result, there was exaggeration of troubles and misinformation in the system, which worsened already severe situation due to health crisis.

School headmasters were put in the most difficult position, as the practical arrangement of remote schooling depended only on their decisions and they did not have any experience or good examples how to plan it properly. Additional stress was put on them because of numerous controlling requests they received frequently from the regulatory authorities. Moreover, solving the problems depended on in-school intrapreneurship and communication with parents, as it was the case of non-public schools from wealthier socio-economic backgrounds.

4.2 Lessons learned

Constant availability and quality of equipment, software and internet connection for users are essential in remote and blended learning. The teachers and headmasters would eagerly work from home if enough capacity was provided by the schools. The computers or tablets might be lent from a school or bought through national funding programs. It should offer high level of internet safety and stable, quick connection. During the lockdown, mostly private equipment and internet services were used, that posed additional costs on teachers, headmasters and families.

Specific planning is required to address inequalities linked to children with special needs. Exclusion from schooling due COVID-19 in case of children with autism resulted not only in a lack of learning but ensued social disintegration. Also, children requiring practical therapies, like speech therapy, were not supported in a proper way. Similar issues were present related to early-stage education, which needs specialised pedagogy and extensive care time. Most home-working parents failed to help their young children, even in single-child families. In case of a new suspension, these students and their families should be supported in a personalised way, rich in detailed communication and possibly most direct, face-to-face education. As mentioned by a parent of an 8-year-old student, teaming of similar aged children in small groups (a.k.a. "learning pods") among neighbours, with a help of parents guarding in shifts could be a right solution.

Personalised education needs adjustment in weekly schedules. As the personal contact is limited in a big class setup even in synchronous digital learning, the teachers proposed rearrangement in weekly plans for more individual consultation instead of group meetings. "If we connect synchronously online twice a week, the whole class meets with the teacher once, and the other meeting is devoted to individual work with individual student" (a primary teacher from a rural public school).

A universal support platform for online teaching is a must, at least for each school. Diverse digital solutions for online teaching posed inefficiencies especially for students and parents, usually from big

providers (MS, Google). No specific local platform was available, at least for a better privacy of personal data protection. During the lockdown, the families assessed the need for switching from one tool to another, sometimes also installed on different computers or smartphones, as being cumbersome and time-consuming. From a few teachers' perspective, especially, according to the subject taught (e.g. mathematics, writing learning), the need for quick channels for non-video exchange of picture information (e.g. photos of student answers and corrections sent back by the teacher), are needed. Students mentioned mobile communication as best adjusted to their needs.

The digital competence of students could be better addressed in earlier years of education and encourage more female students. The COVID-19 crisis in education imposed immense advancement of students' competences. Without parents' help, however, the actual participation of younger grades of primary schools or children with special needs would be impossible. As showed in the interviews, the families were very diverse in their digital maturity, ranging from proficient advisors who also offered their digital help for local schools, to those, who were learning by doing actual operations, for example to help their children send homework in zipped files. In case of a new suspension, the families asked for a longer learning adjustment period, with no lessons and more training in digital competences and platforms for education. This approach might be deliberately included in first years of primary education or early childhood education curricula. Another opportunity resulting from the interviewed students, was young girls' self-confidence in using support platforms or tools, not only for entertainment. Usual perception of such competences was attributed solely to the boys.

Remote education requires lifelong learning of teachers and learners. As the level of digital competences varied across teachers and students, those most efficient were stakeholders willing to instantly develop their competences in a broad, not only digital, meaning. Using parent's words: "we reached the times when a poor teacher is easily replaced by a YouTube presenter". Transmission methods even asking to use digital sources is not enough to engage the students and make them responsible for self-learning. Cases of reaching out for support and training to parents and other stakeholders (companies, NGOs) were frequent during the lockdown. Non-public schools seemed to be advantaged in these procedures and quickly met offline and then frequently online to share knowledge and best practices. For the majority of schools, the solution for future remote learning requires closer and planned teachers' intergenerational collaboration in developing digital and instructional competences.

Socio-emotional problems of students require broader understanding. Although students usually missed seeing their school friends during the suspension, the interviewees presented broader ideas on isolation issues. Parent of 5 children, who decided to transfer them to home-schooling, underlined that even before the lockdown the pupils were not socialising enough in school buildings due to "an enormous number of tasks". Students were approaching their friends only during short breaks at school, then quickly rushed home in order to do homework and still have some time for playing computer games. If the schools did not ask for so much homework, they would play a bit, then get bored with it and then would socialise with friends. Now they are hardworking and playing only and this is too dangerous.

More attention should be put on mental health of the school community by assigning psychology specialists to every school and setting minimum standards of digital hygiene. Only half of Polish schools have professional capacity in psycho-sociological support, despite growing problems with adolescent self-assessment (e.g. the highest prevalence of negative body image according to HBSC 2020 results) or increasing suicidal attempts (10% yoy). In case of a feeling of isolation caused by the lockdown, the interviewed students chose to solve their problems within their families, practicing sports or playing board games. However, those relying only on digital resources, dealt less effectively with remote teaching and felt rather bored or frustrated during online lessons. In case of severe problems there should be more constant and individually oriented support available. Setting up standards regarding maximum time online/in front of an electronic screen and more attention to sport exercises should support most students. This could apply also to teachers and headmasters being exhausted because of intensified digital contact and additional workload in remote schooling. All in all, community supporting meetings outside of professional topics should be practised across all schools.

4.3 What helped to adapt to the situation

After the immediate effects of the lockdown, a situation of disorder arose among schools, leaving stakeholders unsure on how to proceed. Nevertheless, schools were able to start remote learning relatively quickly, keeping a good communication with families and offering psychological support to younger children. Having established good relationships with families and their children and henceforth forming a good

communication with them also helped during the lockdown situation. This was the case of non-public schools who also provided system support, integrated platforms for online learning and training opportunities already in the first few days of the lockdown.

From the governments' side the financial help provided to schools helped to bridge the gap in hardware availability for students, even though having been regarded by the other stakeholders as insufficient. Where the problem of lack of equipment arose among children (especially in families with many members who needed to share one computer), methods easily available on smartphones, as mobile apps for communication such as Facebook messenger came in handy.

Very useful for teachers were platforms provided by schoolbooks' publishers as these were readily available and teachers only needed to adopt the publisher-created content to their lessons plans. For some subjects it also revealed to be useful to stick to material already acquired by the students (such as in mathematics class) and not introduce new topics. TV broadcast lessons revealed to be more useful as additional/complementary material, rather than a substitute for the subjects not covered in class due to the lockdown.

The training provided to teachers by schools on how to use digital tools was useful to some extent although regarded as quite basic by many. If more in-depth knowledge was desired, teachers needed to learn them by their own means. Indeed, teachers developed their knowledge of digital tools with help of their peers and distant specialised communities usually through specialised Facebook pages and groups. Students were also able to learn new skills during the lockdown period that were outside of their curricular tasks of school and for those needing special needs being at home in a convenient, quieter environment, setting up with parents their weekly education plan and learning according to that plan helped them progress their learning more effectively.

As far as assessment is concerned, various internet platforms (e.g. testportal.pl, dyktanda.pl) assisted remote assessment, even though many times teacher had to trust their students in that the answers they provided them were done on their own, without their parents' help for instance.

To sum up, the way in which the lockdown impacted schooling in Poland can be examined from the perspective of a SWOT analysis, including strengths vs weaknesses and external opportunities vs external threats:

Strengths	**Weaknesses**
• more time with the family • new online learning models (community developed), • new equipment for poorer or large 3+ families (increased budgets, social support through internet and NGOs) • quiet learning environments for children with special needs or slight autism	• overload of IT systems for the first month/no integrated platform for teaching online and allowing students to concentrate on only one-two channels for communication with teachers, • lack of equipment and weak internet connection, • lack of planning for personalised and adjusted psychological support of the whole community, • continued pressure on educational results (core curriculum) instead of continuity of contact and enhanced support, • less social integration - diminishing feeling of school belonging • lack of continuous care for kids with special needs and learning problems, • low cooperation on content with parents and their engagement in knowledge sharing (positive case of private kindergarten parents cooking lessons), • exclusion of unusual stakeholders (kids from immigration houses, non-Polish speaking native teachers) • no strategic system support, feeling on "counting on ourselves" • lack of communication or low pace of introducing a professional approach to distance learning (dedicated programs and materials,

	lack of competence in learning design or educational technology)
Opportunities	**Threats**
• intergenerational cooperation among teachers and headmasters, • cooperation with external partners that provide professional help - local ICT companies, local authorities engagement (districts) over REAs (regional education authorities) controlling units • better integration thanks to social media communities (numerous Facebook support groups, pages that provide accurate information, support, and online training etc.) • introducing more detailed guidelines for digital engagement - maximum time spent per day/week for students and teachers (digital learning hygiene), • through e.g. putting synchronous into asynchronous: registering the video lessons instead of running them in real time, including traditional methods into remote schooling (based on e.g. home-schooling experiences: textbooks, radio, podcasts etc.) • digital competence trainings for students and teachers before the remote lessons	• greater frustration and stress if there is no professional planning for online education, educational technologists and guidance, good practice sharing • overload with documentation: extended reporting about numbers instead of essential support and care • growing gap in the number of teachers, due to earlier retirements and health risk related leaves • lack of competence in teaching techniques, student involvement in school/class, positive learning atmosphere

4.4 Considerations for the future

On the national level, there is a need to develop a blended learning strategy in case of a new suspension. This requires multilevel cooperation and broad stakeholder involvement. The Ministry of National Education announced in August that blended or online education would be allowed only in case of a virus contagion in the school. Lessons learned by interviewed stakeholders brought useful insights for future planning. Indeed, proactive teachers and headmasters already started discussions on how to arrange the programs for remote education in future via virtual multi-stakeholder communities (e.g. https://hybrydowa.edu.pl/).

Moreover, the teaching profession should be redefined for the future. The issue of insufficient skills and capacity were already discussed in previous reports. Teacher graduates should be deemed as a kind of "information transmitter" to a "coordinator of the learning process of students". There needs to be also appropriate selection of apprenticeship and practical training capacities. Digital skills, creative thinking and instructional design should be a horizontal element integrated into redesigned study courses. Also, the upskilling processes of current teachers might be better addressed in a form of a closer and planned teachers' collaboration in developing digital and instructional competences.

To better address a potential future suspensionsof traditional teaching, a more open and trustful approach inside the educational system should be developed. Again, as in the case of the teaching strategy mentioned above, this will not be possible without individual self-development and a lifelong learning attitude of every school system stakeholder. A national database with practical solutions basing on experiences (distant learning in Australia, instructional design in the US, Polish long-term home-schooling experiences, pedagogical research findings and other sources) could be developed and offered to schoolmasters. Also, the educational system needs constant upgrading and an evidence-based approach, including closer monitoring, evaluation and broader communication of methods implemented in the system.

