Strengthening online learning when schools are closed: The role of families and teachers in supporting students during the COVID-19 crisis

24 September 2020

The COVID-19 crisis has forced education systems worldwide to find alternatives to face-to-face instruction. As a result, online teaching and learning have been used by teachers and students on an unprecedented scale. Since lockdowns – either massive or localised - may be needed again in the future to respond to new waves of the infection until a vaccine becomes available, it is of utmost importance for governments to identify which policies can maximise the effectiveness of online learning. This policy brief examines the role of students' attitudes towards learning in maximising the potential of online schooling when regular face-to-face instruction cannot take place. Since parents and teachers play a fundamental role in supporting students to develop these crucial attitudes, particularly in the current situation, targeted policy interventions should be designed with the aim of reducing the burden on parents and help teachers and schools make the most of digital learning.

Key findings and recommendations:

- The current COVID-19 crisis has obliged most education systems to adopt alternatives to face-to-face teaching and learning. Many education systems moved activities online, to allow instruction to continue despite school closures.

- Considering the alternative of no schooling, online schooling has been an important tool to sustain skills development during school closures. That being said, there are still concerns that online learning may have been a sub-optimal substitute for face-to-face instruction, especially so in the absence of universal access to infrastructure (hardware and software) and lack of adequate preparation among teachers and students for the unique demands that online teaching learning pose.

- Developing strong attitudes towards learning can help students overcome some of the potential challenges posed by online learning such as, for instance, remaining focused during online classes or maintaining sufficient motivation. They are also crucial in supporting students using information and communications technology (ICT) effectively and making the most of new technologies for learning. Positive attitudes towards learning, self-regulation and intrinsic motivation to learn play an important role in improving performance at school in general, but may be especially important should online learning continue.

- Students' attitudes and dispositions are influenced to a great degree by the support they receive from families and teachers and by the role models they are exposed to. Different forms of support from families and teachers, including parental emotional support and teacher enthusiasm, are found to be important for the development of positive attitudes towards learning and can ensure that students acquire the attitudes and dispositions that can maximise their ability to make the most of online learning opportunities. Yet, some families and teachers may struggle to provide such support - especially during the COVID-19 crisis - because of a lack of time, insufficient digital skills or lack of curricular guidelines.

- Education systems should aim to strengthen engagement between schools and parents in order to improve information and guidance to parents on effective practices for supporting their children's learning. At the same time, teachers need support to incorporate technology effectively into their teaching practices and methods and help students overcome some of the difficulties that are associated with this form of learning environment. Supporting teachers' training about the use of digital resources for pedagogical practice and promoting teaching practices adapted to this context is key to ensure that ICT is leveraged effectively.

As a response to the COVID-19 crisis, many countries around the world closed schools, colleges and universities to halt the spread of the virus. According to data from UNESCO, the peak in school closures was registered at the beginning of April 2020, when around 1.6 billion learners were affected across 194 countries, accounting for more than 90% of total enrolled learners (UNESCO, 2020[1]). The sudden closure of schools meant that education policy makers, school principals and teachers had to find alternatives to face-to-face instruction in order to guarantee children's right to education. Many systems have adopted online teaching (and learning) on an unprecedented scale, often in combination with widespread remote learning materials such as television or radio. Until effective vaccines or therapeutics for the novel Coronavirus become available, it is likely that schooling may continue to be disrupted. Even if the worst case scenario of a second wave of the outbreak were not to materialise, localised and temporary school closures may still be needed to contain transmission of COVID-19. For instance, children coming in contact with infected individuals may be required to self-isolate and the lack of adequate spaces for them to attend classes or of qualified educators to be deployed in those circumstances will force certain schools to adopt blended models to guarantee social distancing. This has already been the case, for

instance, in Germany, where, just two weeks after re-opening, some schools were closed again over Coronavirus infections. Against this uncertain backdrop, it is therefore important to identify which policies can maximise the effectiveness of online teaching and learning.

In spite of being a desirable option compared to no schooling – which would have caused major interruptions in student learning with possible long-lasting consequences for the affected cohorts (Burgess, 2020[2]; Hanushek and Woessmann, 2020[3]) - the sudden switch to using digital instruction may have led to sub-optimal results if compared to a business as usual in-presence instruction, as teachers, students and schools all had to unexpectedly adjust to a novel situation. This policy brief takes stock of some of the difficulties encountered by students, teachers and schools while adapting to online learning in order to understand how remote schooling can be improved further, should online learning become necessary to prevent widespread transmission.

