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The school year 2020-21 in Estonia during the pandemic

Country report

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Foreword

This report focuses on the school year 2020-2021 in Estonia and how, after the first wave of Covid-19 pandemic, schools moved away from *emergency* remote schooling towards a more planned and inclusive approach to education. A number of representatives from education authorities, schools, parents and NGOs involved in education were interviewed.

This report is part of a multi-country study financed and coordinated by the Joint Research Centre (JRC) of the European Commission. The study was conducted from January to June 2021 in Denmark, Estonia, Hungary, Romania and Spain. Based on the national reports¹, a cross-country analysis will be published later in 2021.

Since the start of the Covid-19 pandemic in March 2020, the JRC has initiated various studies in relation to education in the context of Covid-19. The first report looked at the existing literature and recent international datasets to reflect on the likely impact of COVID-19 on education². Next, two new multi-country studies analysed the situation of remote schooling during the first wave of the pandemic. Qualitative data were collected from June to August 2020 focusing on *emergency* remote schooling from the perspective of schools and teachers in five EU Member States (Belgium, Estonia, Greece, Italy and Poland)³.

The second multi-country study, called KiDiCoTi⁴, collected data on children's use of digital media for schooling, leisure time and social contacts. The KiDiCoTi study resulted in a series of reports. One of them is based on online survey data from 11 Member States focusing on how parents and children experienced emergency remote schooling⁵ and another one deepens the view through interviews in 10 Member States⁶. Finally, KiDiCoti has also produced a report on online risks⁷ and has a series of country reports.

All these studies provide a timely trajectory of the current developments in education based on evidence. With the results presented in this report, the aim is to take a step further to learn about the school year 2020-2021 in Estonia, and what lessons can be brought forward to make the future of digital education happen.

DISCLAIMER

The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.

¹ Enemark Lundtofte (2021), Monostori (2021), Mägi (2021), Trujillo Sáez (2021), Velicu (2021)

² <https://publications.jrc.ec.europa.eu/repository/handle/JRC121071>

³ <https://ec.europa.eu/jrc/en/news/remote-learning-lessons-covid-19-and-way-forward>

⁴ <https://ec.europa.eu/jrc/en/science-update/kidicoti-kids-digital-lives-covid-19-times>

⁵ <https://publications.jrc.ec.europa.eu/repository/handle/JRC122303>

⁶ Cachia, Velicu, Chaudron, Di Gioia & Vuorikari (*forthcoming*)

⁷ <https://publications.jrc.ec.europa.eu/repository/handle/JRC124034>

Abstract

This report presents results from a qualitative interview-based study with teachers, students and school leaders (n=15) on the academic year 2020-21 in Estonia, which can be described as the first full year with Covid-19. The study reveals how school staff members were bridging previous experiences from 2019-20 in preparations for 2020-21 resulting in a variety of education modes, including contact learning, hybrid learning and remote education. While the academic year 2020-21 can be characterized by constant reorganizing, creative tailor-made solutions and *ad hoc* planning, key findings in the study include instructional practices developed, assessment and feedback, well-being and vulnerability, data protection and privacy. Potential improvements and future directions for the next academic year 2021-22 and for long perspective planning in education in Estonia are provided.

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This report is financed and coordinated by the Joint Research Centre (JRC) of the European Commission, the JRC team consists of Jonatan Castaño, Romina Cachia, Yves Punie and Riina Vuorikari.

Executive summary

The academic year 2020-21, with prolonged waves of school closures due to the pandemic, has expected creativity to find diverse solutions among all stakeholders in education: students, teachers, school leaders, professional support staff members, parents. While rapid changes have caused stress and affected well-being, new roles and possibilities have emerged in education that may have triggered innovation.

There has not been a strategy change since the first wave of COVID-19. Focus on student-centeredness has remained with a more systematic course of action. Bridging on experiences from pre-pandemic time and education during the first lockdown in spring 2020 have inspired confidence and built courage among teachers and school leaders.

To address the COVID-19 risks, **school-based local approach** was adopted already in summer 2020. The state has taken a clear approach that while **general framework** and guidelines, rather than instructions, are **provided by the ministry**, school owners (mostly municipalities) and school leaders must make **decisions based on the local needs**. The Ministry of Education and Research has been mapping the situation at schools by creating an overview what are the challenges schools are facing and what kind of assistance is expected from the state level. Schools are expected to have action plans with various scenarios.

At the same time, the state has emphasized that **digital transformation has become a focal point of school life** and educational institutions to maintain and develop hybrid learning capabilities throughout the school year to be prepared for smooth transition if necessary. There are several state level new developments to extend digital competence development, such as new digital textbooks (including for students with special education needs), new digital competence models already in progress. The Ministry of Education and Research has launched numerous processes of developing new concepts and setting new course. For instance, a process of updating general education curricula, improvement of educational support services, tackling teacher shortage.

Public-private partnership has facilitated increase in education quality and access. Estonian EdTech companies, currently 28, have created an umbrella **EdTech Estonia** which has an ambitious goal for Estonia to become a leader in education innovation in the world. The initiative has been triggered by the Covid-19 crisis when EdTech companies started to offer free-of-charge solutions and apps at school.

While all participants note that educational technology is not capitalized purposefully to a full extent, the biggest challenges tend to emerge in pedagogical instructional practice. In the context of remote and/or hybrid education, preparation and planning which teaching requires is new to teachers. Without proper training and support, they feel insecure and prefer the pre-pandemic education model. Yet, there appears to be a common understanding that flexibility and equity hybrid learning will most likely secure their places in education. Practice period during contact learning, which means trying out tasks that are needed for learning remotely, has proven beneficial for preparing self-efficient students for remote and/or hybrid learning period.

Teaching staff stresses several concerns that they feel contribute to their workload as being time-consuming and inconvenient. They consider selecting materials from various e-learning material portals hindered by the fact that materials are not structured by level of difficulty, topic, digital skill level and/or equipment.

There has been a shift from predominantly independent tasks and written format of learning design to systematic and diversified approach to learning. It means balancing online contact and individual work, purposeful online communication, and group work in 2020-21 compared to the spring 2020. School leaders notice greater focus on general competences and teachers' critical approach to subject curriculum to prioritize core topics. Teachers have rethought curriculum content and recognize room for adjustments.

There are mixed opinions regard workload and learning gaps among students about this academic year. However, extensive screen time, frequent changes and reduced physical exercise might have contributed to the decrease in motivation and increased anxiety that all student mention. Students do not identify peer vulnerability through special education needs but rather through mental health and well-being. They relate to being peer-supportive and helping each other out. Students create interactive approach amongst themselves, communication via chat is a common way to support each other both academically and emotionally during the learning and after school. While schools are facing a dilemma between the discourse of learning loss and the discourse of socio-emotional development loss, school leadership comprehends the need to facilitate school as both social institution and academic entity.

Both students and teaching staff have experienced challenges with following online privacy and data protection rules. At times, the balance between convenience and security is disproportionate. Teachers acknowledge efforts

that have been put into agreements with parents to have approval for student participation but similar agreements with teachers appear to have neglected.

“In spring [2020], the goal was to survive; in autumn 2020, we started to consider how to organize it efficiently. It is when you realize that it is not temporary, but here to stay. You and the situation is here for real and this time must matter [in terms of education]. We have to find a way that would benefit all age groups.” (teacher)

1 Academic year 2020-2021: national context

Academic year 2020-2021 has seen implementation of **various learning approaches in schools**. The situation has been different in different regions of Estonia due to the prevalence of Covid-19, but there is no precise overview.

The first closure of schools in Estonia took place **early spring 2020** when the Government of Estonia declared the state of emergency and decided to close all educational institutions, except kindergartens, on 16 March 2020. From 15 May, the rules applicable to all educational institutions were relaxed due to falling numbers of registered COVID-19 cases.

During the academic year 2020-21, schools have remained in contact learning in Estonia until early March 2021. Until early spring 2021, the Ministry of Education and Research reassured that that closing schools entirely should be avoided. Even though the closure of educational institutions has been the government's last choice, due to the extremely high level of infection, all Estonian schools were referred to **remote learning from March 11 2021**. However, students with special education needs could continue contact learning if safety rules were followed and parental consent was received. From 3 May 1st-4th graders were allowed to attend school again. **As of 17 May 2021**, all schools resumed contact learning.

Schools have experienced a great variety of infection level and need for remote and/or hybrid education most of this academic year. For instance, at the beginning of 2021 there were close to 100 schools with group infection (more than five people have fallen ill) who were on remote learning. Schools have had to coordinate switching from contact learning to remote learning with the Health Board. All students, with the exception of students with special education needs, must have attended remote learning at least part of the academic year. While there is research available on remote learning situation in spring 2020, there is scarcity of research on education during the current academic year 2020-21.