4.5 Recommendations for policy actions

Remote schooling for Poland requires a strategic approach that cannot be resolved only at governmental level. Multilevel cooperation, broad discussions, testing and experimentation are key to address the problems

of remote education and stand as a new basis for future teaching and learning solutions in an era of rapidly changing environments and digital transformation. On the basis of this study and broader evidence available from pedagogical research, relevant considerations for future policy action could include:

- Developing a multi-stakeholder (government, NGOs, business, academia, families) approach to elaborate key principles and collect best practices for remote/blended teaching and learning
- Prioritising student engagement and motivation over learning outcomes during remote learning, to sustain students' attention and willingness for (lifelong) learning,
- Putting more emphasis on a comprehensive approach to learning (knowledge, skills, emotions, practical competences), both for teachers (trainings) and students (learning),
- Introducing one common platform for every class in each school,
- Elaborating clear instructions regarding methods and materials,
- Providing multilevel help and guidance for educational system leaders and administrators by sharing best practices in remote schooling logistics and organisation,
- Using the home-schooling know-how and best practices from parents and families who seemed best prepared for blended learning, and taking MOOCs as a benchmark for proper online learning course,
- Setting up "minimum standards" for the safety and effectiveness of online learning (timing, space, equipment, internet connection, cybersecurity, maximum time in front of screens for teachers and students, etc.)
- Introducing an "online contract/code of conduct" between students and teachers, for online synchronous learning (being online on time, using cameras for the whole lesson time, greeting each other, exclusion from online class in case of inappropriate behaviour etc.),
- Providing support to develop a monitoring approach at each level of educational system management,
- Introducing educational designers and technologists to schools to prototype, test and implement appropriate remote/blended core curriculum for each grade,
- Introducing strategic data-driven knowledge development on diverse aspects of stakeholder experiences during remote/blended schooling - learning progress, emotions, motivation, wellbeing etc.[68],
- Introducing education exchange programs or partnerships across classes, programs, schools, regions and international partnerships to allow collective online learning,
- Providing guidance for mental health and socio-psychological state of education stakeholders, especially pupils, their families and teachers, regarding crisis results mitigation,
- Securing availability of psycho-pedagogical help for every school,
- Allowing space, training and resources for modern methods of teaching that optimize also remote schooling: personalised learning, student-centred teaching, less grading, more feedback, peer-review and self-assessment, project-based learning, agile learning, experiential learning, etc.

[68] Although there is a specific "IT Centre for Education", it serves only as an IT- systems provider for the purposes of the Ministry of National Education, among others keeping the country register of educational institutions in Poland. https://cie.men.gov.pl/

References

Centrum Cyfrowe, 2020. Edukacja zdalna w czasie pandemii. Raport z badań. April 2020. Access: 10.07.2020

Gajdzica, Z. 2011. Sytuacje trudne w opinii nauczycieli klas integracyjnych. Oficyna Wydawnicza Impuls.

Krauze-Sikorska, H., Klichowski, M., Jaskulska, S., Jankowiak, B., Sikorska, J., Koziarski, J. (2020). Twoja lekcja w przyszłości. Jak wyobrażasz sobie naukę w szkole po pandemii COVID-19? Raport z badania ankietowego. VULCAN https://sites.google.com/view/twoja-lekcja-w-przyszlosci (Initial results).

Librus, 2020a. Nauczanie zdalne - jak wygląda w naszych domach. Raport z badania ankietowego. April 2020. https://portal.librus.pl/artykuly/nauczanie-zdalne-jak-wyglada-w-naszych-domach-pobierz-raport. Access:10.07.2020

Librus, 2020b. Nauczanie zdalne. Jak zmieniło się na przestrzeni czasu. April-May 2020. https://portal.librus.pl/artykuly/raport-2-jak-zmienilo-sie-nauczanie-zdalne. Access: 10.07.2020

Ministry of National Education, 2020a. Zapewnienie funkcjonowania jednostek systemu oświaty w okresie epidemii COVID-19, June 2020. Access: 2.07.2020

Ministry of National Education, 2020b. Kształcenie na odległość. Poradnik dla szkół, 25.03.2020. Access: 04.09.2020

Minister of National Education response to the Commissioner for Human Rights request on information about students excluded from education due to COVID-19, 29.06.2020. https://www.rpo.gov.pl/sites/default/files/Odpowied%C5%BA%20MEN%2C%2029.06.2020.pdf. Access: 04.09.2020

Our Kids, 2019. Raport o szkolnictwie niepublicznym w Polsce, 2019. https://www.ourkids.net/pl/pdf/2019-raport.pdf. Access: 04.09.2020

Plebańska M., Szyller A., Sieńczewska M., 2020. Edukacja zdalna w czasach COVID-19. Raport z badania. Warszawa.https://files.librus.pl/articles/00pic/20/07/09/librus/a_nauczanie_zdalne_oczami_nauczycieli_i_uczniow_RAPORT.pdf. Access: 20.08.2020

Ptaszek, G., Bigaj, M., Dębski, M., Pyżalski, J. & Stunża, G. D. (2020). Zdalna edukacja - gdzie byliśmy, dokąd idziemy? Wstępne wyniki badania naukowego „Zdalne nauczanie a adaptacja do warunków społecznych w czasie epidemii koronawirusa". Warszawa 2020

Pyżalski, J. (ed.), 2020. Edukacja w czasach pandemii wirusa COVID-19. Z dystansem o tym, co robimy obecnie jako nauczyciele. EduAkcja, Warszawa.

Annex: Methodology of the study

The target

The aim for the selection of stakeholders was to reach for data from as much a diverse group of stakeholders as possible. Therefore, both village and city residents were interviewed, teachers, headmasters and students from primary schools and secondary schools. Attention was paid to the proper balance between public and non-public schools' representatives. The families interviewed were also selected up to the children number (from 1 to 5).

The sample consisted of 26 stakeholders:

7 teachers, including one English native speaker

3 school headmasters, including one of non-public school

9 parents from various socio-economic backgrounds, including 1 special needs kid parent

3 students, from primary and secondary schools

4 other interviewees, including 1 speech therapist, 1 EdTech representative, 1 NGO,

and 1 regional education authority representative

The interview scenario

The interview scenario was agreed amount a group of national and JRC experts. Specific changes were applied to questions not related to specific stakeholders (e.g. students compared to headmasters) or were omitted from the set.

Data collection/field work

The answers were collected mostly through telephone interviews, personal meetings and video calls. The voice recorded on mobile device (a smartphone) was later transcribed, translated from Polish to English with support of language translation automation tools. The length of interviews was ranging from 30 minutes to 2 hours, depending on the role of the interviewee, the challenges they faced and the extent of their speech. The interviewer played the role of a facilitator, letting the interviewee tell the story in their words, adding some extending questions, whenever needed. In case of two interviews, where the interviewee was also taking care of children, the interviews were interrupted for a short while. In one case, the interview was done in parts as the multi-kid parent, who lived in a distant, hilly area, was on their way driving a car while talking and the telecommunication connection was lost from time to time. In order to get the plethora of insights, the paper extends beyond the questions posed. Sometimes the interviewees wanted to be as much responsive as possible to the interviewer's questions and there was no space for free thinking. Therefore, other opinions from additional internet sources available during the time of school closure were gathered to complement the ideas received from the interviews..

Data analysis

The insights form the stakeholders were initially selected in a quite extended form by each area and subarea selected. For the purpose of a better coverage of subtopics, the keywords approach was implemented. It allowed better navigation through relative data coming from complex and not linear answers of interviewed stakeholders. The quotes from the interviews, due to limited length of the report, were later cut to the essential message. Based on those insights the related narrative was developed.

Limitations of the study

As this report is based on a qualitative study, it is related to a limited number of interviews with various stakeholders. As the system is diverse and complicated, the study includes not every possible approach to

remote teaching and learning in Poland during Spring semester 2020. For better understanding, both quantitative and qualitative approaches could be applied.

Annex 2. Interview scenario

Question Nr	Question	Stakeholder
1	What were your first thoughts when schools closed due to the Covid19 situation? Have these thoughts changed when the situation prolonged?	T | S | P | D
2	How did the transition phase between the normal process of schooling and "new" normal during the confinement looked like for your school. Which was your level of commitment with this transition? Is there any variation between schools/regions? What is the reason for that?	T | D
3	Have you received any instructions on how to start distance education? From whom you have received it, when did it happen, what type and how detailed instructions you have received?	T | S | P | D
4	Did you receive clear instructions on how to support students learning during the remote schooling period (e.g. feedback provision, level of personalization of support…)?	T | P | D
5	What type of support in the organisation of remote teaching have you received from government and/or any other actors (EdTech, local associations) to suceed in remote learning? Did you think that they are enough and who helped you most? Overall, have you felt supported or stressed?	T | D
6	Did you see some inequality and difficulty in the participation of the students especially those with special needs and learning difficulties? And for you as teacher: Did you provide support and motivation for students that have been previously identified at risk or with special needs to identify, engage and help them? and What kind of help was provided to these students and to you as teacher? Could you describe them? Did you feel well prepared in terms of equipment and competences to ensure remote schooling for those vulnerable groups of students?	T | D
7	How do you assess the efforts made by your government to help groups of learners excluded from remote schooling (e.g. because of lack of internet , lack of equipment). Were the efforts existent and enough? How would you improve them? Were they complemented by the effort and actions of non-profit organisations?	T | D
8	From your perspective, do you observe any hindering aspects being a result from the remote learning period, such as more dropout rates or vulnerable groups more affected? What kind?. If you could change something, what would it be?	T | D
9	What are your views regarding availability of devices to organize your school related work (e.g. computer, tablet, smartphone): are they of enough quality and power for the type of work to be done?, do you have them available any time you need them?, did you encounter any technical problems that left you without access?	T | S
10	Were you/your school prepared for digital and remote teaching/learning? Was the school already using a digital platform/VLE to support learning and teaching? if yes, were they enough? How much of the teaching material did you have to prepare from scratch? Do you develop the content and material used for the lessons during distance teaching more often than normally? How much did you (teacher) use mixed methods of digital material, and textbooks and exercise books? Were teachers supported by anyone in this task e.g. the school, Ministry of Education? Did you have to team up with teachers from your school or other schools to plan lessons together? And how? (e.g. through teacher online network) Has that decreased the burden of work? What were other possible benefits of collaborating with other teachers?	T | D
11	Do you have in your country one-stop-shop to access digital content? Have you used any existing open education resources (e.g. digital library)? If so, what was your option on the quality? If so, was it useful to extend available resources?	T | D
12	Have any changes/adaptations been made in the curricula requirements (changes in the content e.g. no new material introduced, only revision of content learned not all subjects being taught) and in the schedule?. Were there any guidelines provided at state level or local level in this regard? If so, what was the main focus/central guideline? Were cross-subject and cross-curricular topics or project-based learning introduced?	T | D
13	What solutions helped you to adapt your teaching practices to distance education? Did teachers re-design their courses for the new setting? Did they use any tools for learning design?. How was the support organized (systematic support at school level, special help such as educational technologist or similar, not systematically at all), were there any frameworks set in place?	T | D