The first concern which has arisen is that online learning is only available to children that have access to a broadband connection at home that is fast enough to support online learning. While network operators have mainly been successful to maintain services and efficiently utilise pre-existing capacity during phases of lockdown (OECD, 2020[4]), there are still geographical areas and population groups that are underserved, especially in rural and remote areas and among low-income groups. For example, in many OECD countries, fewer than half of rural households are located in areas where fixed broadband at sufficient speeds is available. In addition, children need to have access to devices such as computers and the necessary software to participate in online learning activities, which is often a challenge for lower-income households.

For those students that are connected, the second concern is that certain students have not been able to receive a sufficient number of hours of instruction. For example, in the United Kingdom, 71% of state school children received no or less than one daily online lesson (Green, 2020[5]), while in Germany only 6% of students had online lessons on a daily basis and more than half had them less than once a week (Woessmann et al., 2020[6]). Some economists have estimated that, as a consequence of this, students in the United States will resume their schooling in the fall of 2020 with roughly 70% of the learning gains relative to a typical school year on average and that the learning gains might be even smaller in mathematics, amounting to just 50% (Kuhfeld and Tarasawa, 2020[7]). It is therefore important for education policy-makers to understand which factors have prevented certain children from receiving sufficient instruction – among them, in addition to the lack of infrastructure, the absence of adequate preparation in schools and among teachers, as well as, in some cases, the lack of curriculum guidelines. These elements have also determined a great variation, across schools and countries, in the quality of online learning, raising the concern that disparities in educational outcomes across socioeconomic groups may be reinforced in the absence of corrective measures. For example, in the United States, over one-third of students have been completely excluded from online learning, particularly in schools with large shares of low-income students, while elite private schools experienced almost full attendance (The Economist, 2020[8]; Khazan, 2020[9]). Similarly, evidence from England (United Kingdom) suggests that children from better-off families spent 30% more time on home learning than those from poorer families during the lockdown, and their parents reported feeling more able to support them than socio-economically disadvantaged parents, while students from richer schools had access to more individualised resources (such as online tutoring or chats with teachers) (IFS, 2020[10]).

Further concerns relate to the fact that the effectiveness of online learning might have been hindered, in some cases, by the lack of basic digital skills among certain students and teachers, making them unprepared to adapt to the new situation so abruptly (OECD, 2020[11]). For example, descriptive evidence based on PISA 2018 shows that there were major differences across countries and socio-economic groups in the use of technology for schoolwork before the pandemic among 15-year-olds, raising the concern that students who were less experienced might be those suffering the most from the shock caused by online learning.

Figure 1. Mean Index of ICT use outside of school for schoolwork, by socio-economic groups
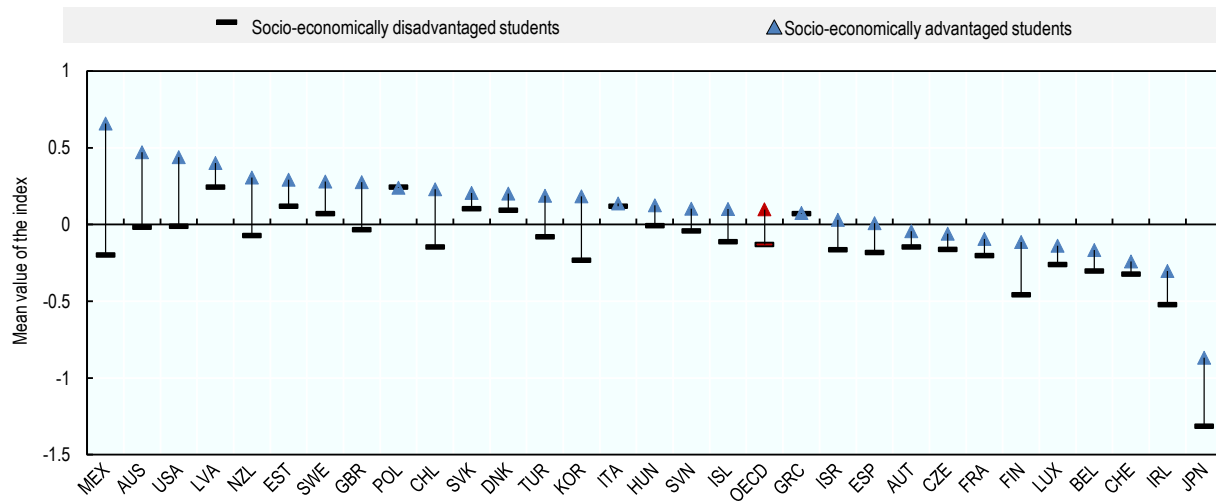
Note: The index of ICT use outside of school for schoolwork measures how frequently students do homework on computers, browse the Internet for schoolwork, use e-mail for communications related to school, visit the school website, and/or upload or download materials on it. Higher values of this index correspond to more frequent and more varied uses. Socio-economically disadvantaged/advantaged students are defined as the students in the bottom/top quartile of the PISA index of socio-economic status.
Source: OECD, PISA 2018 Database.