2 Results

2.1 Planning for and adjusting to 2020-21: approaches and patterns

In the context of decentralized planning model, students and school staff have experienced **a variety of education modes** during 2020-2021 including **contact learning, hybrid learning⁸, remote education**. Most schools started preparing for this academic year already in late spring 2020 by sketching out various scenarios and implementation plans.

The academic year 2020-21 can be characterized with various restrictions throughout a year. For school leaders and teachers, it has meant **constant reorganizing, creative tailored solutions** and **ad hoc educational planning** for which timely preparations led the way. *“From September till December, there was not a weekend where I did not have to solve cases related to COVID-19 and reorganize learning process, groups, teachers – it has been insane.”* (school leader)

2.1.1 Approaches adopted for 2020-21

School staff members were bridging previous experiences from 2019-20 in preparations for 2020-21. They heavily relied on **lessons learnt in spring 2020** during the lockdown. As put by a school leader, *“The situation [in spring 2020] brought out clearly what we can do and what we are missing”*. Shortcomings, such as use of a great variety of digital environments created confusion; overload of information exchange; equipment and technology that needed updating were paid attention to. These challenges emerged also in previous research (Lauristin et al 2020; Mägi 2021).

Response designed was **divergent in different schools** and at various levels, differing also in degrees of intensity and cooperation. Some municipalities provided various scenarios for education and health situation which was adapted at school level. For example, a preparation included outlining the spring 2020 situation by mapping digital environments that were used and creating a common frame coupled with a set of digital environments keeping user comfort in mind. Internet safety and cybersecurity were considered in making choices in parallel with the rights and requirements for both students’ and teachers’ online participation. For instance, renewing the whole digital infrastructure and creating specific informational technology support at school. Preparations continued from June to August 2020 and plans were set by the 1st of September when most student started a new schoolyear. Clearly, this is an ongoing process and the need to explain benefits and inspire teaching staff to come and/or remain on board is constant.

Other **municipalities partnered up with school teams to create a new vision and innovative approach** in summer 2020. As summarized by a school leader, *“We took a huge leap and changed the school hardware and software completely, adapting Office 365 which enables one environment for everything – online lessons, email communication and so forth.”* This kind of comprehensive change was supported by training and continuous assistance. Trainings for all teachers took place at the end of August when teachers returned from summer holiday followed by constant possibility to receive assistance from educational technologist, IT-lead and/or system administrator. Additionally, there are weekly *“digi-minutes”* where teachers discuss questions, experiences and bottlenecks in Teams to ensure immediate problem solving and increase collegial collaboration. It has resulted a formation of smaller informal communities among teachers within the school that share various methods and tips. Ambitious vision implementation meant working throughout the summer for school leadership and municipality development team, but the results have been inspiring.

Compared to the spring 2020, some schools have designed **two different timetables**: a regular one **for contact learning** period and another one **for remote education period**. The latter means a reduced number of lessons, in other words, it indicates only online lessons: if a regular timetable has two Chemistry lessons, then the remote education timetable lists one chemistry and another lesson is meant for individual work. School

⁸ Hybrid learning is an educational model where some students attend class in-person, while others join the class virtually from home. Educators teach remote and in-person students at the same time using tools like video conferencing hardware and software, while they can be either in class or teach remotely

leader considers it one of the **key elements for balancing workload and technostress**⁹ for both students and teachers.

School leaders reveal that they **did not prepare for situations without digital tools** in the scenarios. They reason it with **enabling access** by sharing digital equipment such as laptops, cameras, microphones to everyone that needed them. Internet connection has not been problematic for families in the schools that interviews were conducted. Some **teachers** perceive at times that digital tools and media is a goal of its own, not a method or medium. Some stress **the importance of finding a balance between digital and non-digital practices**, and consider co-responsibility here on school leaders and educational technologists. *"Textbooks, workbooks have not disappeared. Group work and creative assignments are all there. It is finding a balance between these and to be mindful about it."* (teacher). Teachers stress the importance of library role to diversify e-materials with books and workbooks. Some had not used workbooks for several years but started again this academic year to ensure that students would not forget handwriting.

On the hindsight, school leaders contemplate whether they put **too much effort into process preparations instead of well-being and resilience**, such as planning on how to keep distance between students, disinfecting, reorganizing moving paths for various groups at school to avoid connection. The process has been rather smooth and could have been achieved with much less resource investment. *"We thought too much on exactly who moves where and when, where we eat. We thought of it a lot, but the experience showed that was unnecessary. What we should have concentrated on was on reducing teacher workload, so they would not get so tired."* (school leader)

School leaders in our interviews admit that **quick changes are challenging to implement** and not all teachers are always on board. They stress the importance of **information flow at various stages of development** to maintain inclusiveness. Immediate assistance with the smallest implementations facilitates enthusiasm and engagement among teachers. One school leader brings out a good example of two-way communication approach that was successful for implementing quick changes in education during the pandemic. It means regular discussions on the most burning issues between school leadership team, subject area leaders and teachers. In Estonian schools, the area leaders are mid-level experts who communicate between leadership and teachers to ensure both the wholistic and detailed focus in this process.

Teachers stress the **importance of agreements** in a rapidly changing educational context. Predominantly agreements between teachers and students, but also within the schools among colleagues and leadership. *"You have to make new agreements, so everyone would feel good; that I would feel fine and they [students] would feel fine."* (teacher) New agreements create a solid foundation for resilience and successful partnership.

Overall, it could be said that there is **no change in strategy** in 2020-21 as the focus has **remained on student-centred approach**, but situation has become **more peaceful** which is reflected among all stakeholders – students, parents, school staff. Some processes have been accelerated, but teachers have been **more systematic in their course** which has enabled somewhat **holistic approach**. *"Teachers are much more confident this year, they know what they are doing. They are not swimming in muddy water anymore. Last year some were sinking, some were plashing, but now most of the teachers can swim and some can even dive!"* (school leader)

Professional support staff members, also a role in Estonian schools, state that challenges lie **not on technical side, but in pedagogy**. *"Those with biggest challenges are the ones who have not had systematic pedagogical approach."* (professional support staff member) More specifically, digital skills are found not as relevant as pedagogical competence – being a teacher and understanding what is expected. In remote education or hybrid education, more than ever before, **planning** and rethinking learning design **prior to the lesson** has gained importance. Teachers not only need a lesson plan as before, but *"must have materials, slides shared out for students, so students enter with knowing the study plan. When technological problems occur, we [teachers] stay above water. Yet, many teachers have not experienced this kind of planning before, they have not designed their lessons this way."* (professional support staff member)

Parents are perceived to have become **more cognizant** this academic year, while cooperation between school and home has become more frequent than before. *"I have become a writer updating parents weekly about situation at school, what we do and why we do it. This immediate communication has been great support for us and for parents, I believe, because they know our situation very well."* (school leader)

⁹ Inability to adapt or cope with new computer technologies in a healthy matter (Brod 1982)

2.1.2 Hybrid education in 2020-21

During the academic year 2020-21 autumn, numerous teachers decided to start practicing **hybrid education** due to constantly varying self-isolation need among students and/or school staff. A need for hybrid education was triggered by the fact that often students and/or teachers, who needed to stay in self-isolation for nearly two weeks, felt fine and able to continue learning. *“At some point, I did not continue monitoring absentees for isolation reason but just added a link to join a lesson, so everyone at home could join us online if they were up for it.”* (teacher)

Teachers stress that benefits of hybrid education do not only include ensuring participation from distance, but with enabling access for joining from home, anytime, encourages parents to decide to allow their children to remain home if they have doubts regarding children health and/or risk of contact with COVID-19. Thus, while most students participated in a classroom then it became a routine that someone joined online with the class for teachers who took up on hybrid education.

From **preparation perspective** it means that a teacher provides a link in e-diary, which is regularly used school management tool which was already in use pre-covid times to facilitate communication between students, their families and school staff members. It includes timetable for various grades which means that a student must pay attention to join the class at the right time while joining remotely. In school, such physical arrangements include that a teacher carry her laptop from one classroom to another, and while teaching a class, making sure that only a teacher and blackboard were seen for students joining remotely. For privacy reasons, there is a requirement that students in the class should not be visible via camera. Ideally, classroom would be equipped with technology that easily enables to implement hybrid education but today, it rather an expectation than rule.

Situation is somewhat different If **a teacher must remain in isolation at home and continue teaching remotely while most students are at school**. The classroom setting at school has to be adapted by educational technologist, for example, so that a teacher can see all students in the classroom through a wide-angle view and students can see their teacher on screen. This presumes a **physical setting in a classroom** which allows the same teacher to conduct all lessons throughout a day or a week in the same classroom, otherwise it gets overly complicated.

