

“Post-traumatic growth” in education: How crises can spark positive change

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Abstract:

Crises such as epidemics, natural disasters, and armed conflicts are becoming increasingly common worldwide. While these events can significantly disrupt education, research on “post-traumatic growth” suggests that they may also foster positive change. To develop a more comprehensive understanding of how crises affect education, it is important to consider not only the challenges but also the potential benefits. This study addresses this issue using the recent COVID-19 pandemic as a case in point. Drawing on in-depth interviews with early years, primary, and secondary teachers from various countries, it explores how education may have benefited from the pandemic. The findings identify four domains positively influenced by the disruption, each linked to how key educational actors (e.g., teachers, students, parents) think, feel, act, and relate to one another. Specifically, the study captures a range of perspectives on how education might be reimagined (ideational benefits), while also illustrating the pandemic’s positive impact on emotions and attitudes (affective benefits), practices (behavioural benefits), and interpersonal relationships (relational benefits). Overall, the study offers a more balanced and nuanced account of the pandemic’s impact on education, proposes a typology of crisis-induced benefits to inform future research, and contributes to ongoing discussions about the future(s) of education.

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“Post-traumatic growth” in education: How crises can spark positive change

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Introduction

Crises such as epidemics, natural disasters, and armed conflicts can profoundly disrupt education. While these disruptions are often viewed only in negative terms, they may also create opportunities for positive change. As research on “post-traumatic growth” suggests, individuals, communities and systems can experience constructive development following adversity (see e.g., Alexander et al., 2021; Brooks et al., 2025; Tedeschi & Calhoun, 2004). To gain a comprehensive understanding of how crises may affect education, it is therefore essential to consider not only the challenges they pose but also their potential benefits. This study addresses this issue, using the recent COVID-19 pandemic as a case in point.

The COVID-19 pandemic, declared in 2020 (World Health Organization, 2020), significantly disrupted education, impacting both teachers and students. The most notable disruption was the widespread – partial or full – closure of schools. As the OECD (2022) reports, in 2020, 1.5 billion students across 188 countries were unable to attend school (p. 23). To reduce learning loss, many schools adopted “emergency remote education” (Hodges et al., 2020), although the transition from in-person to online teaching was often difficult. Challenges such as low digital literacy, limited access to devices and reliable internet, and poor student engagement hindered the effectiveness of remote lessons (Bond, 2020; Howard et al., 2021).

School closures led to several negative outcomes. In addition to learning loss (Carroll & Constantinou, 2022; Di Pietro, 2023; Newton, 2021), students and teachers experienced psychological strain. Many students showed signs of depression and anxiety (Deng et al., 2023; Panchal et al., 2023), while teachers reported reduced wellbeing, partly due to increased workloads during remote teaching (Kim et al., 2022; Wong et al., 2022).

While the pandemic’s challenges for education have been widely studied, its potential to inspire positive change remains underexplored. This imbalance is evident in several review studies (e.g., Bozkurt et al., 2022; Cachón-Zagalaz et al.,

2020; Tang, 2023). For instance, Bozkurt et al. (2022) analysed 1 150 publications using text mining and social network analysis to provide a panoramic view of the pandemic-related themes discussed in the education literature. Their analysis yielded seven main themes, most of which focused on negative impacts like remote teaching challenges, mental health issues, and deepening inequalities. This suggests that possible benefits may have been overlooked. To address this gap, the present study explored the pandemic's positive educational effects, aiming for a more balanced understanding of its impact.

Theoretical lens: Post-traumatic growth

The idea that adversity can be transformative can be traced back to ancient Greek philosophy and religious traditions (Meyerson et al., 2011). However, systematic research attention to the positive outcomes of highly stressful events is relatively recent. The term post-traumatic growth refers to “the experience of positive change that occurs as a result of the struggle with highly challenging life crises” (Tedeschi & Calhoun, 2004, p. 1). Such crises may include serious illness, bereavement, abuse, war, and natural disasters (Tedeschi & Calhoun, 2004).