Figure 1 indicates that, in almost all countries, students from low socio-economic backgrounds made less frequent use of digital technologies compared to their peers from high socio-economic backgrounds before the pandemic in 2018. Disparities were particularly striking in Australia, Mexico, South Korea and the United States. Similar differences are observed between students from public and private schools, with the latter making more frequent use of digital technologies for schoolwork (OECD, Forthcoming[12]).

In addition, some teachers might also have struggled to adapt to online teaching so abruptly due to a lack of adequate digital skills, possibly contributing to a great heterogeneity in the quality of online teaching across schools. An antecedent result in the literature is in fact that the effectiveness of ICT for learning purposes depends considerably on the digital competencies of teachers and on whether technology is incorporated into pedagogical practices (OECD, 2010[13]) in an effective manner (see Box 1).

Box 1. Impact of digital learning on students' performance: What do we know?

While in recent years governments of many countries have been investing increasing resources to raise the availability of digital devices across schools and households, some academic literature has tried to establish the mechanisms through which the use of digital devices affects students' learning. What has emerged is that simply providing access or using digital technologies does not automatically lead to better academic results (Escueta et al., 2017[14]). For example, Angrist and Lavy (2002[15]) assessed the impact of Israel's Tomorrow-98 programme, which was launched in the mid-90s to provide schools with computers and teachers with training for computer-aided instruction. They document a negative relationship between the programme-induced use of computers and maths scores. Similar findings come from the evaluation of a Dutch subsidy scheme for computers and software in schools, which had a negative impact on student achievement in language, arithmetic and information processing (Leuven et al., 2007[16]). Other studies have found negligible effects of ICT use. In 2008, a large scale experiment was launched in Italy to provide 156 classes with large grants to buy ICT: despite its huge cost – in the order of EUR 1 500 per student – the Cl@ssi2.0 programme was found to have only a negligible effect

on student achievements (Checchi, Rettore and Girardi, 2015[17]). Similarly, a field experiment involving the provision of free computers to low-income schoolchildren for home use in the US state of California did not improve educational outcomes (Fairlie and Robinson, 2013[18]). Such negative or negligible effects have been mainly attributed to uses of ICT that substitute for more effective traditional instruction (Bulman and Fairlie, 2016[19]): for example, a study suggests that classroom computers are beneficial to students' achievements when used to look up information but detrimental when used to practice skills and procedures (Falck, Mang and Woessmann, 2018[20]). Other studies illustrate that digital tools are beneficial to student learning when they are used to complement traditional teaching, e.g. extending study time and enhancing student motivation (Fleischer, 2012[21]; Peterson et al., 2018[22])

Based on this knowledge, efforts should be made by governments and school principals to support teachers in incorporating online tools effectively into their instruction practices, e.g. by fostering teachers' pedagogies aimed at providing students with guidance and motivation towards active learning (Peterson et al., 2018[22]). Pedagogical practices should also ensure that the use of digital technologies and online tools corresponds to learners' needs, prior competencies and digital literacy and teachers should act as mentors to guide students and help them remain focused on the learning elements of tasks (OECD, 2019[23]).

However, effective pedagogical practices and ease with digital tools are necessary but not sufficient conditions to ensure the effectiveness of online teaching and learning. Students' attitudes towards learning are strong drivers of their academic achievements in regular times. Indeed, these may be crucial in sustaining students' motivation and active learning in times of home schooling. The following section of this brief focuses on how the development of positive attitudes towards learning can promote effective skills development in a digital environment. It also identifies how positive learning attitudes can be best promoted by parental emotional support and teacher enthusiasm.

Positive learning attitudes can improve performance at school and help students keep their motivation when schools are closed

Recently, there has been increasing attention devoted to sustaining the development of different non-cognitive skills among students – e.g. personality traits, goals and motivation – since they have been found to have direct positive effects on several socio-economic outcomes, including wages, schooling and performance in achievement tests. Evidence indicates that these skills are malleable and amenable to policy intervention and classroom practice (Heckman et al., 2014[24]).

This section will focus on six learning attitudes:

- students' ambition to learn and understand as much as possible (*ambitious learning goals*);
- the relevance students attribute to school for their future working careers (*value of school*);
- the sense of belonging to the school community (*sense of belonging)*;
- students' commitment to work hard and to improve performance (*motivation to master tasks*);
- students' ability to overcome difficulties on their own (*self-efficacy*);
- the satisfaction students get from learning and reading (*enjoyment of reading*).