14	Were synchronous online contact-teaching sessions organized, if yes for what purpose (for students to interact informally/ for students to carry out groupwork/ for teacher to give an online lecture/ for question and answer sessions about homework/ students presenting their work / individual student-teacher discussions)?	T
15	Do you feel that the platforms provided by schools and/or those requested to be enrolled are protecting students'/schools' data privacy enough? Did you take steps to protect devices or data (e.g. antivirus, password, filters) of teachers, children or siblings? Did the school provided digital security package to protect devices from viruses and other threats to students and teachers? Did you suggest ways to use the internet safely to your teachers/siblings/child? And explain why some websites are appropriate or inapropriate to them? Can you tell us a bit more about this experience.	T | S | P | D
16	As a teacher, how did you balance between distance communication and lessons and the amount of individual tasks provided to students? Did the pattern change during the different phases of distance learning? How would you evaluate the outcome?	T
17	Did it seem to you that learners need more support and/or scaffolding when they learn remotely than in a normal in-person teaching situation? Can you explain?	T | S | P | D
18	Did your school cooperate with other educational organizations from the non formal sector to complement the education provision? What type of support did they provide and, if pertinent, how technologies were used to integrate the educational activities?	T | D | O
19	In terms of remote teaching strategies, did you adopt traditional lecturing or promote collaborative learning in small groups? If you adopted collaborative approaches, what tools did you use and what type of challenges did you meet?	T | D
20	Do you think that in your school students/you have the competences to regulate their/your own learning?Did you try to develop social and emotional skills among students and teachers (such as developing resilience to face the lockdown, enhance flexibility to adapt to the changing requirements, or fostering communication and team working to boost peer collaboration and support) during the remote schooling period? Do you think it is feasible through remote and/or digital communication? Can you, please, give an example? How feasible do you find social and emotional skills useful in order to help children face the new situation and help them advance in their duties? Should they be promoted, and if so, how?	T | S | D | O
21	In general, do the students in your school/you have the habit of using digital technologies for other than leisure purposes, including for academic work (eg. searching information, collaboration between students...)? How did it affect to the transition period to remote learning? What digital and other cognitive and social and emotional competences/skills would help them/you to be better prepared to teach/learn remotely?	T | S | P | D | O
22	How prepared/skillful do you consider you were in a situation where digital technologies became essential for the study process? What helped you? What hindered your experience? What kind of support did you use?	T | S | P | D
23	Is there an adequate offer of material and courses that teachers can follow to implement remote teaching strategies and/or prepare blended learning?	T | D
24	How was the communication and cooperation between school and home organized? What was the role of teacher/parent/student? Were all parties equally active? What did you feel was expected from you? Which obstacles did you find? How did you ensure as teacher/director a good information flow and exchanged between school and home? How did this process turn out?	T | S | P | D
25	Did you see any change in the motivation and sense of belonging of some students/your motivation and sense of belonging due to school closure, and remote schooling and the pedagogies that it entails? Positive? Negative? Can you describe them? What engagement methods did you apply to motivate your students? Did you have clear instructions on how to support student motivation and sense of belonging during the remote schooling period? What kind of examples do you have to share? Was there any initiative to mitigate it?	T | S | P
26	(Formative)Were there any changes in the students' progress monitoring? For example, how would you compare the feedback that you provide to each students in normal in-person class and now during distance teaching? Did you observe/feel that the lockdown has any impact on children's learning? What differences can you identify at different levels?	T | S | P | D
27	(Summative) Were there any changes in student evaluation? What was considered in students final evaluations this year? Were student evaluations (scope of content) modified as a result of COVID? How were the needs for evaluation (pressures) faced by your class group/different year groups dealt with?	T | S | P | D | O
28	(Self and Peer-monitoring) Please elaborate how has the self and/or peer-assessment of students has changed? How did you facilitate the process and/or design study process accordingly?	T | S | P | D | O

29	(Accreditation/certification) How has the qualification process been done? Have you organised online exams? Have the exams has been changed or dropped? Is teachers' assessment being used to grade the students?	T | S | P | D | O
30	Have you observed any changes in children's/your behaviour/attitudes/mood and mental health in general during the lockdown? As teacher, did you see any differences related to the age/class level? Have you addressed it somehow? Did you receive/ask any help to address these changes in your mental health balancee, was it successful? What kind of examples do you have to share?	T | S | P | D
31	As parents, in which tasks have you supported your children in the remote schooling? What type of support did you provide to your children? How balanced or burdening was this for you? As student and parent, how was the level of psychological support by the schools and teachers to be able to implement remote schooling?	S | P
32	Were teachers stressed due to the transition to remote schooling? Did they have to work extra-time? Do you know cases of burnout? Is there any measure to support them? What role played peer-to-peer exchanges to deal with this situation?	T | D | O
33	Before lockdown: was there a psychological support at your school? Was it helpful? How their services developed during pandemic?	T | S | P | D | O
34	What was the main stressor (fear of getting ill, preparing new content, lack of time/equipment/support/relax, your level of digital competence (e.g. running classes, quick reaction to bad behaviour, having classes online, using online content, helping children to start and operate the programmes, using new communication channels with teachers), students/parents/peers behavior etc.?). Did you find any harm using digital technologies (e.g. cyberbullying) What was your way to deal with stress and anxiety? What are you afraid of in the future of schooling?	T | S | P | D | O
35	What positive psychological aspects did/do you see in distance learning? (More quiet place than the classroom, more time-elastic, more time with family etc.)	T | S | P | D | O
36	What are the positive and negative sides that you experienced during the remote learning period? Would you be willing or able to do it again should the circumstances require it? What would help you to be better prepared?What would you do differently this time? What is your opinion on the blended learning possibility in the future?	T | S | P | D | O
37	Based on this experience what advantages/disadvantages of distance learning do you see? Have you noticed any differences in teaching/learning remotely in terms of quality of teaching or children learning capacity?	T | S | P | D | O
38	Having that experience, do you think remote schooling could be the catalyst to create a new, more effective method of educating students? If yes what is still to be done to achieve it? What type of educational innovation have you observed can stem from distance learning experience?	T | P | D | O
39	Has the COVID situation fostered discussions on the use of digital technologies? Which were the main points of discussion? Do you think it will remain after schools resume in autumn?	T | S | P | D | O
40	There are new arrangements in place for schooling, are they already made/communicated for the incoming school year in your country, how might this affect the normal development of classes and school activities? Could you tell us how does this affect the normal development of classes and school activities? What do you think that remote schooling will be handle in case of a new suspension of classes in next school year?	T | S | P | D | O
41	In relation to what we have experienced in education during these months of lockdown with remote schooling, what would you take forward in your future XXX (dependent on stakeholder 'teaching' 'planning/provisions' etc), and what would you get rid off/want to avoid?	T | S | P | D | O
42	If remote teaching has to continue/be required again (in full or in part) for the incoming school year, will you adapt and/or develop a new course/lesson/planning for the school year? If so why? How?	T | D
43	In relation to what we have experienced in education during these months of lockdown with remote schooling, do you think that something should be done in the future? And, is there anything to be avoided for the future?	T | S | P | D | O

Note: T stands for teacher, S – student, P – parent, D – director. O – other

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JRC SCIENCE FOR POLICY REPORT

How families handled emergency remote schooling during the Covid-19 lockdown in spring 2020

Summary of key findings from families with children in 11 European countries

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Contents

Abstract

How did families handle remote schooling during the time of Covid-19 lockdown during spring 2020? Perceptions on remote schooling activities were gathered from parents and their children at the end of primary education and in secondary education (10-18 years old) from 9 EU countries (Austria, France, Germany, Ireland, Italy, Portugal, Romania, Slovenia and Spain) in addition to Switzerland and Norway.

The findings show that almost all children who participated in the survey were able to conduct some school-related activities using digital technologies, and many reported that their schools had provided them with both digital communication and learning platforms. The findings also point out to large variations in terms of how children were able to interact with their teachers in learning activities and how often children were in contact with their teachers through online means. In addition to learning activities provided by the school, parents also engaged in complementary learning activities with their children, for example by using free of charge online learning material and exercises, such as video recordings and online quizzes.

Both children and parents were worried about the pandemic's negative impact on education, generally parents more so than children. Families voiced the need for better guidelines on how to support children with distance education activities and how to support the child psychologically during the confinement. Parents also expressed their need for more counselling and psychological support.

These early results from the survey can guide future activities of schools and education systems in their move to digital education that can deliver more even, and better, pedagogical and social outcomes. They can also guide planning of practices that suite local context and needs. More in-depth analysis of this data will be made available throughout 2020-2021.

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1. Executive summary of early key findings

This research gives the first look into families' digital lives and remote schooling activities across 11 European countries during the Covid-19 lockdown in spring 2020. It focused on children at the end of primary education and in secondary education (10-18 years old) and their parents in 9 EU countries (Austria, France, Germany, Ireland, Italy, Portugal, Romania, Slovenia and Spain) in addition to Switzerland and Norway.

The findings show that on average, children across all participating countries reported spending about half of their online time on digital learning activities. Moreover, almost all children who participated in the survey were able to conduct some school-related activities using digital technologies, and many reported that their schools had provided them with digital communication and digital learning platforms. The findings, however, also point out to large variations in terms of how children were able to interact with their teachers in learning activities and how often children were in contact with their teachers through online means. Whereas 75% or more of the children in Italy, Norway, Portugal and Romania said to have daily online interactions with their teachers during the Covid-19 lockdown in spring 2020, this number was between 50-75% in France, Ireland, Spain and Switzerland, and between 34-41% in Germany, Austria and Slovenia. Worryingly, some children reported very infrequent contacts with teachers with no access to online activities, the amount varies from 11% in Ireland to less than 1% in Italy.

Overall, the lockdown during Covid-19 has shown that the readiness of schools and families to support remote instruction through digital technologies was uneven. How learners perceived online learning activities and teacher contacts can be, to a certain extent, indicative of teaching arrangements put in place by national and regional school authorities. As such, it cannot be used as a proxy for the quality of learning that took place during the classroom closure, mainly because there are various factors that influence learning, which during the Covid-19 lockdown varied substantially starting from accessibility and availability of parental support and devices at homes to the instructional practices and teacher competences. It is also rather normal that practices vary from a school or a country to another within certain parameters. However, it is also the job of the education system and society to guarantee equitable access to education to all. In the upcoming reports, there will be more focus on such questions.

Secondly, the findings shed light on the level of worries that both children and parents have due to the pandemic and classroom closure. In general, parents were worried about the pandemic's negative impact on their child's education (e.g. falling behind with schoolwork, failing in exams). Children were concerned about not being able to keep up with their schoolwork while classes changed due to the pandemic and about getting poor grades because of the online learning activities. Additionally, across all participating countries, many children reported an increased workload because of the remote schooling activities. Even 40% or more children in Slovenia, Portugal, Austria and Spain estimated to have more workload than before the pandemic. With regards to children's worries outlined above, school policies and practices can play a role. For example, in some school systems in Europe, the assessment methods were changed due to the classroom closure (e.g. e.g.: Council Conclusions on countering the COVID-19 crisis in education and training[1]; European Schoolnet[2]).