According to Tedeschi et al. (2015), traumatic events can disrupt individuals’ “assumptive world”, that is, their core beliefs about the meaning, predictability, and purpose of life. Although such disruption often leads to distress, it may also prompt individuals to reflect on and revise these beliefs, thereby fostering growth. This process may involve cognitive restructuring, through which individuals reinterpret the event and its implications in ways that help them make sense of what has occurred, as well as broader changes to core beliefs (schemas) about themselves, others, and the world. Through these processes, positive change may emerge across three main domains: self-perception, relationships, and life philosophy (Tedeschi & Calhoun, 1996). Such changes may include an enhanced sense of personal resilience, stronger relationships, a greater appreciation of life, the recognition of new possibilities, and, in some cases, spiritual development (Tedeschi et al., 2017; Tedeschi & Moore, 2021).

Applying this perspective to the educational disruption caused by the COVID-19 pandemic, some evidence points to a post-traumatic growth effect. For example, the shift to emergency remote teaching appears to have supported teachers’ professional development by enhancing their digital skills (Akban et al., 2021; Gao & Zhang, 2020) and encouraging experimentation with multimodal assessment approaches (Chung & Choi, 2021). Such evidence suggests that educational technology was a key domain of positive change (e.g., Moorhouse & Kohnke, 2021; Moorhouse et al., 2023). However, in the absence of more systematic research, it remains unclear whether these benefits extend beyond the technological domain.

Guided by post-traumatic growth theory, this study aimed to explore the broader educational benefits of the pandemic. Through teacher interviews, it addressed two questions:

- (a) Which areas of education were positively affected by COVID-19? (macro-level benefits)
- (b) How did these positive effects manifest? (micro-level benefits)

Methodology

To explore the positive impact of the COVID-19 crisis on education, this study conducted in-depth semi-structured interviews with 13 teachers. These formed part of a broader mixed-methods project combining questionnaire and interview data to examine how schools worldwide experienced the COVID-19 disruption (see Carroll & Constantinou, 2022, 2023; Constantinou, 2023, 2024; Constantinou & Carroll, 2023). The interviewees were selected from the pool of questionnaire respondents to ensure diversity across education sectors (early years, primary, and secondary), school types (state and private), roles, subjects taught, and teaching experience (ranging from 6 to 35 years) (see Table 1). While both state and private schools were represented, the majority of interviewees worked in the private sector. The sample also included participants from schools across different European countries, providing a broader perspective and capturing a range of experiences.

Table 1: Interview participants (N = 13)

Characteristics		N
School location	UK	7
	Cyprus	1
	Italy	2
	Romania	1
	Spain	1
	Switzerland	1
Education sector	Early years	1
	Primary	2
	Secondary	10
School type	State-funded	3
	Independent	10
Gender	Female	8
	Male	5
Position in the school	Teacher with a leadership role (e.g., head of department)	8
	Teacher without a leadership role	5
Subject area*	Creative subjects (e.g., art, design and technology, music)	2
	Humanities and social sciences (e.g., English language, literature, history)	5
	Science and mathematics	3

* This category concerns only the secondary teachers (the early years and primary teachers taught all subjects).

Each 90-minute online interview, conducted in June and July 2021, invited teachers to reflect on their remote and in-person teaching, strategies used to address challenges, and any positive outcomes of the disruption. Written informed consent was obtained from all interviewees, and the process of data collection and storage was in line with the ethical guidelines for educational research issued by the British Educational Research Association (BERA, 2018).

The interview transcripts were thematically analysed using MAXQDA (VERBI Software, 2021), following Braun and Clarke's (2021) approach. The analysis, which was largely data-driven, proceeded in two stages. First, 20 descriptive codes were developed to capture distinct examples of positive change (micro-level benefits). These were then grouped into four overarching themes representing broader domains of positive impact (macro-level benefits). Each code is illustrated below through representative interview excerpts, organised by domain.

Findings

The interview analysis revealed that the pandemic's positive impact on education was multifaceted, spanning four key domains: the *ideational*, the *affective*, the *behavioural*, and the *relational*. As outlined below, these domains correspond to how core educational actors *think*, *feel*, *act*, and *relate* to one another, respectively.

Ideational benefits

The disruption caused by the pandemic exposed some limitations of mainstream approaches to teaching and learning. As such, it challenged the educational status quo, encouraging teachers to reimagine education and consider new directions and possibilities. The perspectives described in this section capture some of these directions or ideas.