Evidence from the *OECD Skills Outlook 2021* (OECD, Forthcoming[12]) shows that all the above-mentioned attitudes are particularly important for students' success[1] in that they are positively associated to their performance in reading, mathematics and science. While many of these attitudes are developed at early

[1] Other previous evidence is contained for example in (Behncke, 2009[41]), (Heckman, Stixrud and Urzua, 2006[40]).

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stages of one's learning path, they are very likely to be carried over in adulthood, making individuals more resilient to changing societies and more disposed to life-long learning (OECD, Forthcoming[12]; Tuckett and Field, 2016[25]). Learning attitudes are not just innate and their development is highly influenced by schooling, parental care and investments, with high risk of major inequalities across socio-economic groups. Data show, for instance, that in a vast majority of OECD countries, socio-economically advantaged students are significantly more likely to have ambitious learning goals as compared to disadvantaged students (Figure 2). This eventually affects also their proficiency and academic performance.

Figure 2. Mean value of ambitious learning goals, for advantaged vs. disadvantaged students
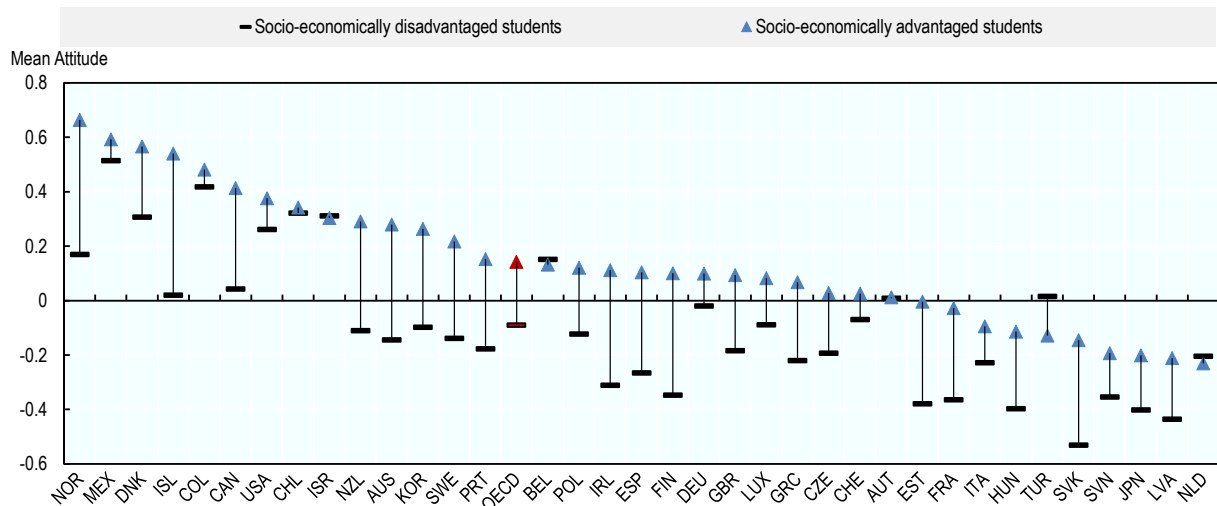
Note: Positive values on this scale mean that the student developed more ambition than the average student across OECD countries. Socio-economically disadvantaged/advantaged students are defined as the students in the bottom/top quartile of the escs index.
Source: OECD, PISA 2018 Database.

While positive attitudes towards learning are important drivers of students' educational attainments during normal times, they are likely to be even more important in the current context, because of the unique challenges posed by online learning: online learning requires students to rely on intrinsic motivation and self-directed learning. Developing strong learning attitudes, for instance, is fundamental if pupils are to remain focused and motivated in difficult learning environments and could therefore be key to address the main difficulties that students may encounter again in the near future, if a second wave of school closures were to materialise before the health crisis has been fully addressed.

Figure 3 provides indication of the importance of attitudes for learning when this learning is mediated by digital technologies by comparing the association between a very frequent use of ICT for schoolwork and students' performance in reading among students who are, respectively, in the top and bottom quartiles of each learning attitude. Results show that, among students who make a very frequent use of ICT for schoolwork, those with stronger attitudes towards learning achieve significantly higher proficiency levels than their peers with less positive attitudes.[2] Further analyses shows that, while positive attitudes tend to beneficial to students' educational achievements in general, this positive association is even stronger when restricting the sample to high ICT users, suggesting that learning attitudes can be key to incorporate technologies and online tools effectively into learning. When giving closer consideration to the role of

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[2] Results hold when accounting for students' grade compared to modal grade in the country and type of programme (general, pre-vocational, vocational), mitigating the concern that results might be driven by school characteristics.