Thirdly, the report gives an idea of children's skills (e.g. digital skills) and their beliefs in their abilities to cope with online learning activities. Previous research shows that this can be strongly related to their successful learning and also to their well-being. The survey confirms that remote and digital schooling opens opportunities for children to gain new skills with digital technologies, but it also shows that the family background can influence the way in which the children felt about their capacities and beliefs towards online learning activities. In almost all participating countries, children coming from families with below-average household income felt less strongly about their own capacities to cope with online learning activities than other children.

Last, families voice the need for more support from schools if such a situation was to happen in the future again. Over 80% of responding parents in Romania, Portugal, Ireland, Spain, Italy and Slovenia would have wanted the school to provide possibilities for their children to do online educational activities with their classmates. Likewise, ideas for extracurricular activities to be done at home would be welcomed by over 80% of parents especially in countries such as Romania, Portugal and Spain. There is

[1] https://data.consilium.europa.eu/doc/document/ST-8610-2020-INIT/en/pdf
[2] https://covid19-edu.eun.org

also a need for better guidelines that schools or education authorities could provide to families. More than two-thirds of the responding parents in all participating countries would need guidelines on how to support children with distance education activities and homework. Around ¾ of the responding parents in Romania, Portugal, Ireland and Spain would also need guidelines on how to support the child psychologically during the confinement. Additionally, a high number of parents called for different types of counselling/psychological support for their child or even the whole family, especially in Spain, Romania, Portugal, Ireland and Italy.

These results can guide future activities of schools and education systems in their move to digital education that can deliver more even, and better, pedagogical and social outcomes. The on-going European-wide research will further be able to share good practices implemented during the first lockdown so that education authorities and schools can learn from each other and better implement practices that suite their local needs and context within available resources.

This report is the first descriptive output of the research project that focuses on children's digital activities during the pandemic and the spring lockdown (Kids' Digital lives in COVID-19 Times). The data was collected through an online panel survey in summer 2020. The project is led by the Joint Research Centre of the European Commission in collaboration with different researchers from each participating country. Thematic reports of the survey findings will be available towards the end of 2020 and spring 2021, including a more in-depth report on remote schooling activities in addition to an international comparative report focusing on child's well-being, online security and safety. Additionally, country reports will be made available in participating countries, for already existing reports, see DCU (2020) for Ireland, Dias et al. (forthcoming) for Portugal, Trültzsch-Wijnen et al. (forthcoming) for Austria and Velicu, A. (2020) for Romania.

2. Methodology and description of data

The Joint Research Centre of the European Commission undertook a study on the experiences of children and families during the Covid-19 lockdown across Europe[3] in collaboration with different researchers from each participating country (see the Acknowledgement section for more details). The goal of this research was to understand how children and parents engaged with digital technologies while staying at home and how these experiences may have impacted children's online safety and overall family well-being.

	AT	FR	DE	IE	IT	NO	PT	RO	SI	ES	CH	Total
Parent (n)	**510**	**544**	**513**	**501**	**1028**	**525**	**509**	**518**	**506**	**554**	**484**	**6192**
Gender												
Female	*45%*	*57%*	*47%*	*51%*	*49%*	*51%*	*48%*	*47%*	*68%*	*44%*	*47%*	
Male	*54%*	*43%*	*52%*	*48%*	*51%*	*49%*	*52%*	*53%*	*32%*	*56%*	*51%*	
Child (n)	**433**	**475**	**413**	**441**	**946**	**482**	**501**	**467**	**459**	**471**	**378**	**5466**
Gender												
Female	*46%*	*43%*	*47%*	*47%*	*40%*	*51%*	*39%*	*41%*	*46%*	*35%*	*47%*	
Male	*54%*	*57%*	*53%*	*53%*	*60%*	*49%*	*61%*	*59%*	*54%*	*65%*	*53%*	
Age												
10-12 years	38%	30%	26%	29%	34%	26%	35%	36%	23%	35%	37%	
13-15 years	32%	41%	46%	41%	41%	39%	37%	34%	43%	41%	36%	
16-18 years	30%	28%	29%	30%	25%	30%*	28%	30%	34%	24%	27%	
Parent's self-reported income level												
below average	22%	23%	16%	26%	22%	23%	25%	21%	20%	12%	27%	
average	45%	47%	45%	41%	58%	39%	54%	47%	63%	51%	39%	
above average	33%	30%	39%	33%	20%	37%	21%	32%	17%	37%	34%	

*Table 1. Sample description: the gender of the participating parent, living arrangement, gender of their child, age and parental self-reported socio-economic status (SES). (*in Norway sample, 4 cases with young people of 19 year old according to their declared year of birth).*

The data was collected through an online survey in summer 2020 from parents and their child (10-18 years old) in 9 EU countries (Austria, France, Germany, Ireland, Italy, Portugal, Romania, Slovenia and Spain) in addition to Switzerland and Norway (Table 1, see Annex for more details). The sample in all countries reached 500 families (for Italy, larger sample was planned).

A parent and a child from the same family answered their own dedicated questionnaires in their own language (see annex for more information about sampling). They both were asked about the following areas: digital technology use-related habits; digital skills and their improvement, use of digital technology for school purposes; parental worries regarding technology use; exposure to online risks such as cyberbullying and harmful content online; and positive aspects of digital media use for the family and child's well-being.

The use of digital technology for school purposes was explored through a remote schooling module which included seven questions for the child and six for the parent. The children's module on school activities started with a filter question asking if classes at participant's school had been cancelled due to the coronavirus outbreak. Only those who answered "yes" were directed to the modules and those who answered "no" skipped the module. This difference is visible in the sample size for children when compared to that of parents (Table 1).

The questions ranged from the use of digital tools and resources for remote schooling to questions aimed at understanding children's and parents' perceptions and attitudes regarding remote schooling during this period, and on how difficult, or challenging, it was for them. Children were also asked about their participation in online classes and ways of connecting with their teachers. Additional questions focused on motivation and possible anxieties regarding online schooling activities.

Parents, on the other hand, were asked about the support they gave for educational activities (e.g. availability of devices, time, digital skills, knowledge about school subjects and being able to motivate

[3] "Kids' Digital lives in COVID-19 Times" (KiDiCoTi): https://ec.europa.eu/jrc/en/science-update/kidicoti-kids-digital-lives-covid-19-times

children's learning). Parents were also asked about their perceptions regarding child's engagement with school activities and gaining new skills (e.g. autonomy, self-determination or becoming more skilled in using digital technologies). In addition, parents expressed their feelings on remote schooling impacting their child's education and what they would need in order to support their children better if such situation happened again.

3. Setting the scene: digital skills of adults living in households with children

The pandemic in spring 2020 prompted many education institution to suspend in-person teaching activities. Since then, emergency remote schooling was quickly implemented across regions, countries and school systems. Remote schooling combines distance education (students not physically present at school) with the use of various media ranging from digital tools for learning and collaboration to traditional paper-based textbooks and printable worksheets. Even educational television was re-invented for the purpose of remote schooling during the pandemic. However, UNESCO and other international organisations keep underlining that moving learning from classrooms and lecture halls to homes at scale, and in a hurry, presents enormous challenges, both human, social and technical[4].

The role of digital technologies in implementing remote schooling had wide-ranging differences across school systems, regions and countries. Equally uneven was households' readiness to provide digital devices and access to the internet. Also, parents' capacity to take advantage and to support the move to digital varied widely within the countries and across the EU. The pre-Covid Eurostat data show that in the EU, 63% of adults who live in households with children between 0 and 16 years old have basic and above basic level of digital skills (green bars in Figure 1).

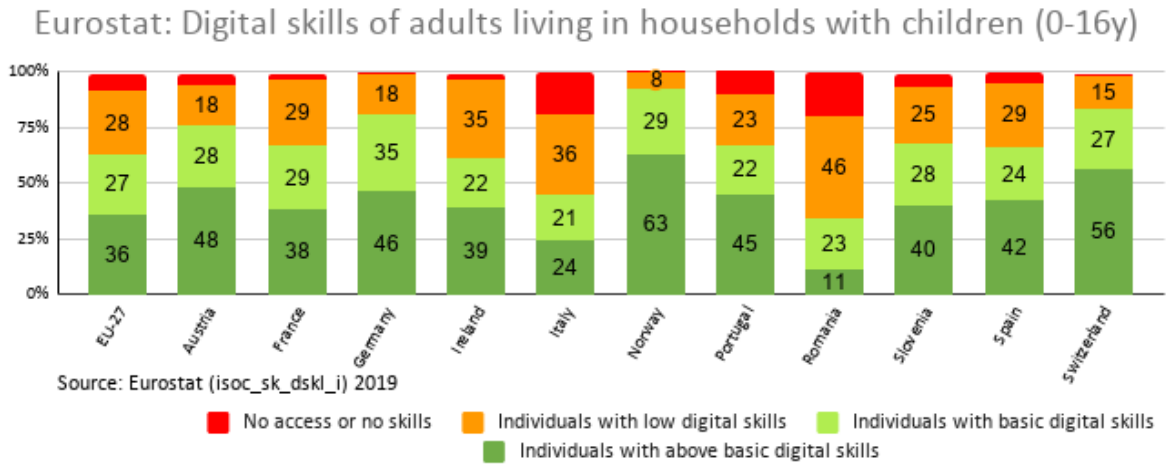

Figure 1. The level of digital skills of adults living in households with children in 2019, data for countries included in the study. Data source: Eurostat (isoc_sk_dskl_i) 2019.

Basic and above basic level of digital skills indicate that a person could use digital tools, for example, to communicate directly with schools or teachers, and to help look for various information sources on the internet. Such levels also enable basic content creation activities (e.g. word processing software) and handling of basic software issues (e.g. installing software, transferring files). Considering the activities required to support child's remote schooling, this level of digital skills could be regarded sufficient, at least to provide some basic support for digital remote schooling activities. However, regarding the use of internet for educational activities, only 24% of adults in households with children have done at least one of the following activities in 2019: used online learning material (17%); done an online course (10%), or communicated online with instructors or students (10%).

There are big differences in the level of digital skills within the EU. From the countries that participated in this study, in Austria, Norway, Germany and Switzerland over 75% of adults living in households with children have basic and above basic level of digital skills. However, this is the case only for about a 1/3 of

[4] https://en.unesco.org/covid19/educationresponse/consequences

adults living with children in Romania. Moreover, at EU-level, 36% of adults living in households with children have low overall digital skills (orange bars) or alternatively, they might have no skills or they have not even accessed the internet in 3 months prior to the survey (Figure 1, red bars).

4. A selection of key results from the survey

In this report, the focus is on children's and their parents' digital activities and how they dealt with remote schooling during the spring lockdown in 2020. A number of key results from the KiDiCoTi-survey module on "Remote Schooling" are explored below. A more detailed in-depth analysis with more complete data tables will be published in the final report by the end of 2020.