Students using electronic devices in face-to-face lessons

Following her experience of online teaching during school closures, one interviewee reconsidered the pre-pandemic ban on electronic devices in the classroom, viewing it as outdated. Online teaching highlighted the learning potential of internet access during lessons, leading her to envision a future where technology plays a more central role in face-to-face instruction:

“One thing I would love to be able to do in the future, I would love to have a classroom where students have some kind of device with them as well as face-to-face learning. Because particularly in something like English, one really good thing for teaching things like digital literacy – you can actually give students a website, say a charity website and get them to look at the way the website actually looks, whereas if you’ve got a textbook with a printout of a website, it isn’t the same. And that’s also really useful for research. So, when we wanted students to find out who someone is, or the definition of a word, when they’re all – because they’re all connected to the internet, they could actually find a definition, and that was a good thing. So, I really like the idea, in the future, of classrooms being sort of hybrid, but in the sense that the students have all got their own devices [...]. A lot of schools have a ‘no devices, no devices allowed’, and actually I think that’s a bit archaic, and maybe that’s something we could learn moving forward.”
(Participant 13 – Secondary teacher, Cyprus)

Playing to technology's strengths

The shift to online teaching during lockdown gave many teachers firsthand insight into both the strengths and limitations of technology in education. This experience fostered a more critical and context-sensitive view of its classroom use:

“I think what the process has allowed teachers to do is understand when technology is necessary and when it's not. So, I think initially [in the earlier stages of the pandemic] it was a case of embracing everything to do with online learning, whereas now I am finding myself far more critical and asking myself the question: Is using a computer the best way to do this?”
(Participant 9 – Secondary teacher, Italy)

“Well, I think that certainly people now know what they're dealing with when it comes to technology. It's really forced the hand of teachers to come to terms with using technology in the classroom. So, only by doing that can they become aware of both its potential and its limitations. So, if it's done one thing, it's accelerated by a number of years that process, and we were on that track anyway. So, now we can go beyond the technicalities, and we can begin to have that discussion about yes, this is software or this is this or this is that, but is it actually helping our learners to learn? So, I think that's a real positive. [...]. I think we've gone beyond the basics, and now we're becoming more critical of: What can this do and what can it do to really teach learners something important as opposed to just the bare facts and the basic things?” (Participant 9 – Secondary teacher, Italy)

Hybrid lessons

Measures taken to reduce the spread of the virus after schools reopened, such as requiring infected students and close contacts to self-isolate, led teachers to deliver hybrid lessons (that is, lessons delivered simultaneously to students in the classroom and those joining remotely). Despite its challenges, this approach highlighted the potential of hybrid teaching to support students who are ill or have mobility issues. If effectively implemented, it could enhance lesson inclusivity in the future:

“Another point that I find positive is, for example, the possibility for students that are sick, but not very sick, maybe they don't have a fever – so they can actually follow the lesson, but they can't come to school. So, I think that's fantastic, if they, in the years to come are still able to participate in the class activities remotely, without missing out on the entire school day just because, for instance, they have a cold, or they have a broken leg.”
(Participant 10 – Secondary teacher, Italy)

Paperless classrooms

As one interviewee noted, the pandemic accelerated technological progress and innovation, leading to the development of a wide range of digital tools and resources. This has drawn attention to the prospect of classrooms becoming paperless in the future, highlighting an additional route via which education could support the global environmental agenda:

“I would love to see a paperless classroom, and I think that environmentally that has potential. Again, we’re not there yet in terms of the tablets and so on, haven’t replaced pen and paper, but I think we’re closer to that objective thanks to the pandemic. So, I think it has accelerated the technology and we’re closer to where we should be in terms of using technology in the classroom.” (Participant 9 – Secondary teacher, Italy)

Simplicity and outdoor learning

The experience of teaching in the pandemic enabled teachers to realise that much can be achieved with just a few key resources and that a simpler approach to teaching – one that is free from modern-life “clutter” and involves more frequent contact with nature – might provide a richer educational experience. Social distancing, for example, forced schools to move – where possible – some of their activities outdoors, allowing teachers to discover the benefits of outdoor education and develop a greater appreciation of it:

“Oh, I just wanted to say something we learnt when we returned to school, after the last lockdown. We did notice that there was a greater simplicity of approach. The classrooms were empty, but we found that the children [aged 4 to 5] were coming in their own clothes and didn’t have so much clutter. And we used nature a lot more because the classrooms didn’t have stuff in them, and the children got closer to the outdoors last time, and didn’t have so many trappings of modern-day life – they came in their own clothes, just with a small bag. And we noticed a simpler lifestyle in the last return, when we had less – we noticed something else within ourselves, that we could function in a different way that was quite rich, because we’re lucky with our outdoors. So, that was a very nice discovery, that sometimes we have too many things, and we found ways to be happy, in a simpler way, during that period of time. [...] that sometimes the children can have too many things to wear and carry, and be. And less is more – they came in a pair of trainers, so they could run and jump. They didn’t have trainers and shoes, they didn’t have PE kit – they wore one set of clothes and it felt liberating.” (Participant 3 – Early years teacher, UK)