It is perceived to be **more challenging at primary level** to conduct hybrid education when teacher is joining remotely. **Teachers** express that while with upper primary and lower secondary students' hybrid education appears to be a good fit, but they were rather concerned at first when having to practice hybrid education at lower primary level. *“When practicing it the first time, I was scared that students are alone in the classroom and start using social media. I had heard of discussions that who is watching over students? After having the experience, I realized - I am there, so I am watching over my students.”* (teacher) Conducting hybrid instruction is perceived to be the most strenuous combination by a teacher, *“I was lacking the experience on developing self-regulation skills from distance when students are physically together without any adults and leading was possible only via screen”*. To succeed with hybrid education while students are together in the classroom and teacher teaching remotely, there must be a **mutual trust and good relationship with students and a teacher**. As a teacher points out, *“Some teachers seem to have trust issues: how do I cooperate like that? Sometimes I would like to ask that what is it with you and trust issues, why don't you trust your students?”*

Teachers pointed out that it **requires self-transcendence at the beginning** but after having practiced a few times, teachers **get more comfortable** as do students. *“A mutual agreement with students is needed and understanding that for our lesson to work well and everyone to have a great experience, we have to pay attention to challenges in group work, pay attention to the noise level and other elements that may interrupt - prior to these activities.”* (teacher) She emphasizes that it is necessary to repeat these agreements from time to time at the beginning of lesson.

Some **teachers** and **professional support staff members** state that many **teachers do not prefer hybrid education** or would even oppose it. They **feel unprepared** and consider it doubles their workload. It is emphasized that if hybrid education is implemented poorly, then students both in classroom and remotely are dissatisfied and no one is happy at the end. *“If we would say that hybrid education is a standard in our school, then a third of our staff would leave.”* (professional support staff member) That being said, they concede that future is likely to bring an increasing need for hybrid education. Currently, some schools have chosen a strategy

providing teachers an individual choice which form of education to implement, while supporting the choice from inspiring interest to hybrid education to creating technical conditions and methodological advice.

2.2 Implementation: instructional practices and capacity

“In spring [2020], the goal was to survive; in autumn 2020, we started to consider how to organize it efficiently. It is when you realize that it is not temporary, but here to stay /.../ you and the situation is here for real and this time must matter [in terms of education]. We have to find a way that would benefit all age groups.” (teacher)

2.2.1 Instructional practices developed

Schools implemented a **practice period for students** at the beginning of the academic year 2020-21 when schools operated in contact learning to prepare for a likely remote and/or hybrid education period. It was found that having basic digital skills and operating mechanisms for coping creates a good foundation for educational continuity in changing environment. This enabled students in some schools as young as primary level to **be increasingly self-efficient** and manage at home alone if needed. For instance, at primary level, logging into e-diary, using username and password, initiating web calls through role plays and e-exercises were practiced. As a school leader describes, “*We played the situation as if it was real: I was in the classroom next door and students had to join the class via link, so we practiced several times until everyone had made it to the lesson.*” Lower and upper **secondary level students** reveal that they were introduced some new digital environments, such as Google Classroom, and methods, such as taking a test by writing with a pen on telephone screen, as a preparation measure for a likely hybrid and/or remote education period.

Some **teachers** emphasize **patience and willingness to look behind what meets the eye** when teaching remotely or using hybrid approach. Unsubmitted tasks or lagging behind might be caused by **technical challenges or lack of skills** rather than unwillingness to learn. **Cooperation** with professional support staff such as educational technologists, social pedagogues, psychologist, speech therapist is seen to greatly benefit the situation although the availability of support staff at schools varies greatly. Teachers highlight the **importance of individual conversations** with young people to build a positive contact and facilitate a sense of belongingness, particularly during the remote or hybrid education. Teachers, who also have a role as **class teacher**¹⁰, stress the importance of **daily communication** with students. They admit that at times personal conversations have to take priority over academic work by just letting students talk about daily topics and personal concerns. “*If you see that a student wants to talk, grammar and commas can wait; if you can see something is bothering a child, then I should listen and talk to him/her.*” (teacher) Professional support staff members point out **the importance for neutral and non-judgmental communication** when dealing with difficulties. For instance, presenting only facts about the situation without mentioning misbehaving or personal likes or dislikes. They emphasize that teachers should have training on how to handle these situations.

There has been a **shift from predominantly independent tasks and written format to systematic, purposeful online communication and group work** in 2020-21 compared to the spring 2020. Some teachers express that both teachers and students are more used to remote and/or hybrid education which has prompted more courage to experiment with various tasks among teachers. “*We used to write a lot and communicate extensively via emails which was tiresome for everyone. We were drowning in these emails and photos. This year photo competition [of tasks completed] is over; if one in four lessons is reserved for independent work then it is carefully designed to practice very specific skills.*” (teacher) Some even say that the share of virtual contact and independent work have been reversed in 2020-21 compared to spring 2020.

Students express that teachers have adopted a **diversified approach to learning balancing online contact time and individual tasks** more than last year. “*Some teachers did not want to touch Meet or Zoom, but they have started this year. It was strange at the beginning; they were uncomfortable, we were not used to it, but now it totally makes sense and is easy.*” (student) Teachers are more **knowledgeable on how to design online lessons**. “*If the main goal was to reach contact with students in spring, then now online lessons are purposefully structured, and I am very happy that the use of screen time is purposive.*” (school leader)

Students indicate **increase in group work learning** design, also as a **student-led initiative**. “Our class does a lot of group work. Sometimes, if there are too many tasks, we divide the tasks among us and then share.

¹⁰ Every class has a class teacher who is the one teacher taking co-ordination and communication responsibilities for that specific class with the responsibility to monitor and support the social and academic development of the students

It is out of our own initiative, but sometimes encouraged also by teachers.” (student) “If I would have to do alone what teacher has assigned us to do, then it would be more boring and I would not feel motivated to complete it. As a group, I feel that I have to do my part which increases motivation and is cooler.” (student) Students mention that **not everyone might feel comfortable in online lessons** and they do not express themselves or talk. “Teacher explains the topic and then those who want to speak, talk along. We have students who do not say a word. I do participate actively, though, I express my opinion and answer if someone asks something.” (student). In our interviews, students highlighted positive examples of teachers who have created smaller groups, so that students can ask questions, take advantage of peer support and assistance.

Students point out that during the first wave of remote education teachers overloaded students with schoolwork: on top of online lessons, there were hours of independent tasks to be completed. This academic year, teachers aim to fit study time proportionately with the time that would be considered for their subject or topic in contact education.

In our interviews, **student reflections on workload are somewhat mixed**. While some students indicate that workload is smaller during the remote learning and they are finished with all tasks by mid-afternoon, others **confirm** that this academic year appears to be more challenging, and **time devoted on learning has increased**. “Teachers have developed a lot. They use various apps and different solutions for tests. They have become smarter, so we cannot cheat in tests anymore. Thus, it is more difficult.” (student) “The main difference is that last spring, there were not many lessons and there was not much studying I would say. Now, teachers have gained tips and tricks how to design lessons and all. It is more difficult now, but it is not too strenuous, so I would not say it [remote education] is more difficult than it was at school; vice versa actually.” (student) “Workload is bigger, but we can handle it. Of course, we do spend a lot of time with screens. Teaching styles have changed for positive at most cases.” (student)

School leaders consider one of the challenges for students during remote and/or hybrid education period, when compared to contact education, is **a perception that task loads are much higher and accumulating**. “In school, students do not perceive it so disturbing if some tasks are not completed in the classroom, next lessons start, and we go on. In remote education, they see in real time, how much and how many tasks are undone.” (school leader)

Professional support staff members bring out the **risk of going extensive lengths** with long and creative project-like independent tasks: “There are great, but it is really a project. Teachers may stress that it must be completed within two weeks but, a student often starts a task close to a deadline - this is a path to accumulated undone tasks. I have encouraged my colleagues to limit these wonderful and creative mini-projects as independent tasks.” (professional support staff member)

Students highlight that **long lists of similar tasks without understanding the purpose are discouraging**. Some teachers note that they avoid long list of homework with strict deadlines, which was a mistake that occurred often in spring 2020. While **students expect clear instructions** and well-explained goals to accompany tasks, they appreciate long-term (weekly) plan that enable flexibility: “Some teachers provide tasks or work for the whole week which is time-consuming, but once it is done, you are done.” (student). **Teachers** consider it crucial for students to understand the **purpose of an independent task** and consider explaining goals important, repetitively if needed. “As a teacher, I contemplate how to maximize the benefits of tasks” (teacher). **Step-by-step tasks** are considered particularly relevant to cultivate understanding of targeted learning among students. Completion of different steps at various stages enables both teacher and students to monitor progress and identify the need for assistance.