different learning attitudes, data show that students' dispositions to develop ambitious learning goals and to attribute high value to school may be particularly important for maximining the effect of online learning. For instance, in Ireland, among students making an extensive use of ICT for schoolwork, those with strong ambitious learning goals score 32 points more in reading tests compared to their peers lacking ambitious goals.[3]

Figure 3. Association between learning attitudes and reading performance among students making intensive use of ICT outside of school for schoolwork

Effect on test scores (pts)
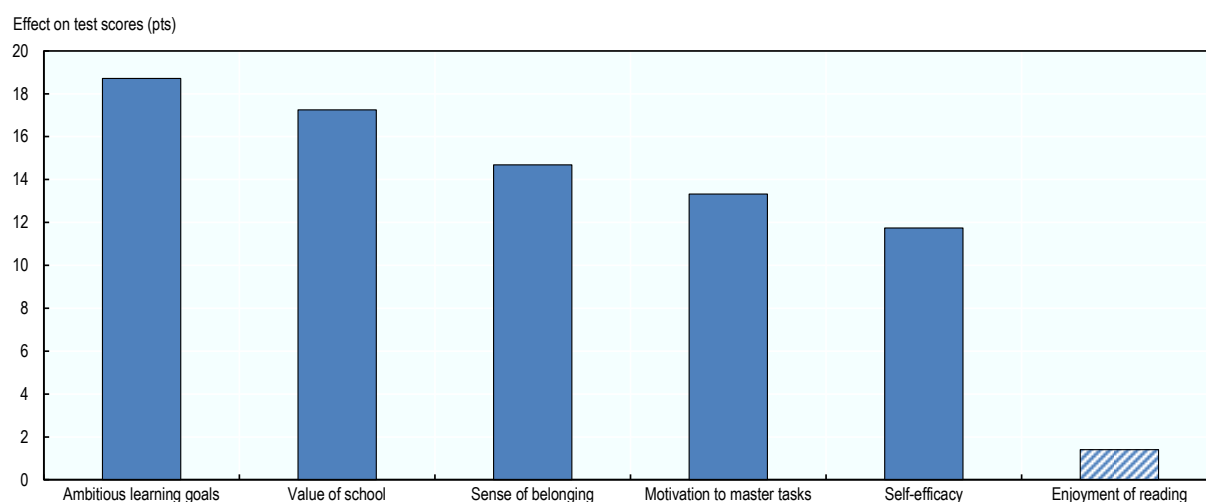
Note: The figure displays the association between high/low values of learning attitudes and performance in reading among students making intensive use of ICT outside of school for schoolwork. Bars represent the difference in reading test scores between students in the top vs bottom quartiles of learning attitudes (OECD average). Only students making an extensive use of ICT are considered. Regression controls include: the PISA index of student's and school's socio-economic status, age, gender, immigration status, dummy variables for attending a private and a rural school. Regressions are estimated for each of the attitudes separately. Country fixed effects are included in the regression. Bars with patterns indicate coefficients that are not statistically significant at the 5% level. Results hold when adding controls for students' grade compared to modal grade in the country and type of programme (general, pre-vocational, vocational).
Source: OECD, PISA 2018 Database.

> Attitudes and dispositions toward learning are important drivers of students' educational achievements. In the context of online learning, they can help students to incorporate more efficiently digital technologies and online tools into the learning process.

Families and teachers: Can they provide effective support to digital learning?

Learning attitudes are rooted in the support that students receive from teachers and families. Analyses based on PISA 2018 in the *OECD Skills Outlook 2021* (OECD, Forthcoming[12]) shed light on the crucial role played by both teacher practices and parental emotional support as important drivers of the development of attitudes. Different forms of support can be incentivised and shaped by effective policy intervention, generally, but even more so in the extraordinary circumstances related to the COVID-19

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[3] Analogous results are found for the other subjects assessed in PISA, i.e. science and mathematics.

pandemic. Therefore, it is important to understand which are the most suitable forms of support that teachers and families can embrace to sustain the digital learning process of children.