4.1. Modes of emergency remote schooling

75% or more of the children in Italy, Norway, Portugal, Romania[5] said to have daily online interactions with their teachers during the Covid-19 lockdown in spring 2020 (Figure 2). This amount was between 50-75% in France, Ireland, Spain and Switzerland, and between 34-41% in Austria, Germany and Slovenia. On the other hand, more than half of the respondents reported such online activities on weekly bases in Austria, Germany and Slovenia. Worrisomely, a small percentage of children who participated in the survey reported infrequent contacts with their teachers (less than weekly) and not having participated in any online learning activities. This number varies from 11% in Ireland to less than 1% in Italy.

Figure 2 shows more detailed breakdowns of interactions and their frequency. The interactions include online learning activities with teachers, such as online classes or video conferences, and on the other hand, the frequency of online connections with teachers. The categories of daily, weekly and infrequently (=less than weekly) add up to 100% of respondents to this survey question. The frequency of online learning activities or teacher contacts describes the teaching arrangements put in place by national, local and regional school authorities, and how learners perceived them. As such, it is not indicative of the quality of learning that might have taken place during the classroom closure.

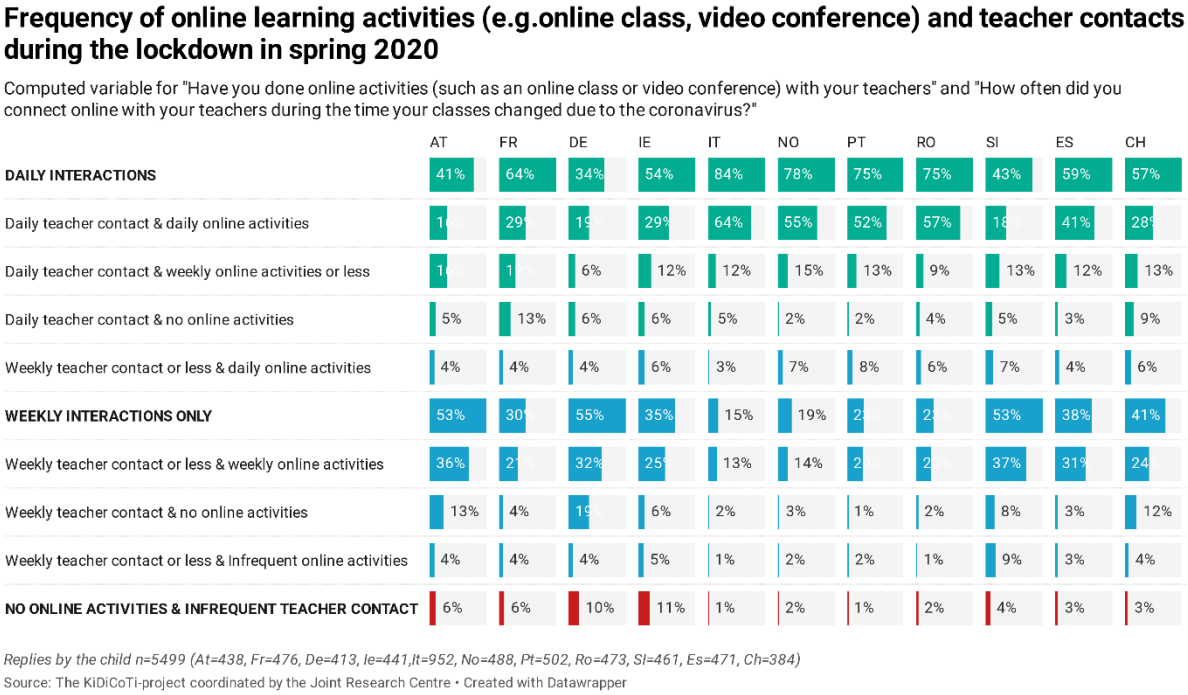

Figure 2. Frequencies of online interactions that children reported having during the Covid-19 lockdown in spring 2020.

[5] In general, countries are listed in an alphabetical order

4.2. Learners' workload and daily hours spent online for school purposes

Learners in participating countries report to have spent more than half of their average daily online time using digital tools on activities for schooling purposes (Figure 3).

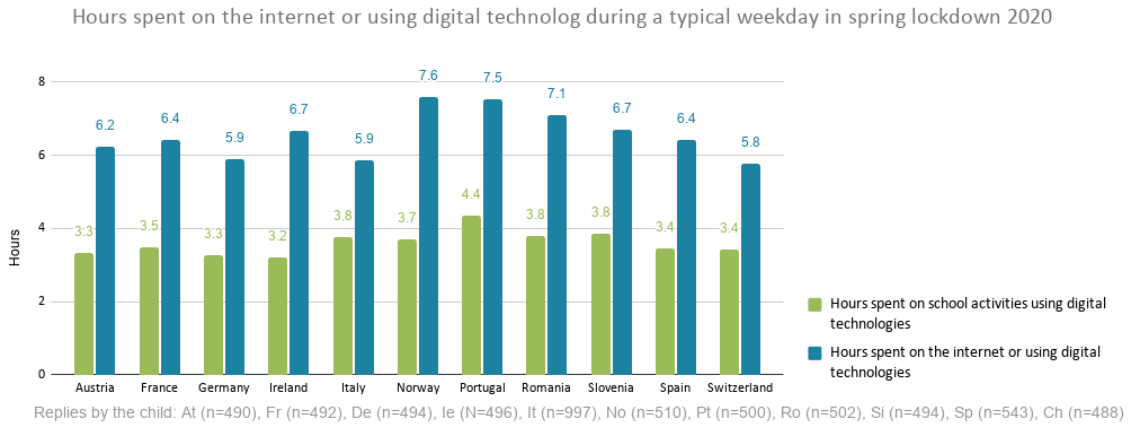

Figure 3. The number of hours children reported spending on the internet or using digital technology versus the numbers of online hours spent for school purposes (spring 2020).

The amount of school work, the combination of school hours and homework, was experienced differently both within the country and across them (Figure 4). In Slovenia (63%) and Portugal (51%), more than half of the respondents said to experience a heavier workload than before the lockdown. Moreover, between 30-45% of children in Austria, France, Germany, Romania and Spain reported similar increased workload. By contrast, in Ireland, Italy and Norway, about half of the children reported having less workload. Considering all participating countries, 18-32% of children did not perceive a difference in their workload in comparison to what they had before the lockdown. Similarly, in each country, a small number of children said not to have any schoolwork due to the Covid-19 outbreak.

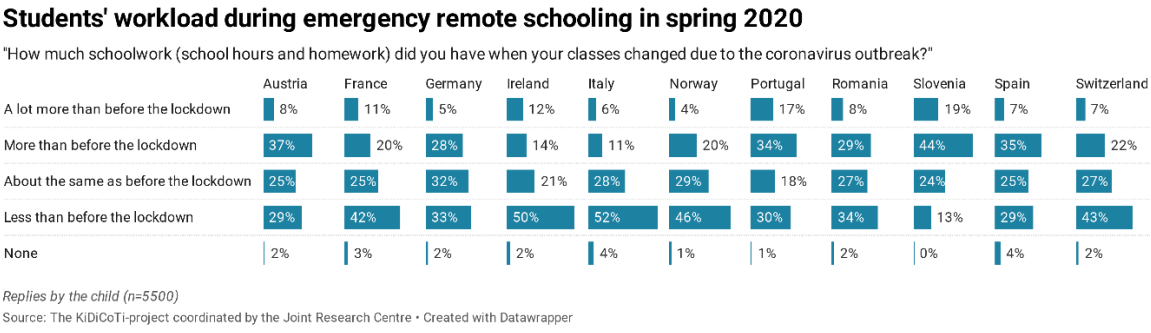

Figure 4. Students' perceptions of their workload during the emergency remote schooling (spring 2020).

4.3. Digital tools and activities

Learners and parents used a variety of digital tools during the Civid-19 lockdown in spring 2020 (Figure 5). The majority of learners reported having used video conferencing tools (e.g. Zoom, Microsoft Teams, Hangouts, Skype), the numbers vary from 60% in Germany to 94% in Slovenia. Similarly, many learners also reported having a digital learning platform provided by their school (ranging from 53% in France to 92% in Norway).

For communication purposes, parents in the majority of participating countries reported having used a digital application provided by the school to ensure school-home communication (ranging from 56% in Germany to 87% in Norway). Among children, the use of email was highest reported (from 73% in Norway to 97% in Slovenia) in addition to messenger apps (e.g. Whatsapp), texts and social media (e.g. Facebook,

Instagram, TikTok). Also, phone calls were reported by more than half of the respondents in Austria, Italy, Norway, Portugal, Romania, Slovenia, Spain and Switzerland.

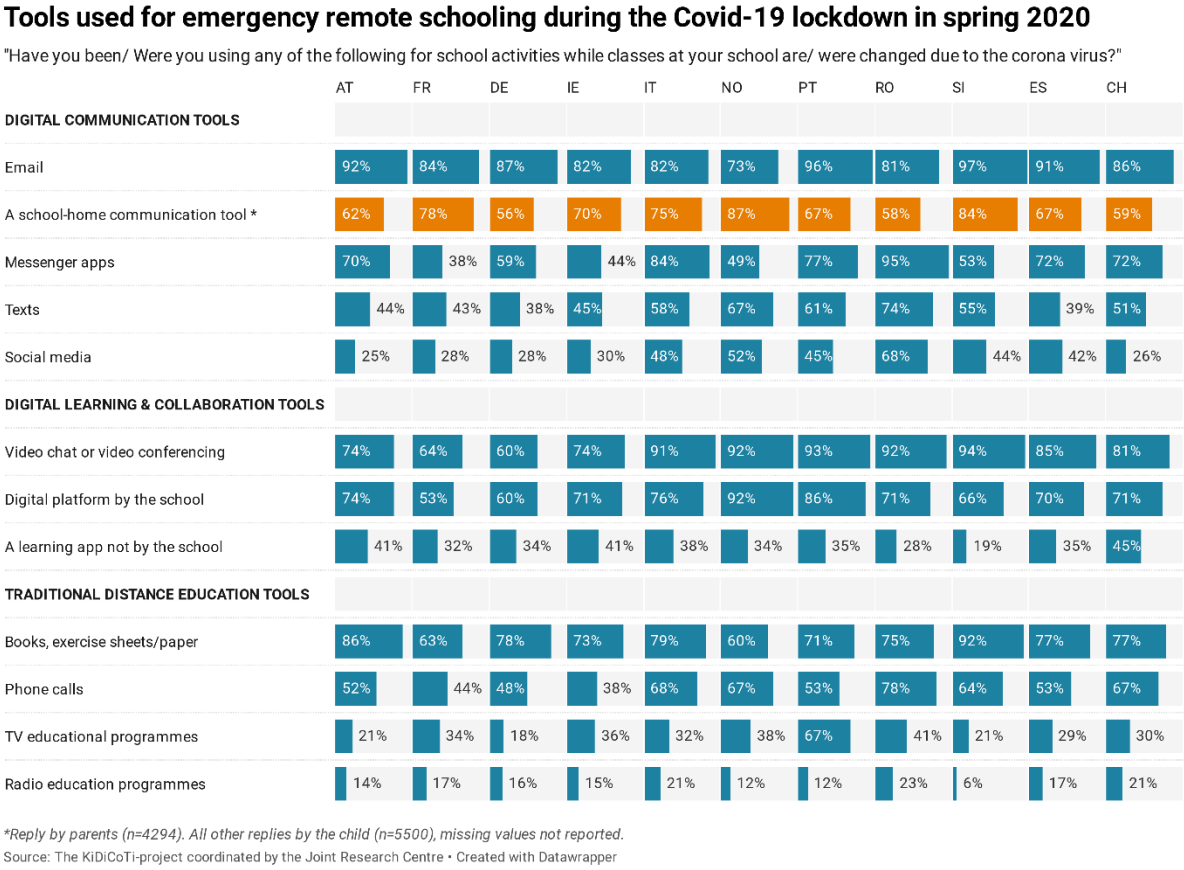

Figure 5. Tools used for digital communication, and for teaching, learning and collaboration during the lockdown (multiple choice question). Replies by children except for the orange bars which are by the parents.