All **students** in our interviews bring out **close contact** and **frequent communication with their peers** both during and after school. They are **savvy to stay in touch** with each other through social media or various apps both in and out of school. “In contact learning cooperation was more modest [between students] because everyone is in their own lessons and we do not get together that much. Now we have a good way that during Meet or Zoom lessons we can be in chat together and discuss anything we need.” (student) Some **consider it a group work if they are using social media chat for learning content** during the online lessons, even if the teacher has not provided opportunity for group work. “We have our Messenger group, so if we have an online lesson, we write there if someone needs assistance, needs to figure out something quickly or we need to solve a task.” (student). Students consider it helpful for maintaining focus through such immediate assistance, even though from peers instead of a teacher, as otherwise, if lost track, a student “would go to Instagram and surf around there which would definitely take my attention away from learning and lesson. So, this way is good.”

Students indicate that curriculum has been adjusted and teachers, but also students, prioritize some subjects over others. The emphasis is on language and hard sciences rather than humanities: *“Currently, more emphasis is on mathematics and Estonian and similar subjects /.../ We had arts and other similar subjects in contact learning but we do not have much of these now. In physical education, we had to do physical exercises but now once a week our task is to be sixty minutes outside and we have to send a screenshot of what we did”* (student). *“I only know a few subjects that I have learnt this spring, like maths and English and biology, but in music, I have no idea what topics we have there. /.../ So I study the subjects that I want, but if other subjects seem irrelevant at the moment, then I don’t.”* (student). Yet, some teachers observe situation differently and consider that humanities, such as art, have gained importance and position in education during the pandemic.

It appears that **remote education has enabled flexibility for some students** at secondary level to make more choices in their learning intensity and regulate focus in terms of subjects and topics coupled with increased self-responsibility. While some students **recognize risk** that focusing very little on some subjects may have a **drawback later** in case they want to change or expand educational paths/choices, then others would like to see this pattern extended, especially for graduates, as indicated by a student: *“Teachers should have an agreement that we can devote ourselves only for those subjects that we have an exam. There should be much smaller workload for those subject without an exam. I do not see the point.”*

Some **teachers** have **rethought curriculum content and unfolded topics according to the current pandemic time**. *“You need to think carefully what is the most critical in the national curriculum. What is it there that I absolutely must explain to students which otherwise might have consequences? And what is it that they can work on independently.”* (teacher) Others **express worries related to study outcomes in technical skills** applied in arts and crafts for example, as these are complicated to teach remotely. Education has become **software oriented rather than focusing on hardware supporting development of various types of skills remotely**. *“Teachers sometimes conclude that if there is silence online, there is no activity happening, while, when we are in contact learning in the classroom, we enable students much more time for thinking, we allow pauses that digital technology does not necessarily encourage. Thus, education has turned into reactions, ticking the boxes rather than deep level learning.”* (professional support staff member) Teachers emphasize that ideally, teachers **design tasks in a flexible way** meaning that **student can consider various options approaching the task, including diverse equipment**.

School leaders perceive there is a stronger focus on general competencies of the national curriculum this year and teachers critically approach the subject curriculum while prioritizing the core topics in subject curriculum. It is considered positive not following textbooks and completion of all exercises in workbook as rigidly as previously. Similar pattern was noted in previous research (Mägi 2021) which can contribute to the curriculum renewal process that has started in Estonia in 2021.

Instructional practices that facilitate student learning appear to have occupied an even **more prevalent spot in teaching design** among teachers because of having to re-orientate on remote and hybrid education. More specifically, teachers have focused on finding methods to support students without direct contact but in virtual environment and/or independent work; how to combine remote and contact learning with maximum benefits. The **new goal in instructional practice has emerged**, as expressed by a teacher, it is to *“create learning bites that facilitate activating various type of knowledge in your brain, understanding of learning; not just to throw them [students] in water but to instruct how they can find their way out, how they learn.”* (teacher). It means that teachers should identify moments where to place responsibility for a student to figure out how to solve a task or how to apply an appropriate learning strategy. Maintaining it and not falling back into heavy dependence of immediate teacher assistance in contact learning is considered important by some teachers.

2.2.2 Assessment and feedback

Teachers have made changes in assessment practice during this academic year by reducing assigning grades and increasing application of completion/non-completion assessment. Formative assessment has already been more common at primary level, while at upper primary and secondary teachers have traditionally been assigning grades. This academic year has brought a change in which teachers increasingly provide feedback and describe student progress rather than just grading. Teachers express they feel responsibility to provide personal written feedback for students in addition to the numerical grades. *“This is more time-consuming, but more supportive and inspirational for students.”* (teacher)

Professional support staff members bring out the positive sides of formative assessment among vulnerable students and students at primary level. For them, numerical grades could have a negative impact on learning motivation. They highlight that in addition to completed/non-completed assessment system, percentile grades

and feedback should be provided that entail what competences appear to have acquired and where improvement is needed.

School leaders consider that **teachers' feedback is more operative and purposeful** in 2020-21 compared to spring 2020. "In spring, teachers perhaps did not find a working method, they aspired to accomplish too much. But now, they have found a way to give motivating and purposeful feedback, pointing out the what and why of assessment, while staying alive." (school leader). Yet they feel confident to continue with numerical grades and regular assessment as the level of monitoring and support would reach students who need assistance, and they are invited to consultation at school or addressed with individualized assessment.

Students' opinions vary: some have not noticed differences in assessment this academic year, while others mention that grades are more infrequent coupled with a shift in focus. As a student expresses *"Some teachers started assessment immediately, every task received a mark which made it pretty hectic. Everything you sent, you had to wait, that uh-oh, what is going to come. But now, teachers have started to take it slow, probably they have a huge workload, it is more comfortable now."* Yet, while **students** appear to be in favor of grades, they **expect precision in feedback**. *"I really like written feedback that I used to receive at primary level. Now, I mostly just receive a grade. Even though it is positive, I would still like to know, what mistakes I made, because often I never see these tasks or tests if I do not specifically ask from a teacher. Current assessment is a bit messy. Last trimester, I received completed or non-completed, completed means from five to three, but I really did not even know what exactly I got and for what."* (student)

Teachers point out that **process rather than result should be prioritized**, and a method of assessment is a great possibility to convey this message. It provides students opportunity to pass various stages of task or learning process without graded feedback. Yet, students must pass all stages of the process. This is a principle they consider worth continuing in assessment after the pandemic.

Teachers consider it helpful if they can trace student progress online. It means that upon completion of the task, teachers can follow live where students need assistance and what has been acquired well. Both school leaders and teachers point to the need for exploring opportunities related learning analytics to enable more personalized learning experience. Some **students** point out the same challenge during the remote education which, in turn, creates **anxiety**. **Professional support staff member** explain that anxiety is still present in evaluation, but the center of anxiety has changed: *"Anxiety about numerical grade is gone. Anxiety about being graded almost every time has remained. So, you do not receive a grade, but evaluation of done or undone. You have continuous tension about not having completed something."*

Students emphasize the **importance of having a chance to ask questions** about instruction or specify something with an option to receive immediate response. During remote education, this option is hindered: *"My grades have fallen now, they were much better at school [...]. These [tasks] are sometimes too difficult for me. They go over what we need to do in Zoom, but in [regular] classroom, I will have an option to specify if I encounter an issue, but here I cannot ask immediately if I need assistance."* (student) Students express having used to receive **immediate assistance and feedback**. This habit may discourage them to reach out to a teacher via emails or chat as *"It takes too much time. In the [regular] classroom, I can raise a hand and a teacher can respond, this is what I would like."* (student)

2.2.3 Psychological well-being

According to our interviews, school leaders are **not too optimistic about developing the resilience** among students. In terms of achieving resilience, the focus has been on developing digital skills and being attentive to students who experience challenges in the process. *"We are not doing great yet, but we know it is a difficult time. [...]. For 10% [of students], it works very well; for another 10% it does not work at all and that is how it affects them; and the rest 80%, they always swim."* (school leader). In our interviews, **students** do not recall much discussion on well-being or motivation with their teachers or at school in general. Yet, they highlight that it is helpful if teachers perceive occasional motivational fall and instead of pushing full on, enable flexibility with deadlines and temporary slowdown. Students point out their **class teacher or social pedagogue as the first point of contact** should they have concerns or difficulties. Unfortunately, there is a scarcity of these specialists and not all schools have that kind of support. Students are also aware that social pedagogues have been rather occupied this academic year. At the same time, some students indicate that attention is paid once something serious has happened, moreover, sometimes expression of difficulties is treated as whining and exaggeration.