“Realising the absolute, not just benefit but absolute crucial element of non-classroom-based learning experiences for pupils is absolutely vital. And, so, I hope that other schools will pick up on that too, and see that as a really good way of recovering from the pandemic but also something that should stay in curriculums from now on. That it’s not just all about being in a classroom.” (Participant 7 – Secondary teacher, UK)

Importance of wellbeing

By drawing attention to the adverse effects that poor wellbeing may have on learning, the pandemic raised awareness among educators and schools of the importance of wellbeing for students’ educational development:

“It’s brought, as well, more attention on emotional wellbeing. That might be something that we will look at a lot more in the future – if a student is

emotionally struggling, then their learning is going to struggle, is going to be impacted.” (Participant 13 – Secondary teacher, Cyprus)

Alternative approaches to assessment

The cancellation of national examinations in many parts of the world due to the pandemic exposed some limitations of current assessment approaches. By highlighting some of the problems that may arise from relying on one end-of-year assessment, it invited consideration of alternative approaches to student assessment:

“I’ve been talking to some friends in the States who a few of them are principals of high schools. One’s a principal of a middle school and he said, ‘This pandemic was an opportunity to really rethink how we did education and assessment, and it’s been a missed opportunity’. So, in the UK, we have this one test that we give at the end of the year for GCSE in each subject. But it’s not a holistic approach, it’s just pushing all of the knowledge down to one exam at the end of the year. And that’s true at A Level, etc. And there need to be more things throughout the year, more assessments, more portfolio-based work that students can produce.” (Participant 1 – Secondary teacher, UK)

Affective benefits

Apart from triggering new ideas and ways of thinking about how education could be delivered in the future, the pandemic also seems to have cultivated positive emotions and attitudes within the educational community.

Gratitude

The severe disruption caused by the pandemic resulted in some teachers becoming more appreciative of everyday experiences and interactions that had previously been taken for granted:

“I think that we all, myself, and my colleagues, everyone – have learnt not to take for granted some experiences or some activities that we usually do – I mean, for example, being able to share an experience, being able to have a discussion – it’s not so obvious anymore. So, I think somehow they have got more value now.” (Participant 10 – Secondary teacher, Italy)

According to the interviewees, similar feelings of gratitude also developed among students, many of whom seemed to be more appreciative of in-person schooling following the experience of remote learning during lockdown:

“I think that students in general are more appreciative of being at school and realising the good things about it. Definitely my Year 10s are much more like, ‘Oh, no, it’s so much better at school because we can use materials and we can do all ...’. So, I think the kids have found the more positive-ness about being at school. My son for example is very like, ‘Oh, no, school is much better, much more fun because I can play with my friends’ [Laughs].” (Participant 8 – Secondary teacher, Romania)

“On the flipside, some of them coming back this term, it’s been amazing to see some pupils really have a greater gratitude for what school can offer, and wanting to get involved in anything they can, because they realised that they missed it. And actually, when they’re here all the time, they hadn’t realised how much it meant to them until it was kind of taken away, if you like. So, that has been actually a really good thing to see some pupils want to do more, because, actually, they kind of realised the value in it and they enjoy it, and they’ve missed it, which is a good thing.” (Participant 7 – Secondary teacher, UK)

Professional confidence

When instruction suddenly moved online, teachers had to rapidly upskill by familiarising themselves with the use of different digital tools and by learning how to design and deliver online lessons. While this process was challenging, it was also rewarding, as it seems to have equipped teachers with a stronger sense of self-efficacy:

“And this online learning platform is a fantastic resource. I would never, in a million years, have chosen to use it, but because I had to use it, I made myself work with it, and found, actually, it’s a really useful tool. The fact that we can do online meetings like this. This is technology that two years ago, I didn’t even know existed. I remember the Head saying when we set into this, she said, ‘You will find that this is going to be challenging, but it will be so beneficial for your teaching, it’ll be so beneficial for our learning, and you’ll be so much better, tech-savvy’, and she’s right. It’s been a great challenge, but it’s been worth it in the end. So, I feel I’m a better teacher as a result of what we’ve been through.” (Participant 2 – Primary teacher, UK)