Figure 4. Association of learning attitudes and different forms of support by parents and teachers
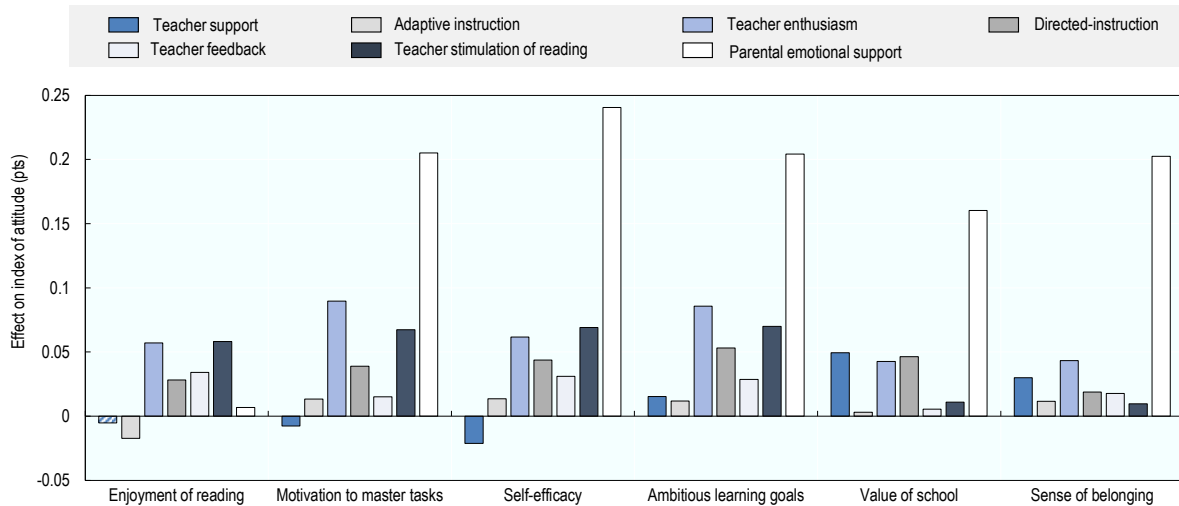
Note: The figure displays the change in each attitude index associated with one-unit increases in the indexes of parental and teachers' support. Estimates are reported at the OECD average. Regression controls include: the PISA index of student's and school's socio-economic status, age, gender, immigration status, a measure of cognitive ability. Country fixed effects are included in the regression.
Source: OECD, PISA 2018 Database.

Figure 4 shows that students display more positive attitudes and dispositions towards learning when they benefit from more parental emotional support.[4] Parental emotional support matters for most attitudes and displays a strong association with students' self-efficacy. More specifically, the forms of emotional support that are found to be most beneficial are when parents encourage their children to be confident and when they support their children's educational efforts and achievements (OECD, Forthcoming[12]). On the teachers' side, the analysis suggests that education environments where teachers are able to convey enthusiasm towards the content of their instruction support the development of positive learning attitudes in students, in particular ambitious learning goals, motivation to master tasks, self-efficacy and enjoyment of reading. The importance of teacher enthusiasm as a driving factor of student learning has been shown extensively in the literature: for instance, enthusiastic teachers help instill in their students positive subject-related affective experiences and a sense of the personal importance of the subject (Keller et al., 2014[26]) and they motivate and inspire students, increasing the productive time they spend on learning tasks (Keller et al., 2015[27]; Hoidn and Kärkkäinen, 2014[28]; Kunter et al., 2013[29]).

To give an indication of the benefits brought about by parental and teachers' support to students' academic achievements, Figure 5 focusing on students making intensive use of ICT outside of school for schoolwork, compares performance in reading between those who report to have received, respectively, very high and very low levels of support[5] – both from families and from teachers. This evidence, based on PISA 2018,

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[4] Parental emotional support is an index constructed in PISA grouping the following forms of support embraced by parents: parents support their children's educational efforts and achievements, they support their children when they are facing difficulties and they encourage them to be confident.

[5] High and low levels of support have been defined based on the values taken by the indices of parental emotional support and teacher practices, constructed in PISA. More specifically, students receiving low/high support are those in the bottom/top quartile of the corresponding index.

shows that several forms of support can be particularly effective in enhancing student learning. For example, among high ICT users, pupils who receive very high emotional support from parents or whose teachers are more predisposed to support them and stimulate their reading tend to perform significantly better in all subjects assessed in PISA. Parental emotional support is particularly effective: for instance, in the Slovak Republic, students who use ICT very often and who receive very high support from families score on average 23 points more than their peers with less support from families. Receiving strong emotional support from parents is similarly effective in some other countries, such as Austria and Slovenia.