Professional support staff members in our interviews note that even though professional support staff is in high demand most of the time, then this academic year a need for psychologist assistance, for instance, has reached new heights as it can also be expected during the crisis. There is an increased level of anxiety, difficulties with coping, depression and side-effects of excessive use of digital tools. *“Students must use screens tremendously and getting out from that situation is difficult. Of course, students used screens a lot already before the pandemic, but we can see that it has only deepened.”* (professional support staff member)

In our interviews, students stress decrease in motivation and increased anxiety compared to the 2019–20, particularly during the remote education period and in relation to the **upcoming graduation**. *“I think many students experience a very difficult time. Some say that I do not understand at all what do I do here...I would like to be somewhere else, do something else, but I must be here at home. This psychological part is scary when you are listening people. /.../ I do not remember anyone talking to me like this in autumn, that it is difficult, and they cannot do it anymore, but now I can hear it everywhere, that I cannot manage anymore, I don´t know what to do.”* (student) Students graduating from lower secondary education (grade 9) **express fear related to continuing their studies** and if they would get into the secondary school of their choice. *“Perhaps we have not been able to learn that much but we still need to take the exams. If exams were cancelled, then it would be such a relief, but at the same time, if we want to enter other schools, then there could be exams and exams at the end of grade eight were already cancelled [due to the lockdown in spring 2020], so these exams now are like the first experience of its kind for us.”* (student)

While **some students are confident** that their studies have been more or less up to the expected level, others worry there might be **learning gaps**. *“I am not so sure about my math skills because I study by myself. Even though a teacher is with me in the online lesson, a teacher cannot follow what am I doing and how am I doing it. So, I am frightened that there might be some tasks that I do not expect or know.”* (student) *“We are practicing writing essays, but we do it with computer. I have developed a fear that maybe I cannot write so quickly on paper [during the exam], that it takes longer time.”* (student) Some suggest that exams at the end of this academic year could be used **as an indicator or personal feedback on learning gaps**, so students could be able to identify the learning gaps and improve over the summer or next year.

2.2.4 Physical well-being

Extensive use of digital tools, intensive learning sessions coupled with **reduced physical exercise** can contribute to **motivational loss** among students. *“Perhaps as I sit more, I become physically more tired. Especially, I can feel it in the morning when online lessons start and I have 15 minutes between the next lesson, sometimes teachers go over their time. So, with these minutes I quickly try to grab something to eat or drink, I cannot really move in between. It goes this way until 3 p.m. Then is free time, but of course, there is homework. Moving is much more limited and longer lunch breaks that we used to have at school are completely missing.”* (school) Students point out that **physical exercise and sports provided alleviation and facilitated motivation** during the **contact learning** period, but as training opportunities and hobby education have been unavailable during the lockdown period, and alternatives via screen did not help or inspire much participation, then they feel deeper motivational loss.

Professional support staff raises similar concerns that little physical exercise and movement involved in learning remotely or online can result in **emotional numbness**. *“Teachers move and encourage movement rather modestly as then they are not visible from screen anymore. I can see that energy is fading. Students´ faces turn numb, like dead. It is my task to keep them emotionally toned.”* (professional support staff member) They point out that **lesson structure** should remind us to **pay attention to students´ emotions** and cheer them up.

2.2.5 Social well-being

Schools have been creative to plan some “distinct schooldays” when there is no formal schoolwork. For instance, a Mental Health Day or Reading Books or Create and Move Day outside. These activities aim to balance social contact, physical movement and increase belongingness during the remote and/or hybrid education. The initiative often comes from activity leader at school who works with a school professional support staff member, such as social pedagogue, or subject teacher, such as PE teacher or literature teacher.

Students **perceive support from their peers** both in learning and emotionally. Systematic communication has facilitated feeling of connectedness and feeling appreciative. Students perceive that they **express themselves verbally more** this academic year. *“People communicate more and express themselves more by*

saying nice things. I have a feeling that there is thank you-thank you all the time.” (student) They consider it partly a result of not being able to see each other face-to-face and creating a feeling that they are not alone and can turn to someone anytime. *“It is not the same as talking to my classmates during the breaks at school where you just say random things, whatever comes to your mind. It is related to learning and concentrated on school topics, which is positive.”* (student)

Professional support staff members emphasize being **conscious and open from both** student and teacher side in learning process. “It is important to touch a soul. If you can do that, you have succeeded. /.../ I can only teach if a student is receptive. I can provide them an opportunity to learn.” (professional support staff member) Support staff remains focused on contemplating what is the most effective under current circumstances for a student to take away from learning. A special education teacher shares her successful practice of tuning at the beginning and sometimes at the end of the lesson, *“I start a lesson with asking how much you want to learn today. I have a tool that has a scale from zero to ten. How much are you ready to contribute? First, we recognize that it is up to you. I like traffic lights. Red is from zero to three, yellow is from four to six and green is from seven to nine. So, if you are yellow, then I can still help you. If you are red, then this lesson might not help you to achieve your goal. They understand it. The end of a lesson is similar: how much did you study today? From zero to three in red, they did not put much effort into it, so they did not learn much. Yellow – I made some effort. Green, which is what I want, I learnt a lot, I put much effort into it. The amount of effort is the question emphasized. It is up to my effort level, my responsiveness, me being active.”* The goal is to motivate students to be active and reflect on their demonstrated effort. This approach is not used in every lesson, but rather used as a tool to facilitate concentration and consciousness about learning in case students are distracted.

While schools are facing a **dilemma between the discourse of learning loss and the discourse of socio-emotional development loss**, school leaders appear to comprehend the complementary benefits between socio-emotional competences improving academic achievement. *“Everybody rushes to stress that we are left with huge gap in academic knowledge. But what is the gain? A lot of general competencies such as working habit, time planning, cooperation skills, keeping agreements and deadlines...all this is important in life. Nothing will happen if s/he does not know about the middle section of trapeze. Life goes on and a student can always look it up if needed. Thus, I cannot say that there are huge gaps left – we just learn different things.”* (school leader)

2.2.6 Response addressing vulnerable students

In our interviews, **school staff members** note that the students who need more support during the contact learning are more vulnerable also in remote and/or hybrid education situation. School leaders prioritize to **have all students on radar** by someone from school staff and **not to lose students for whom remote and/or hybrid education is not the most suitable form of education**. This is particularly important in schools with a large student population. There are successful examples of various kind. For instance, a children day center offers support by enabling students, who are unable to study home alone, attending the center. While there is room for improvement to accommodate students, who are not comfortable with learning remotely or at least periodically, a school leader explains, *“At school a student cannot be lost as it might happen during remote learning because we can physically identify this student. For instance, we can contact a parent and agree that a parent brings this student in front of the schoolhouse and someone will greet him/her there. However, remotely if a student is not available, we cannot go home and it is as if this student senses that we cannot follow him/her home, s/he is not reachable via any means like email, phone, nothing, no reaction. So, there is the difference.”*

Some schools have **teams of professional support staff to monitor** students at risk and to provide assistance if needed. **School leaders** emphasize that **allowing students at risk to continue contact education is crucial** for them to not fall behind. At the same time, they also maintain that there is much room for improvement to realize all students’ potential, also for talented students. **Students identify peer vulnerability through mental health rather than special education needs**. They relate to being peer-supportive and helping each other out.

In our interviews, **school leaders** and **teachers** consider **students with diverse background** being at risk during remote and/or hybrid education for several reason. First, the level of language of instruction at remote schooling does not develop with the same speed as in contact education. Second, sometimes their previous educational experience has not facilitated the development of homework habit and focusing on school tasks

while being at home. Schools have adopted a **rather flexible approach for students with diverse background prioritizing maintenance of contact** via most suitable mean for a student – computer, phone. Alternatively, whenever possible, these students can come to school for contact education as this has been allowed for students with special education needs throughout the academic year.