During the lockdown, the more traditional learning supports were equally used; around three-quarters of the respondent learners reported using textbooks and exercise sheets in most countries, although the number was lower in France, Norway and Portugal. Educational TV programmes were most popular in Portugal where 67% of the respondents used them, the amount being between 18%-41% in other countries.

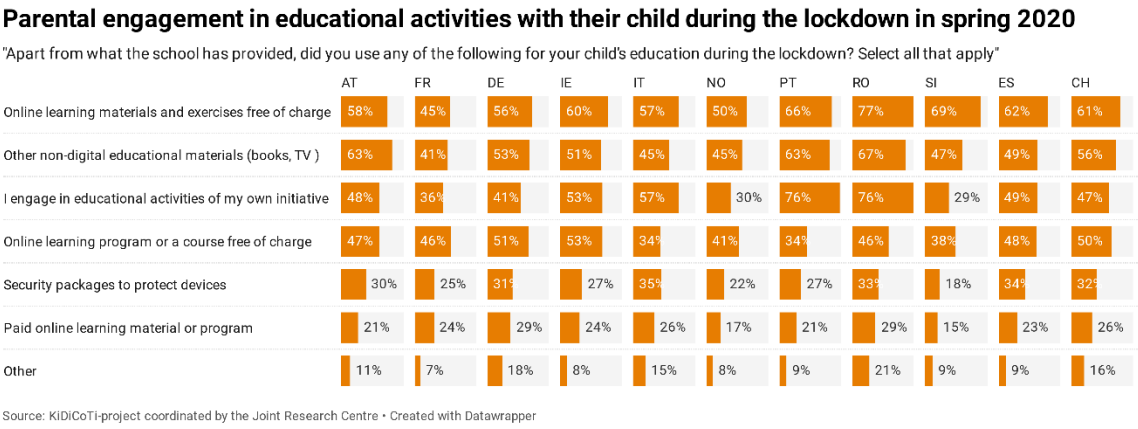

Figure 6. Parental use of various digital and non-digital tools to complement educational activities organised by the school (multiple choice question).

Apart from the educational activities provided by the school, the parents who participated in the study were also asked about their engagement in complementary educational activities with their child during

the lockdown (Figure 6). More than half of the responding parents reported using free of charge online learning material and exercises, such as video recordings and online quizzes, in all countries but in France (45%). Similarly, free of charge online learning programmes or courses, such as a series of online classes on a topic taught at school or a MOOC (Massive Open Online Course), were popular. Their use ranged from 34% of parents in Italy and Portugal to around 50% in Germany, Ireland and Switzerland. Other non-digital learning materials, such as books and TV were also popular, however in France, Italy, Norway, Slovenia and Spain, this was reported by less than 50% of the parents. Notably, parents also reported the use of paid digital content, the percentage varies from 17% to 29%. In general, parents of young children (10-12 years) engaged more in complementary educational activities or provided their child with more complementary educational material than those parents with older children (Figure 7).

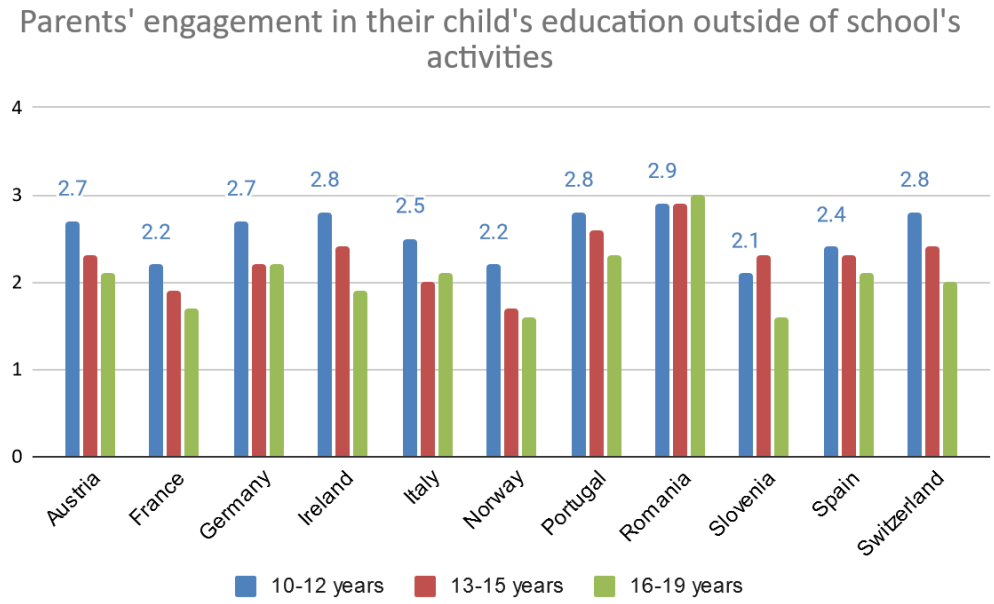

Figure 7. The average number of reported educational activities/material that parents reported is broken-down by the age of the child (Activities: online learning materials; paid online learning materials; online learning programmes; other non-digital educational materials; educational activities of own initiative).

4.4. Children and parents worrying about classroom closure due to Covid-19

The impact of the classroom closure and the move to remote schooling were a source of worry for both parents and children (Figure 8). In general, parents seemed to be more worried about its negative impact on their child's education (e.g. falling behind with schoolwork, failing in exams) than the children themselves. This was true for all participating countries but Romania and Slovenia, where the level of worry was even, and in Norway where the parents seemed less worried than their children. It is quite notable how the level of concerns vary across participating countries: both parents and children in Austria, Norway, Slovenia and Switzerland seem to be less concerned (average answers below 3), whereas in Ireland, Romania and Spain, both respondents seem much more worried (average answers above 3).

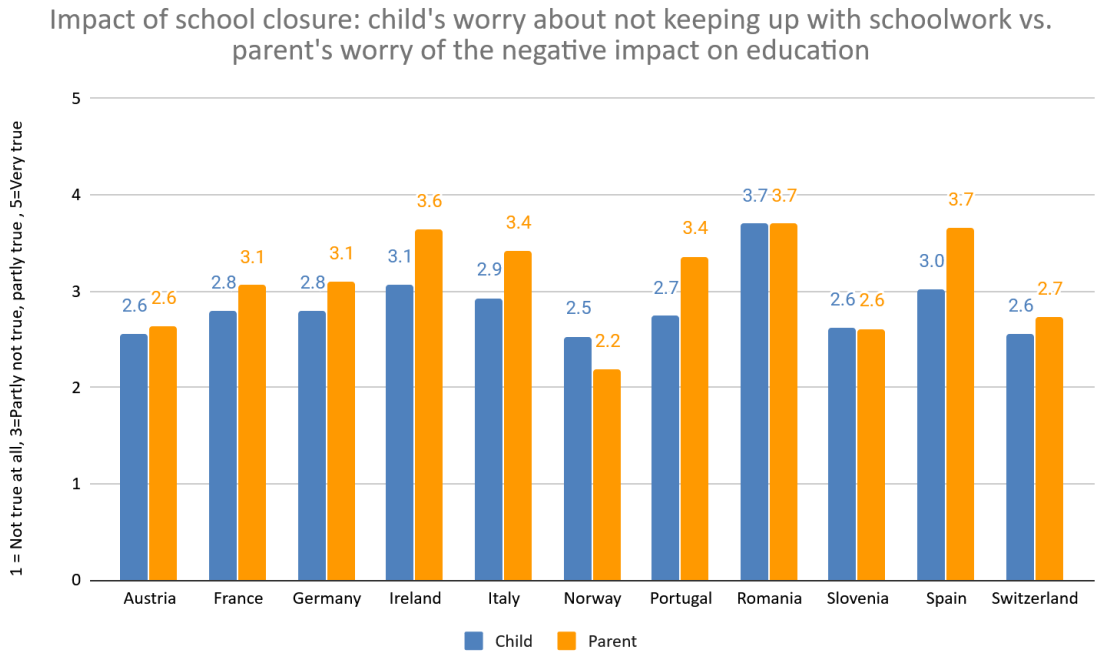

Figure 8. Parents' and children's worry about the impact of Covid-19 on education: the orange bars show the mean replies for parents, whereas the blue bars show the replies by children to the question "Were you worried about not being able to keep up with your schoolwork while your classes changed due to the corona virus?" (answer categories 1=not true at all, 3= partially not worried, partially worried, 5=very true)

The survey also focused on learners' worries and what they may feel when using digital technology for school. Across participating countries, 24%-43% of respondent learners expressed concerns about getting poor grades because of online activities due to the Covid-19 outbreaks (Figure 9). Only in a small number of countries (50% in Austria, 52% in Slovenia), around half of the respondents disagreed with the statement "I worry that I will get poor grades because of online activities". Moreover, between 20 and 32% in all countries responded the statement being "partly not true, partly true".