Figure 5. Association between students' performance in reading and support from families and teachers among students making intensive use of ICT outside of school for schoolwork
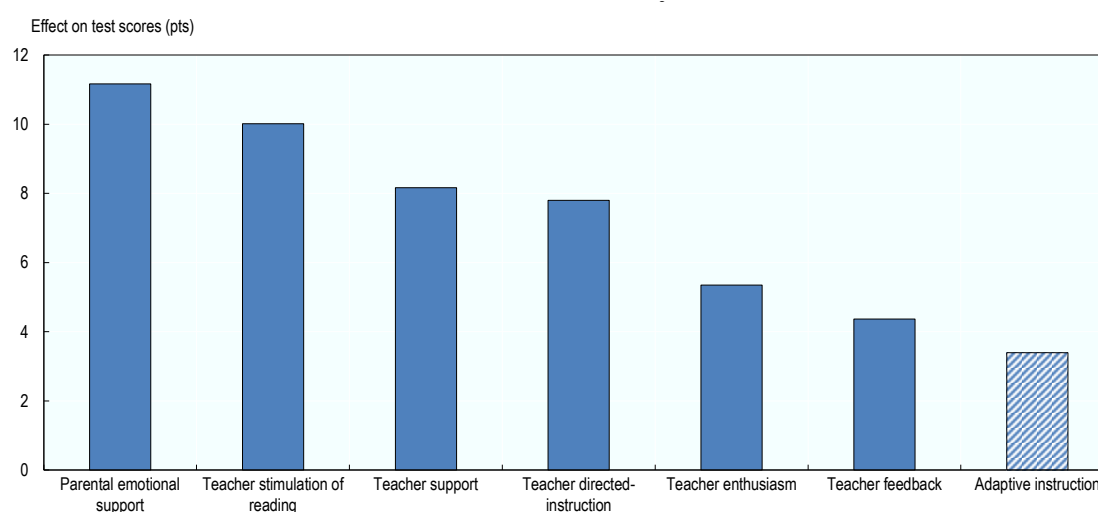
Note: The figure displays the association between high/low levels of support and performance in reading among students making intensive use of ICT outside of school for schoolwork. Bars represent the difference in reading test scores between students in the top vs bottom quartiles of support from families and teachers (OECD average). Only students making an extensive use of ICT are considered. Regression controls include: the PISA index of student's and school's socio-economic status, age, gender, immigration status, dummy variables for attending a private and a rural school. Separate regressions are estimated for each type of support, while controlling for the continuous indices of the others. Country fixed effects are included in the regression. Bars with patterns indicate coefficients that are not statistically significant at the 5% level.
Source: OECD, PISA 2018 Database.

This evidence suggests that parents can play a crucial role during home schooling such as ensuring that their children follow the curriculum and supporting their children emotionally to sustain their motivation and ambitious goals in a situation where they might easily be discouraged from learning autonomously, also due to the lack of peer effects. Parental involvement during this phase could significantly help students to address the main challenges posed by online learning, spurring their active and autonomous learning. However, many obstacles may hinder an effective engagement by parents: for example, they might struggle to engage in their children's schoolwork while combining their job obligations or other family obligations - a challenge that may be especially acute for single parents. Parents might also feel uncapable of supporting them due to lack of digital skills, familiarity with the content of their children's schoolwork or negative attitudes towards the material. For example, differences in educational levels of parents might give rise to further inequalities in educational attainments and this should therefore be of great concern for policy-makers. A recent study from the Netherlands shows, for instance, that less educated parents have been less supportive of their children efforts during the lockdown and that this has been partly driven by the fact that they were feeling less capable to help them (Bol, 2020[30]). Parents with low education might also hold negative attitudes towards learning themselves, thus underestimating the importance of their support for their children's skill development and, as result, help them less than highly educated parents. Another concern is that gender differences in math attitudes and achievements can be worsened during

STRENGTHENING ONLINE LEARNING WHEN SCHOOLS ARE CLOSED: THE ROLE OF FAMILIES AND TEACHERS IN SUPPORTING STUDENTS DURING THE COVID-19 CRISIS © OECD 2020

home schooling, when many children are supported mainly by their mothers in their schoolwork (Del Boca et al., 2020[31]; Farré and González, 2020[32]; Sevilla and Smith, 2020[33]). What is known is that many women have high levels of mathematics anxiety and previous research indicates that girls may be especially sensitive to internalising mathematics anxiety when exposed to it from female adult figures (Beilock et al., 2010[34]). It is therefore crucial for governments and schools to take immediate actions in order to tackle these issues and foster parental involvement.

Together with families, teachers play a fundamental role in helping students to make a more beneficial use of digital learning. In particular, the most effective practices relate to how teachers stimulate reading in students (e.g. the teacher poses questions that motivate students to participate actively or shows students how the information in texts builds on what they already know) as well as more general teacher support (e.g. when the teacher shows interest in every student's learning, continues teaching until all the students understand and provides extra-help when students need it) and directed-instruction (e.g. the teacher sets clear goals for students' learning, asks questions to check whether students understand the material, presents summary of previous classes at the beginning of each lesson). Similarly to parental emotional support, these teacher practices can significantly improve students' performance at school and might be particularly relevant in this context, helping students to remain focused on their learning tasks and to keep their motivation and dispositions to learning. To give an example, in Australia, among students that rely extensively on ICT for schoolwork, those whose teachers are more able to stimulate their reading score on average 17 points more than their peers with lower support from teachers. Similar results are observed for some other countries, such as Australia and Switzerland.