In our interviews, **students** also **identify peers, whose mother tongue is other than the language of instruction**, being in a **difficult position** this academic year. They bring out that language skills hinder participation in group work as well as in communication between peers. English cannot always be used as an identified common language. As an example, this created a situation in which a student communicated mostly with a few teachers who speak one or two of the languages that he can speak. This student with a different mother tongue did not appear to use common social media channels that other students used which further curbed his options to be socially connected. *“He is not in Messenger and he has not sent us a friend invite or proposed he would like to join in a group chat.”* (student)

Professional support staff members consider family’s economic opportunities crucial in terms of inclusion and equality: “For example, if a child has his/her own room or space to participate in remote learning online, then there is less straggling.” **Teachers** highlight the importance of **creating an initial contact** with students for meaningful learning. It is perceived easier to build it when “a student is physically present, you can put your hand on the shoulder, influence with voice volume, eliminate conditions that may interrupt, like using blinds if trash car is outside. When students are at home, it is more difficult to control, for instance if parents are walking around, listening to music or smaller siblings scream.” (teacher) One teacher shares her practice that she **adapts at the beginning of the lesson**, especially while working with primary level, by asking from students if they are alone or do they have assistance available at home if needed; how do they see the screen and access materials; if those who are alone need any help or have experienced difficulties. *“Live online contact lessons are absolutely necessary, so that students feel support, especially those who are alone at home and potentially might experience challenges with digital tools and content.”* (teacher)

Another example is to **design a list of things to keep in mind for parents** that emphasizes how they can contribute for their children preparing for online classes with tuning for the class organizing an appropriate physical space and not to jump in straight from bed. Problems arise **when parents do not notice or acknowledge the situation when challenges occur**. For instance, they do not recognize a special educational need or do not support motivation. Based on the professional support staff members, expectations and load for parental support has increased in remote education which could potentially lead to a growth in study quality, especially among students with special education needs. Common language of education between school and home that has developed should stimulate it.

Professional support staff members argue that the focus should be on providing suitable environment rather than contact lessons. *“Home means relaxation, other people, you are in a different role. You are a child, not a student there. It is challenging for one to be able to mobilize oneself even for grownups on how to come out from one role and move to another. It is easier for a student to go to a schoolhouse to learn as s/he knows this role, what is expected.”* (professional support staff member)

The need for extra support has emerged with **using digital tools**. “Some students find it hard to keep track while reading text on the screen, particularly those with weak working memory. It is easy to follow while using a hard copy material and ruler or finger, so now I had to teach them to use mouse.” (teacher) **Teachers** described that students who experience **social anxiety** find it challenging to use camera during online education and teachers have made expectations for these students allowing to use voice and not a video. This has prompted some teachers to consider how students feel when there are numerous other students perceived so close-by on the screen, looking at them while they must keep the camera turned on.

In one of our interview, a **professional education support member** shares a **team approach** adjusted in their school **to support vulnerable students**. It is called **study analysis** and it includes student, class teacher, parents, professional support team members, (sometimes) subject teacher and/or parties outside school. If a student receives a very low grade at the end of a semester, then a **roundtable** will gather to discuss the needs and solutions based on *study analysis* gathered from all parties previously mentioned. *Study analysis* is a questionnaire/reflective form in which everybody reflects the reasons a student has received poor results, steps taken to help her/him and what in their view would help to facilitate the situation. This is designed to encourage students and teachers to maximize their efforts to achieve good results and increasingly include home partnership. The roundtable brings various perspectives together and enables to compare viewpoints and solutions collectively as solutions are often designed presuming collective action. For instance, there could be additional mandatory consultations assigned for a student, starting an individual curriculum, addressing anxiety

or psychological assistance, keeping a diary, improving previous learning gaps, assigning additional analysis/medical assistance; addressing home challenges with for instance trainings for parents offered by child protection. Measures are agreed and commonly addressed with all involved parties and revised after a few months.

2.2.7 Data protection and privacy

Schools cooperate with data protection inspectors, and the Ministry of Education and Research, which has provided instructions related to digital environments and online lessons. Schools consider them helpful. A general suggestion appears to be for students to keep cameras turned on. However, if students express a reason for remaining off camera, for instance weak broadband connection, then there are no measures schools would take to oppose it. School leaders admit they have not had serious problems related to data protection and privacy issues yet, even though some professional support staff members point out some challenges related to data protection and privacy.

Some interviewed **students** indicate **misunderstandings** with following recommendations to keep video camera turned on during online classes. *"Some errors occur with teachers because if someone says we have to have video and school regulations also say that, but they have to consider I am underage, so there are things like that which cause confusion."* (student)

Professional support staff members also stress **challenges following the GDPR**: "Clearly, you need parental permission for using these [e-learning services]. Sometimes parental consent has been received but student do not know about it. Students are not always aware, where s/he is, why s/he is there, how his/her personal data is used, when will his/her work be deleted." Staff members consider **parents as primary target group** here, so parents could discuss these issues with their children at home. Thus, the balance between convenience vs. security appears to be a bit out of place in terms of data protection and privacy.

2.3 Potential improvements and future directions

2.3.1 Implications for academic year 2021-22

Several implications emerged from the interviews that can be considered while preparing for the next academic year 2021-22.

2.3.1.1 Supporting creation and structuring of learning materials

There are several portals in Estonia for e-learning materials such as eKoolikott and opiq.ee. Yet both teachers and school leaders find that among **many digital learning materials with high-quality content**, it is **time-consuming to make the selection**. The way the search for learning material is **structured does not include searching by the level of difficulty, topic, digital skills required and/or equipment needed**. Following individual approach and having to compile learning material for diverse needs of students, the search for suitable material takes even longer. *"Even though being a small country in size, we cannot build a common platform. For instance, we have numerous digital environments or digital repositories of learning materials, but not a common place. There is competition all the time which I perceive as a weakness. So, in terms of content and organization of digital material we are still in its infancy. Okay, we have something, but for whom? Mostly for an average student which form about a third of student body. Yet, there are those who need support and those, whose talent needs development. For those, we do not have much. /.../ Thus, as digitally developed country, we could create a common state-wide platform or digital repository for learning materials."* (school leader)

Teachers suggest **various approaches for structuring the search of digital materials**. For instance, additionally structuring by topic rather than only by grade and/or by content, by age groups or level of difficulty. Currently, some teachers have **created their own learning materials** instead of searching as they perceive searching materials nearly as time-consuming as creating their own materials. That is particularly the case for students with special education needs and diverse background, but also subject specific (for instance in foreign languages) and/or levels of study. *"For years I have been creating my own materials and have created a webpage where I have organized the materials by grade level and content. At some point, I had so many tasks and materials that I lost an overview and could not make sense of all the materials that I had. I discovered that*

I have some truly awesome digital content. The remote education experience has triggered me to organize and structure this diverse material that I have – it has been very useful.” (teacher) Insufficient digital materials in some subject areas emerged as one of the weak points in remote learning also last year (Mägi 2021). Teachers **could have more resources on ensuring** that all materials would be available both online and in-class; ideally the study materials, such as worksheets, would be interactive online and attractive in hard-copy format.

The concern for various teachers in our interviews has been the process of **adjusting available material**. Teachers strongly prefer educational materials that consist of **both online version and hard copy** which enables students to fill in tasks online while teachers can monitor the process, provide feedback if needed. This is helpful in hybrid education when teacher needs to reach students both in classroom and remotely. The **potential of learning analytics is rather underused**. *“We may have learning materials, but we cannot get the potential of using them and related learning analytics to achieve an overview how much does it actually support student development.”* (school leader)

2.3.1.2 Implementation of learning analytics and development of educational passport (hariduspass)

School leaders consider contact education to be the most effective mode of learning for primary and lower secondary level. At the same time, with sufficient preparedness for digital pedagogy and implementation of individual pathways, they see potential for alternatives: *“Personalized learning is possible in digital world. However, we must have digital repositories with relevant material for it. For future education, we can take the experience and digital competence gained from today plus if with excellent digital learning materials, we can design individual pathways that students can follow, achieve their goals and get feedback with assistance of learning analytics to set new objectives. This would be the next big step that we have been waiting for a long time.”*

Some teachers conceptualize about **educational passport (hariduspass)** that would serve as a record of all educational data, non-formal education achievements, hobbies. Additional benefit is seen in flexibility which allows convenient data transfer when a student moves between educational institutions. That would mean a shift from school-based approach to student-centered solution in education data management.

2.3.1.3 Ensuring flexible learning experience via hybrid education in the future

The experience from the academic year 2020-21 has indicated that readiness for hybrid education **both technically and instructionally is a must** in every school to **ensure access for all students and school staff**. Several ideas were voiced during the interviews.

“It would be my ideal, if we dream big, that we have students who are often involved in competitions, camps, hobby activities...I would really like to enable them to participate in education the same way as all other students can.” (teacher) While some schools are building this capacity, others have prepared for this already during the beginning of 2020-21 by investing in creating some prototype classrooms. These combine conditions for a teacher to be able to instruct students simultaneously both remotely and in a classroom setting. Both students and teachers could access education anywhere. Moreover, students from other schools can join in if the need occurs, for instance, if they do not have a subject teacher or the school is rather small in size. An experienced **school leader** confirms frequent use of these prototype classrooms: *“We have one [prototype classroom] designed for primary level, another for social sciences and the most recent one for mathematics. /.../ It is also a question of comfort, that you see, parents allow their children to stay home. Our initial idea was aimed at when isolation is needed due to Covid, when students are training somewhere in Australia, that everyone can join the lesson.”*

Some **teachers** express that it would facilitate **organization of study process** if they would have a specific link to serve as a web gateway to all their online classes. This personal link would enable to avoid navigating between various links frequently.