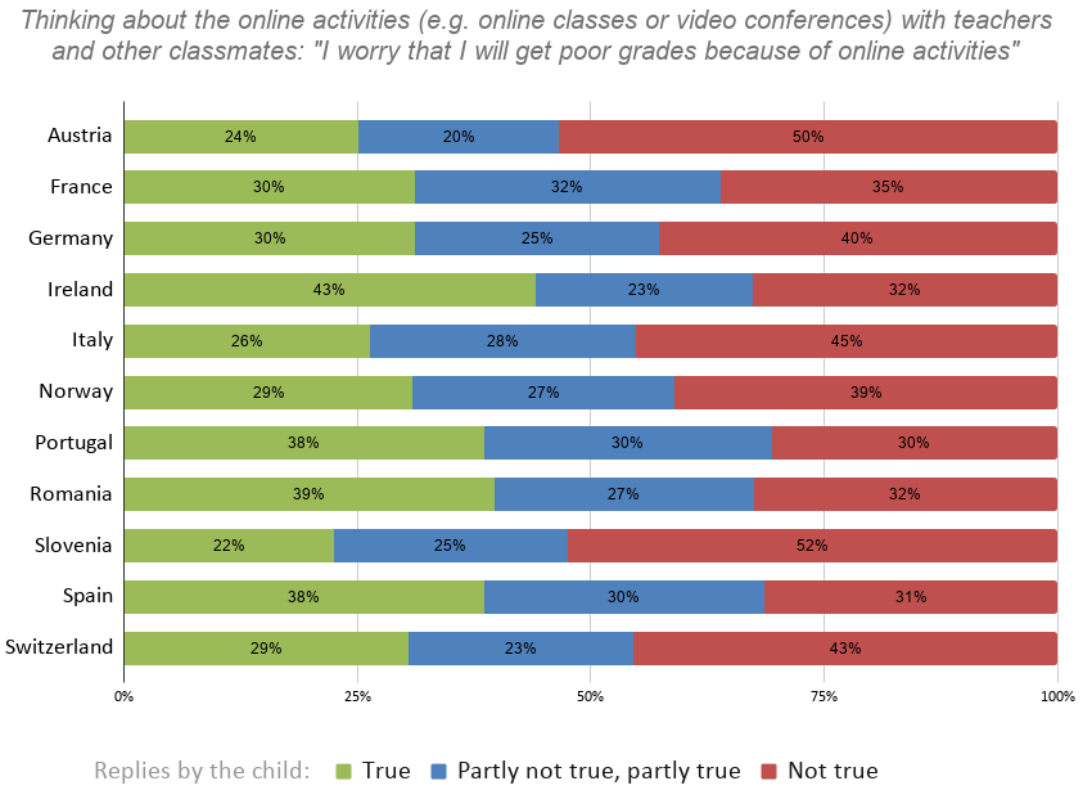

Figure 9. Children were asked to describe what they may feel when using digital technology for school on a scale from 1 to 5 (1=not true at all; 5=very true). The graph displays country averages in 3 categories: not true=1,2; partly not true, partly true=3; true=4,5.

4.5. Children's capacities to cope with online learning activities

The majority of parents in all participating countries estimated that during the spring lockdown 2020, their child had gained new digital competence in using digital technologies for online school activities (Figure 10, first row). Attributes such as gaining autonomy in using digital technologies, being able to conduct various online schooling activities and being able to help others in digital activities are all encompassed in the progression of one's level of digital competence (JRC, 2017).

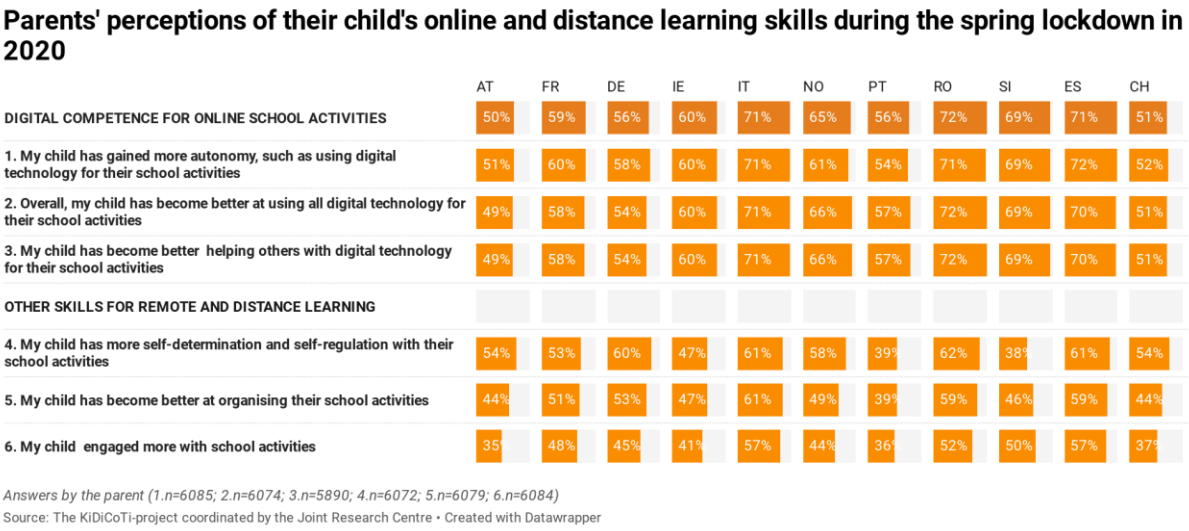

Figure 10. Parents answered statements about online and distance learning during the lockdown on a scale from 1 to 5 (1=not true at all; 5=very true). The graph displays country averages for answer category 4=true and 5=very true.

Figure 10 also shows that parents estimated that their child gained other skills that are useful for remote and distance learning, such as more self-determination with school activities (ranging from 62% in Romania to 38% in Slovenia), becoming better at organizing them (ranging from 61% in Italy to 39% in Portugal) and being more engaged in them (ranging from 57% in Italy and Spain to 35% in Austria).

The participating children also showed positive attitudes towards online learning activities and their own capacities to cope with them. Across all participating countries, around two-thirds of the responding children said that they felt they learned quickly how to participate in online activities (Figure 11), with over 75% of students in Norway and Romania feeling this way. Learners' beliefs in their own abilities to cope with the classroom closure and online learning activities can have an association with their overall well-being, but it can also be strongly related to their successful learning (PISA 2012 results, p.95).

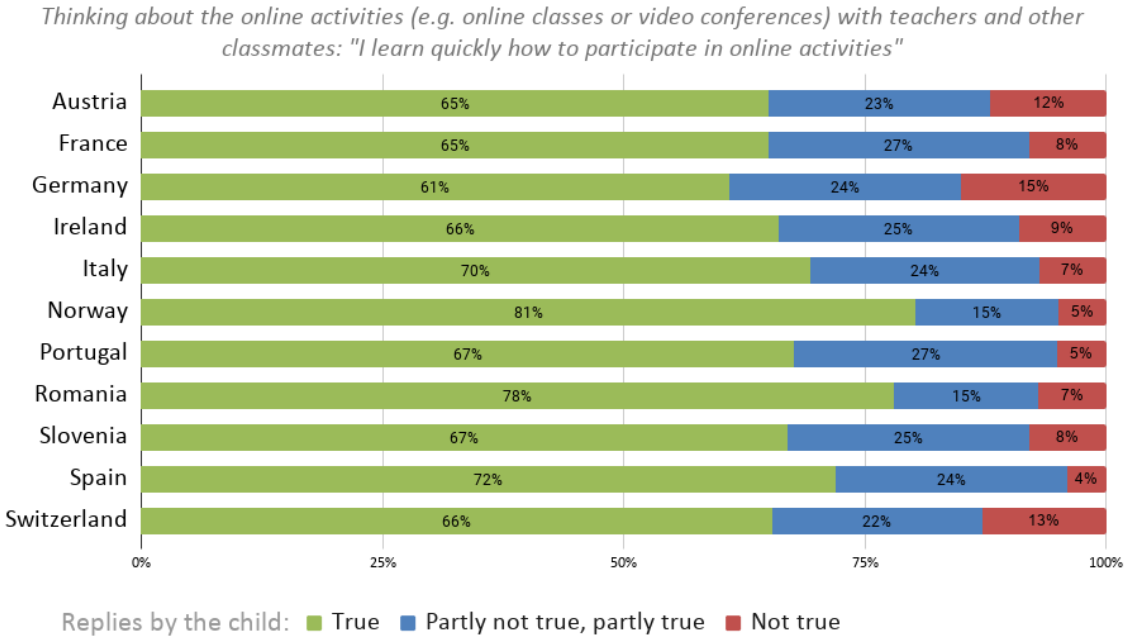

Figure 11. Children indicated their agreement with statements about their beliefs and abilities on a scale from 1 to 5 (1=not true at all; 5=very true). The graph displays country averages for answers in 3 categories: not true=1,2; partly not true, partly true=3; true=4,5.

Nevertheless, the family background could influence the way in which the children felt about their abilities and beliefs towards online learning activities. An index of child's positive attitude towards online schooling was adapted from PISA 2012 (OECD, 2014). Figure 12 shows the mean of answers by country which are further broken down according to families' self-estimated household income. A pattern emerges where children from families with below average household income seem to feel less strongly about their own capacities to cope with online learning activities than the other children. This could be observable in the majority of participating countries, but in Ireland, Portugal and Romania.

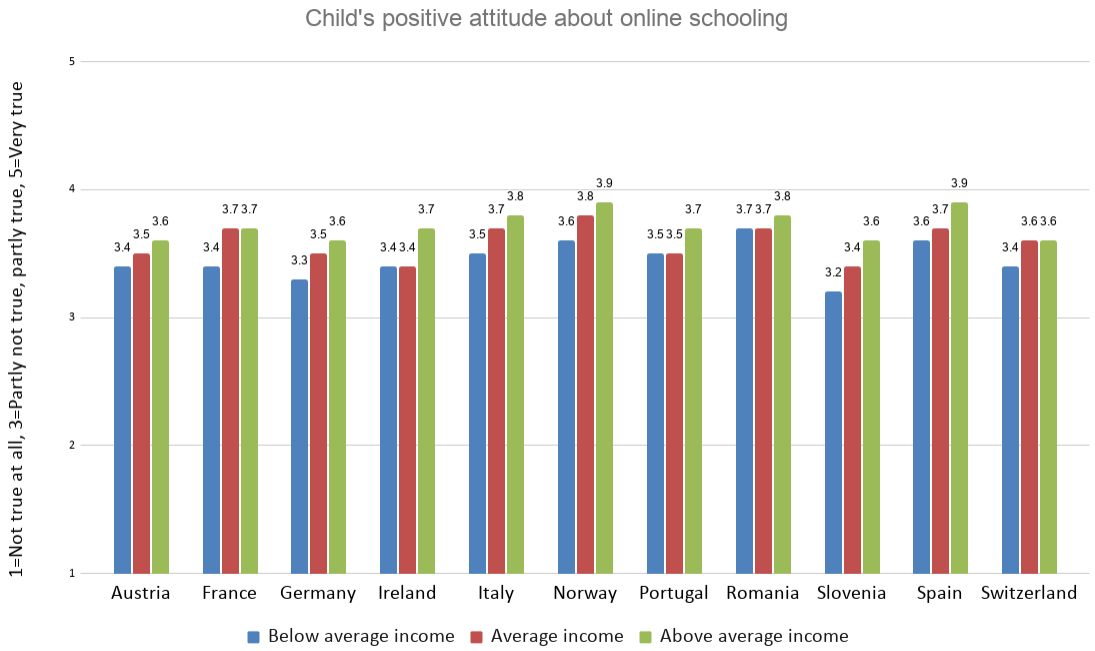

Figure 12. Child's positive attitudes about online schooling. The index is composed of child's agreement with 4 statements (I am motivated to participate in online activities; I learn quickly how to participate in online activities; I can follow even the most difficult teaching during online activities; I have always believed that I am good with online activities). Children answered on a scale from 1 to 5 (1=not true at all; 5=very true). The graph displays the mean by country broken down by parent's self-estimated household income.