If learning attitudes are key drivers of students' (online) learning achievements, the main challenge facing governments is therefore how to promote the development of those attitudes and how to support teachers and parents in strengthening them. Some countries have already implemented policies in this direction. These are discussed in the next section.

Policies to support families and teachers

The analysis presented so far has highlighted the importance of both families and teachers in supporting students' learning and motivation, in regular times but even more so during school closures. It is therefore important for governments to facilitate their effective engagement. Finding effective ways for working parents to provide childcare and support to their children in schoolwork while combining their jobs obligations is an important challenge that many governments are attempting to address. Most OECD countries have already put in place interventions in this direction by extending, for instance, family leave opportunities. In Slovenia working parents who are unable to reconcile work and family obligations are entitled to up to three-months paid leave, paid at 80% of their earnings by the government. Similarly, in Germany parents with children under 12 years of age are entitled to six weeks paid leave, paid at 67% of earnings up to a ceiling of EUR 2 016 per month. In the United States, according to the Families First Coronavirus Response Act, parents with children under 18 years of age whose school has closed are entitled to up to 12 weeks paid family leave, paid at two-thirds of earnings, up to a limit of USD 200 per day and USD 12 000 over the duration. Other countries have put in place similar provisions – e.g. Canada, France, Italy, Switzerland, the United Kingdom, etc. - and will continue them whilst schools remain closed. Measures of this sort are crucial to spur parental involvement in their children's learning activities while preserving their jobs.

The provision of information to parents on how to effectively support their children's learning can also improve educational outcomes, both during a lockdown and in normal times. For example, Wide Open School, a web platform created in the United States, offers resources for educators and families for students from preschool to upper secondary education. Part of these resources aim to develop disciplinary technical skills as well as creativity, critical thinking or social-emotional skills, while other resources support

families, e.g. by helping lower income families get devices and better broadband or by providing them with guidance about social-emotional wellbeing. Beyond offering access to curated resources, the platform also suggests a daily schedule to help students and families have a good balance of activities (Vincent-Lancrin, 2020[35]).

Education systems can also aim to strengthen school-parent engagement in order to provide appropriate information and guidance to parents on effective practices for supporting their children's learning. An example from Latvia is the Educational TV Channel Tava Klase, which delivers high-quality educational material tailored for different age groups and provides a way for parents to connect with schools (van der Vlies, 2020[36]). As an indicator of its success, a recent survey of parents, students and teachers show that there is a strong positive association between the clarity of communications between schools and parents, and parents' confidence that their children would achieve their learning goals (Burns, 2020[37]).

Teachers also need support to rapidly adapt their instruction practices to distance learning, whether regular or ad hoc. In this respect, France has mobilised its network of local digital education advisers to support the transition from face-to-face to distant learning. The network of digital education advisers has supported both teachers and school principals - by providing them with online training about the availability and use of digital resources for pedagogical practice and by promoting teaching practices adapted to educational continuity and progressive school re-opening – and students – by working with local authorities to lend and deliver computers and learning worksheets to all students (Vincent-Lancrin, 2020[38]). Other countries have decided to complement schooling resources and teachers' efforts in delivering high-quality online classes by also providing home schooling broadcast on television or social networks. As an example, in the United Kingdom, the BBC has started to collaborate with teachers and educational experts and provides daily lessons to pupils in year 1 to 10, including videos and interactive activities aimed at keeping up students' motivation and at stimulating their socio-emotional skills (Van Lieshout, 2020[39]).

Conclusions

The current COVID-19 crisis has forced many countries to close schools, colleges and universities to halt the spread of the virus. Due to the long-lasting negative consequences that school closures would have on skill accumulation, many education systems moved rapidly online on an unprecedented scale. Since lockdowns may be introduced again in the future until effective vaccines or therapeutics become available, it is of utmost importance for governments to reflect on the main difficulties that students, parents, teachers and school principals have encountered in adapting to this phase of massive online learning and intervene to better harness the potential of online learning. For example, they should first expand infrastructure, ensuring that nobody is excluded from online lessons, and support students and teachers to use online tools and technologies in an effective manner.

Based on forthcoming analysis in the *Skills Outlook 2021*, this policy brief illustrates that students' attitudes and dispositions to learning, such as ambition or motivation, are important drivers of their educational achievements and can help ensure that online learning is as effective as possible. In addition, this brief showed that families and teachers play a crucial role in guiding children through the challenges of home learning: parents can provide emotional and learning support to their children, while teachers can act as mentors, encouraging active learning and motivation and checking that nobody falls behind. Such interventions can considerably contribute to making online learning more effective. Given the crucial role that families and teachers play in the context of school closures, governments can spur their effective engagement by, for example, expanding family leave opportunities and by strengthening school-parents communication.

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