Teachers indicate that it is crucial to have preparation for both hybrid and remote education. During interviews, some **teachers** consider **the belief that education only takes place when a student is physically next to a teacher** should be rejected. *“This takes time, as most processes in education, but it [hybrid education] surely will not be implemented if after the pandemic, we try to forget about the challenging period of remote education and hybrid education and set it aside. /.../ Forcing it will not succeed, but a nudge should remain to continue with preparedness of schools, technical support, exchange of experiences and tolerance towards failures.”* (teacher)

2.3.1.4 Supporting mental health and reducing risk of burnout which results in teacher shortage

School leaders stress that **teachers are very tired** of having gone through rapid changes and are at **great risk for burnout**. “They are largely at their limits. I have had experiences that ...there are older teachers in Estonia and teachers have expressed that if situation does not normalize and remote education continues that I am going on pension.” (school leader). As there is an urgency for structuration, personalization and feedback in remote education if implemented successfully, it means a need for increased allocation of time and support for teachers to be able to adjust teaching practice during the pandemic.

There are some measures school leaders find **useful in supporting teachers and students**. For example, the initiative organized by universities to support schools with assistant teachers who are currently training to become teachers. This is considered a helpful support measure by school leaders. Yet, they highlight that teachers are working with heavy workload up to 25-26 hours a week (normal workload is 21-22 hours a week) which means that current support is not sufficient.

2.3.1.5 Empowering schools as social institutions along with academic identity

Students indicate that **meaningful interactions between students and teachers**, as well as **among students, support resilience** during remote and/or hybrid education. “*We should take along digital education and digital skills we have acquired, and most definitely the cooperation. I mean getting along with classmates and receiving support if needed and me helping them.*” (student) “*Zoom interaction really helps. If teachers would just provide lists of tasks without talking and discussing, then none of us could do it. I could not study alone if teacher has not explained to me.*” (student)

All stakeholders perceive the need to design meaningful interactions in learning design and encourage teachers to cooperate increasingly. Students have found **savvy ways for supporting each other** which points to a potential to **encourage these patterns with systematically creating opportunities** at various contexts and levels while focusing also on inclusion of all students. Additionally, to empower peer support activity, improving competence among professional school staff is needed.

Additionally, the importance of school staff to recognize signs of difficulty and panic attacks, for example, is important as currently, **students in our interviews perceived that it is overlooked** or at times, approached as exaggeration or whining. **Bridging cooperation** between student, teacher, professional support staff and parents for ensuring student well-being should be a standard pattern in which all stakeholders are confident in their role. Schools that have been coping well often have professional support staff teams (see also Mägi 2021). Thus, there is a clear need for all school to have availability of social pedagogue, special education teacher, psychologist, educational technologist to empower schools as social institutions.

2.3.1.6 Rotate contact learning with remote education, independent work with group work and social interaction

Students would like to see **short periods of remote learning** to be a **regular part of learning design** as it enables students to apply diverse learning strategies. “*Perhaps there are some weeks where students could learn remotely even without a direct need for it. That would be cool.*” (student). Some **teachers** support the idea. As stressed by a teacher, “*I am very much in favor to have it [remote education period] once every two weeks. Perhaps even one day a week in large size classes. However, we have to maintain an opportunity for in-person contact.*”

Some **teachers** and **professional support staff members** consider it useful to alternate remote education with contact education but always keeping a variation of independent and group work and social interaction in learning design. The rhythm can be also maintained by splitting large classes so that half of the class is learning remotely while another is in contact education attending school. **Large class size** has proven to be **problematic** to enable meaningful interaction **and should be a subject for change** from teacher perspective.

Some schools are planning to implement a weekly cycle as follows: 4 days in school and 1 day remotely online. This is a similar pattern that some **professional support staff** members suggest for practicing remote learning. However, they emphasize that student must have sufficient skills and confidence to practice it. “*We expect our student to be independent and happy. Two things, not much more is needed. Remote education presumes more autonomy: I will try, I will explore...study skills must be better. A teacher can focus not on pushing, pressing, but student’s inner motivation must grow and remote learning can develop it. If a student*

can cope, it means a student is motivated and s/he wants to do it, which in turn, means that a student has become more independent due to the need." (professional support staff member)

2.3.1.7 Clarification of regulations related to online privacy and data protection

Students perceive that rules and **regulations related to online privacy** requirements are **unclear**. "Teachers and students should know their rights and responsibilities. For instance, what teachers can and cannot require. If you have a teacher who insists that a microphone must be turned on at all times which makes sense, so I can respond to her/him, but then there is a question that if someone, like my sister or brother walks by whom I share room with, or if I have someone else from my room in online lessons at the same time." (student)

Teachers draw attention to efforts related to students' online privacy, they have targeted agreements to be approved by parents. At the same time, there appear to be no agreements with teachers, whether they, for example, agree to have camera on, or on what conditions. They also pose a question of what happens if a teacher strongly prefers to not be show on screen. Professional support staff considers that in the future, GDPR rules could be applied to a greater extent as understanding of these issues will increase over time and practice.

2.3.1.8 Development of diverse skill set among students, parents, school staff

Education during the pandemic has highlighted **shortcomings in digital skills among students** but also **among parents in their support role**. "*I have had an impression that we have digi generation and they [students] can do everything, but actually they cannot. Students are comfortable with certain tasks, but it is sometimes unbelievable that even lower secondary students have gaps in googling and selecting information. Yet, we have informatics classes, and they use digital tools in learning. So how com there is such a big gap and they are not able to cope with it?*" (teacher). Digital competence is set as one of the general competences in the national curriculum. Yet in the interviews some teachers note that gaps in digital skills among students caught them by surprise. In addition to continue focusing on digital skills development among students, teachers consider equally important to **ensure sufficient digital skill level among parents to be able to guide their children if needed**. This can be achieved, for example, by inviting parents to school and have common workshops with teachers.

School leaders and **teachers** conclude that remote and/or hybrid education has brought out the need for school to be **a social institution rather than focusing only on academic achievements**. Therefore, education after pandemic must increasingly prioritize general competences and not to fall back on textbook centeredness and subject curriculum. "*I think the impact [of pandemic time in education] is actually positive in a sense that teachers have learnt more with one year that I or they could have imagined. They have experienced a freedom to let go of some things, not teaching a textbook. From student perspective....I hope it is positive. They are more independent, and resilience has improved. They have had an opportunity to practice autonomy without having anyone next to them all the time*" (school leader) School leaders anticipate that after the pandemic, students and teachers have advanced considerably in digital competence, but we must focus on development of basic and social competences for a few years. "*If we are talking of self-regulation and organizing one's own learning then it is often rather difficult to do all this remotely. Daily rhythm is important for a student, so it has to be framed clearly and well.*" (school leader)

Flexible approach to assessment and focus on both process and result are elements that would ideally characterize after pandemic education. "*Process is essential here if we think about self-regulation and learning to learn. It is not that teacher said so, let's follow. Learning to learn follows the same logic as acquiring subject knowledge – it needs time, peacefulness, and co-creation as well as the personal moment a student is trying it out. What are these methods and practice that would motivate students to come to grips with it. Certainly not grades, but study design and content that allows to bring out the process.*" (teacher)

2.3.1.9 Adjustments in assessment and feedback

Students highlight the **concern related to assessment and feedback** particularly in creative subject areas, such as arts, music, crafts. More specifically, questions about grading a talent such as carrying a tune or marking student artwork are posed. "*When I asked feedback on my artwork, like what could I change and why is if graded with four [good], then a teacher just said that this is worth a four. I was really puzzled about this grading as we had instructions to draw what we like and then I just receive a four.*" (student) Students emphasize that **precise**

and purposeful feedback is essential for their progress, focus and motivation. They also express that these subject areas should not be graded, especially if the criteria are not objective, but rather subjective.

Teachers express readiness to extend their practice of formative assessment which they have increasingly been practicing. Some are concerned about parents who, at times, expect traditional assessment methods such as grades. Solution is seen in diversifying assessment which means providing comments, feedback along with percentile grades. Upscaling and sustaining this practice over time would mean systematic attention and resources contributed to it by school leadership and teachers.