4.6. Families need to be better supported for remote schooling

Families reported needing different types of support from schools. The high majority of the responding parents in Romania (90%), Portugal (89%), Ireland (86%), Spain (85%), Italy and Slovenia (84%) wished that the school provided possibilities for their children to do online educational activities with their classmates (Figure 13). Likewise, ideas for extracurricular activities to be done at home would be welcomed by parents especially in countries such as Romania (89%), Portugal (83%) and Spain (80%).

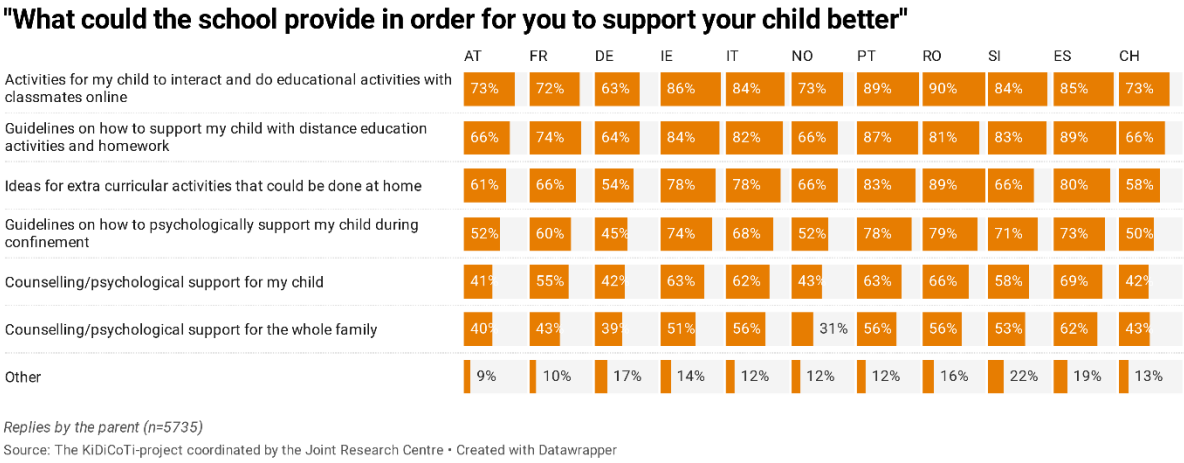

Figure 13. A multiple-choice question answered by parents about the support that they would expect schools to provide in a similar situation in the future.

Moreover, there was a high demand for guidelines by parents on how to support children with distance education activities and homework (varying from 64% in Germany to 89% in Spain). Guidelines would also be needed on how to support the child psychologically during the confinement by around ¾ of the

responding parents in Romania (79%), Portugal (79%), Ireland (74%) and Spain (73%). A very high number of parents would also like schools to provide counselling/psychological support for their child, e.g. in Spain (69%), Romania (66%), Portugal and Ireland (63%), and in Italy (62%). Such support for the whole family would be welcomed by more than half the responding parents in Spain, Romania, Portugal, Italy and Ireland.

5. Ramifications of the key findings

In the EU, the Digital Education Action Plan[6] (2021-2027) has two strategic priorities: to foster a high-performing digital education ecosystem, and to enhance digital skills and competences for the digital age. As the preliminary key results of this study show, learners and their parents were able to take advantage of a variety of tools during the spring 2020 lockdown for remote schooling (e.g. Figure 5-6).

For remote schooling to guarantee more even, and better, pedagogical and social outcomes, two separate issues arise. Firstly, more work is needed to strengthen and streamline the availability and use of digital learning tools and activities for *effective* educational outcomes in the future. More screen-time and online activities do not necessarily equate with better learning. The use of conventional learning aids (e.g. paper-based textbooks, educational TV and inspirational educational off-screen activities) could form a key part of the education ecosystem in the future. On the one hand, this can help achieving a balance between screen time and off-screen activities, but also from an equity perspective, delivering instruction in ways that do not involve technologies is crucial. Secondly, teacher pedagogical practices and instructional strategies play a key role, too. Strengthening teacher pedagogical digital competence is important, for example through focusing on distance learning practices that allow better peer-learning and collaboration among learners. Tools such as the European Digital Competence Framework for Educators (DigCompEdu) can help[7].

For students to make the most out of new technologies for learning, previous studies have shown that developing positive attitudes towards learning can help (e.g. Figure 9 and 11). Such attitudes towards learning can also be crucial in supporting learners to overcome some of the potential challenges, for example, those posed by online learning (OECD, 2020). Parents, together with teachers, play a fundamental role in supporting students to develop these attitudes. The results of this study show that designing targeted activities and support material (e.g. guidelines), which aim to reduce the burden on parents and teachers, would be needed to maximise the potential of remote schooling when regular in-person instruction cannot take place.

School systems and education authorities, together with school heads and educators, are stepping-up and enhancing the planning and design of education for any eventual lockdown or for a scheme that alternates in-person education with distance learning activities (e.g. hybrid learning). Sharing good practices that work at regional, local and national level is needed so that educators and school authorities can start adapting their instructional strategies to support learning and assessment effectively. Together with the Member States, the EU plays an important role in gathering and aggregating such insights and expertise. For example, more insights will be gained from an upcoming study called "*What did we learn from schooling practices during the Covid-19 lockdown? Insights from five EU countries*" (JRC, *forthcoming*) which, through interviews with educators and parents, gathered practices of what worked well, and areas for improvement, during the spring lockdown in 2020.

6. Further work

Within the KiDiCoti project, more thematic reports of the findings will be available towards the end of 2020 and spring 2021. The release in 2020 include an international thematic report on Online safety and privacy of 10-18 years olds in 11 counties (based on the same survey). Moreover, a cross-national analysis based on interviews on the digital online safety, education and well-being of children aged 6-12 years is

[6] https://ec.europa.eu/education/education-in-the-eu/digital-education-action-plan_en
[7] https://ec.europa.eu/jrc/en/digcompedu

envisaged, in addition to more in-depth publications on remote schooling activities. The final KiDiCoTi report bringing all parts together is foreseen for spring 2021.

Additionally, country reports, either thematic or compilation, are planned by the participating countries. For already existing reports, see DCU (2020) for Ireland, Dias et al. (forthcoming) for Portugal, Trültzsch-Wijnen et al. (forthcoming) for Austria and Velicu, A. (2020) for Romania.

7. References

DCU (2020). KiDiCoTi: Kids' Digital Lives in Covid-19 Times: A Comparative Mixed Methods Study on Digital Practices, Safety and Wellbeing -Key findings from Ireland. DCU's National Anti-Bullying Research and Resource Centre, Ireland. https://antibullyingcentre.b-cdn.net/wp-content/uploads/2020/08/Short-report_Covid_for-media.pdf

Dias, P., Brito, R. & Henriques, S. (*forthcoming*). Práticas Digitais de Famílias com Crianças em Tempos de Covid-19 - Um retrato de Portugal. Lisboa: Universidade Católica Portuguesa.

JRC (2017). DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use. Carretero, S.; Vuorikari, R. and Punie, Y. (2017). EUR 28558 EN, doi:10.2760/388

JRC (*forthcoming*). What did we learn from schooling practices during the Covid-19 lockdown? Insights from five EU countries.

OECD (2014). PISA 2012 Results in Focus: What 15-year-olds know and what they can do with what they know: Key results from PISA 2012. http://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf

OECD (2020). Strengthening online learning when schools are closed: The role of families and teachers in supporting students during the COVID-19 crisis. https://read.oecd-ilibrary.org/view/?ref=136_136615-o13x4bkowa&title=Strengthening-online-learning-when-schools-are-closed

Trültzsch-Wijnen, C.W. & Trültzsch-Wijnen, S. (2020): Remote Schooling During the CoVID-19 Lockdown in Austria (Spring 2020). KiDiCoTi National Report. Salzburg University of Education Stefan Zweig & University of Salzburg.

Velicu, A. (2020). Școala la distanță (primăvara 2020) și folosirea tehnologiilor digitale de către copii. Opiniile părinților și ale copiilor din România. Raport KiDiCoTi. https://www.insoc.ro/institut/Raport_Scoala_KiDiCoTi%20_RO.pdf

8. Annex

Sampling and data collection procedure. The data collection procedure was completed by research company VALICON and is based on their panel sample. The target population for completing the survey was children between 10 and 18 years of age and their parents. Based on the VALICON's existing data (census of the age of household members), a pre-selection of individuals with children aged between 10 and 18 was made. If the parent respondent had more than one child in the target age group who was willing to participate in the second half of the survey, parents were advised to choose the child who would have the next birthday. The survey was conducted online, an English main version was translated to the respective language for the use in different countries. Before the collection of data informed consent was obtained from both the parent and the child

The final database consists of the answers of those respondents where both the parent part and the child part were completed. The data set in all countries reached the threshold of a minimum of 500 families. The lower number of children included in the dataset stems from the filter question ("Have the classes at your school been cancelled due to the coronavirus outbreak?" those answering "no" skipped the module on remote learning) or it is due to a lack of consent from the child (Table 1).The database was not weighted.

Table 2 shows basic information of data collection per country, including the period in which data was collected, the average duration of the survey in each country and the number of parents and children pairs that respondent per each country. In general, all country samples, except the sample of Slovenian parents, show a good gender balance. The gender imbalance is slightly larger among the children, and in all countries except Norway, the sons are in majority. Moreover, demographic results show distinct sample

differences in the distribution on degree of urbanity, housing arrangements, educational level and partly in self-reported level of income. For instance, while the majority of the sample of families from Spain and Romania live in large cities and in apartments, only 19 % of the Swiss families live in a large city, and only 16 % of the Irish families live in apartments. These differences may be relevant for the interpretation of the country differences reported.

Table 2. Basic information about data collection per country.

Country	Start	End	Mean	Median	Sample
AT	15.7.2020	30.7.2020	00:29:51	00:27:11	510
FR	22.7.2020	23.7.2020	00:29:07	00:22:16	544
DE	22.7.2020	24.7.2020	00:24:20	00:19:31	513
IE	17.7.2020	08.08.2020	00:33:26	00:29:23	504
IT	15.7.2020	22.7.2020	00:27:05	00:22:03	1028
NO	24.7.2020	9.8.2020	00:42:34	00:38:07	525
PT	20.7.2020	27.7.2020	00:33:24	00:29:44	510
RO	14.7.2020	29.7.2020	00:32:16	00:28:08	518
SI	23.6.2020	3.7.2020	00:36:11	00:32:35	506
SP	21.7.2020	23.7.2020	00:27:28	00:22:16	554
CH	21.7.2020	11.8.2020	00:32:54	00:27:12	502

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