2.3.2 Implications for long perspective: planning for education after pandemic

The academic year 2020-21 has highlighted the strengths of our education system along with shortcomings. One of the advantages in education that has emerged is **flexibility of Estonian school** (*Eesti kool*), however, this has not been realized in its full potential yet. School leaders and teachers point to certain stiffness and following specific routines during the academic year. They also note that **heavy reliance on home support** has created a situation in which school staff relies on parents to a considerable extent in student learning. At the same time, parental input is taken on board more openly which intensifies collaboration between all stakeholders. School leaders consider it crucial for education system and schools **to maintain this flexibility in education** and not to fall back into stiffness.

Educational flexibility has diverse facets. It allows approaching access without bordering thought pattern with physical limitations. Experience shows that new practices on **remote and/or hybrid education** are best suited for some students, at least for some periods. For instance, in case of traveling, having to stay away for sickness or other reasons. Strategic approach would help to design these **various modes of education into regular education, student individual learning paths** and personalized approach. School leaders suggest that common platforms and shared classrooms for hybrid education **enable to share teachers between schools which can be a measure to mitigate teacher shortage in the future.** *“If one school does not have a teacher and another one has, then we can balance it online /.../ education can be more efficient if we have share teachers between schools, especially excellent teachers, so not all schools must have all subject teachers. This is something that I would like to see taking effect.”* (school leader)

The overall aim is to achieve **not only resilience in school environment and education**, but also **individual resilience among students**. It would signify growth mindset which means belief in one's and others' potential to continuously learn and progress (Sala et al 2020).

A **vision** shared by a school leader for connecting community and adjusting educational environment in years to come after pandemic includes three focal points:

- (1) inclusion of students with diverse language, cultural and socio-economic background in education to increase school joy for all students;
- (2) development of physical school environment to better support teaching and learning, coupled with encouraging movement and outdoor learning, during the pandemic, these have grown a momentum with education;
- (3) advancing implementation of individual learning pathways to enable efficient support for individual student potential and interest.

This vision entails that with these three modules, a student can pass all these and in more advanced stages, on top of pyramid, s/he can narrow the focus according to interest, ability and talent.

3 Conclusions and recommendations

Through 15 numbers of interviews, a variety of experiences emerged from the academic year 2020-21 among students, teachers, professional support staff members and school leaders, they all reveal various possibilities in the context of strengths and shortcomings in education.

Supporting **creation and organization of digital learning materials**, in a user-friendly structure and appropriate format, on a digital education content platform would facilitate a concern that all teachers stressed. While there is plenty of high-quality content material, they are often designed for the “normal” student and teachers spend a considerable amount of time finding appropriate materials to meet students’ individual needs. Overwhelming workload, in turn, places teachers at a risk of burnout. A vision emerged from the interviews that digital learning materials could be structured by content, level of difficulty and/or level of digital skills required and/or equipment needed. The latter addresses increasingly diverse type of digital materials and content.

From the school staff’s perspective, the **potential of learning analytics** and appropriate digital content (learning materials) is not realized. Data is underused and could be implemented in monitoring and feedback much more efficiently and effectively that is possible today. Its potential should be used more, considering increasing EdTech capacity, in order to support teachers in their work and students in their learning.

Facilitation of creating learning materials coupled with application of learning analytics can be used to encourage teachers to take up on hybrid education (training) and implementation presuming that schools will have prepared technical support for it. Diverse assistance and autonomy can incentivize **teacher agency** in which teacher builds its own brand with own learning materials and instructional practice, also for resilience and digital pedagogy. Measures that encourage teacher agency can contribute to increased attractiveness of teacher profession and possibly reduce teacher shortage in the future.

Individual resilience has **shifted more towards systemic notion of resilience** (Downes et al 2017) which means we need a school system **to reach out to students at various levels**, vulnerable students extensively. Currently, attention has been largely on not leaving anyone behind and maintaining contact, rather than developing full potential and supporting talented students. Schools are facing the dilemma of the discourse of learning loss and the discourse of socio-emotional loss. It has emerged that a school needs to **be a social institution coupled with emphasis on academic entity**. It is not a question of either/or, but rather balancing both. Socio-emotional development can increase academic success and improve achievement (Durlak et al 2011). To decrease conflict between high-pressure education and well-being, we need integration of academic achievement and school being a social institution that provides opportunities for interaction. It means buildings strategies at school level for enabling meaningful social interactions for next academic years. This requires agreement and understanding also at policy level, defining the roles of different actors. Given that school leaders and teachers are not very well equipped to systematically address mental health and building well-being into inclusiveness, additional investments and training opportunities are needed to create a systematic approach at school to support well-being and resilience.

As **hybrid education** is likely to become more common with the aim to increase equity and resilience, then **technical and digital pedagogy preparedness for** hybrid education at schools is gaining importance. While classrooms, which combine technology for remote or hybrid class, increase flexibility, a mindset that learning only happens in contact education still persists. Rejecting this belief can also be complicated because some teachers are reluctant to the option of hybrid education and view it as double workload. This can be understood, as teachers have a rather modest training to implement hybrid education.

Teachers have **taken advantage of flexibility that is present in education system and curriculum** during the pandemic. It means they have built teaching on most relevant study content, goals and outcomes. This experience has provided a solid ground to revise or “clean” the curriculum in the context of meaningful learning with the aim of prioritizing learning standards and relevance of content. Optimal implementation of curriculum requires a clearly defined roles of school through both academic and social identity with a reference to *“what does it mean to be a first-class human in tomorrow’s world?”*

While building on the experience of this academic year and the remote education period in 2020 with rapid changes and new opportunities, the question arises that are we **reimagining education** or **just making adjustments?** Shifts in instructional practice and educational patterns have provided a solid base to build on fast development, bridge between communities and networks, combine methods. Technology can be used help increase socio-emotional competence development and support resilience from individual teacher strategies to more uniform operation at the school level if capitalized more purposefully. Changes in physical classrooms to enable hybrid learning connects young people and teachers by reducing physical boundaries in education.

Creating a safe space by school leadership enables teachers to have a safe space to share their initiatives and experiment as well as giving voice to students, especially the youngest, so they feel included and considered. Changes need to happen with them, not about them.

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Annex 1. Methodology of the study

Target sample

This report is based on qualitative research carried out in Estonia in March 2021. 15 semi-structured in-depth interviews were carried out with students, teachers, professional support staff and school leaders with a focus on secondary level. In total, 5 teachers (all female), 3 professional support staff members (all female) of which some are also in teacher role, 2 school leaders (1 female and 1 male), 5 students (3 female and 2 male) were interviewed. Student aged 14-16 from grades 9-10 were interviewed. The aim was to target diverse groups of stakeholders from urban and countryside setting with a stronger focus on lower and upper secondary level. All interviewees had experienced some weeks of remote education and several of them had experience with hybrid education during this academic year. Please see table 1 for positions, contact and subject area.

Table 1. Interview sample by position, subject area and contact level.

Subject area/position	Contact level
Social Sciences, Class teacher	Primary and lower secondary
English, Class teacher	Primary and lower secondary
Arts teacher	Lower and upper secondary
Estonian language and Literature, Class teacher	Primary and lower secondary
Mathematics teacher, Class teacher	Lower and upper secondary
Special education teacher	Primary and secondary
Educational technologist, IT teacher	Lower and upper secondary
Social pedagogue, Speech therapist, Class teacher	Primary and lower secondary
School leader	Primary and secondary
School leader	Primary and secondary
Student	Lower secondary
Student	Lower secondary
Student	Lower secondary
Student	Lower secondary
Student	Upper secondary

Research questions and Interview scenario

There were three main research questions:

- (1) What pedagogies or instructional practices have educators planned for the academic year 2020-21?
- (2) What type of response has been planned and offered during the academic year 2020-21 for vulnerable students in both strategy level and instructional practice?
- (3) What are the future implications and recommendations that emerge from the current situation for planning the next academic year 2021-22 and for education after pandemic?

Interview scenario was developed by the research team and validated by an international group of experts. Interview questions were designed for the main stakeholders: students, teachers, school leaders and other stakeholders. Countries translated and adapted questions considering national education system context and formed samples according to the national 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. Most interviews (14) took place online using Zoom and one was conducted in written format. All interviews were recorded and transcribed. All interviews retained anonymity. Interviews with teachers, professional support staff and school leaders lasted between 36 minutes and 1 hour 13 minutes, on average about 50 minutes. Interviews with students lasting between 26 to 57 minutes, on average around 35 minutes.

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.

Limitation 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 and school leaders based on the experiences during the academic year 2020-21 but drawing also on the remote education period in spring 2020.

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