Willingness to change

The disruption caused by the pandemic forced schools to move away from long-established routines and practices – as these had proved ineffective or no longer applicable – and to search for alternatives. To cope with the constantly evolving crisis, teachers had to become more flexible, adaptable and creative, which seems to have led some of them to develop a more positive attitude towards change:

“But I think one of the main things is the need to be flexible and to be creative and to say, ‘Right, we’re going to try and make as much happen as we can, within the guidelines and within a safe environment.’ So, developing that spirit and that kind of outlook amongst staff is sometimes hard in a school, because schools tend to have really structured calendars that go up from one year to the next and they say, ‘Oh, but we’ve always done it like this’. [...]. And so, I think there’s been quite a lot learnt from just being more creative and actually thinking about how we can still provide opportunities for students and make it fulfilling. But in a safe way. So, we’re doing a performance – we’ve got, I think, four different productions this term happening, all of them are happening outside because they can’t happen inside. So, actually, using our space better, using our facilities in a different

way because, actually, we've been made to look at it differently. And I really hope that in the future we'll continue that, and it won't just go back to, 'Oh well, we're back to normal.'" (Participant 7 – Secondary teacher, UK)

"When we go back, we don't know what is going to happen, we have to be ready for everything. That's what I think this pandemic has showed us, that we have to be ready and improvise, and be ready to change everything from one moment to another – adapt, and apparently, we're good at adapting." (Participant 11 – Secondary teacher, Spain)

Resilience

The various challenges with which teachers were confronted during the pandemic seem to have helped them build resilience, while equipping them with confidence about their ability to recover from future crises:

"I've felt, maybe if we can survive this, then we can survive anything. There is an element of going, 'Look, we're all still sane and we're all still standing'. I think there's some pride, perhaps." (Participant 11 – Secondary teacher, Spain)

"And there's also a sense of resilience, because if we can do this, we can do anything. We've got through this, and we'll get through it again. Bring it on. That's the biggest thing. [...]. But we've learnt a lot, we've come a long way, and I think it's made us stronger." (Participant 2 – Primary teacher, UK)

Behavioural benefits

Apart from supporting education at an ideational and an affective level, the pandemic has also benefited the sector at a behavioural level by positively influencing key educational actors' actions and practices.

Movement of professional development courses online

The pandemic encouraged many teacher professional development providers and educational conference organisers to move their events online, thereby normalising the online delivery of these activities while also considerably reducing their cost and the inconvenience often involved in attending them (e.g., travel time). This resulted in both domestic and international training courses and events becoming more accessible to teachers:

"I think, actually, it's given teachers more confidence in operating online and doing things remotely. Like for example training. I don't think if you'd have said to any teacher, 'do an online course' – they would have not wanted to [do one]. But now, actually, it's the preferred way of doing it. And it means you can access training all across the country. It's not dictated to by where you have to go to do the course, for example, if it's online. Certain things are better meeting, like networking and that's good, but sometimes it's much better just to be able to, if you're going to go to a place like a 40-minute drive, especially in [location] where we are, it can be quite a long journey to

where the training is. So, things like that will be helpful and, actually, might work a lot better in the future.” (Participant 6 – Primary teacher, UK)

“The ability to go to conferences online is amazing. [...]. And they do amazing CPD [Continuing Professional Development courses] for teachers on – it’s really high-end thinking stuff, retrieval practice, all of that kind of stuff, which I’ve done because it’s online. So, I have done a lot of CPD which I would never have done because they don’t pay for us to go from here to England very much.” (Participant 12 – Secondary teacher, Switzerland)

Increase in the supply of online educational resources

To facilitate the shift to online teaching during lockdown, educational companies developed a wide range of online teaching and learning materials and tools, providing teachers and students with a greater choice of educational resources:

“And I think so many educational companies have stepped up with online resources – all of those kinds of things that you can now get, there are so many chemistry – so many online chemistry practicals now that you can just do online.” (Participant 12 – Secondary teacher, Switzerland)

Improvements in the usability of technology

The shift to online teaching did not only increase the volume and variety of online educational resources but also improved user experience through encouraging providers to quickly adapt and upgrade the technology underpinning their digital tools:

“[Providers] have been amazing at updating this technology, this is so easy now, and everybody just goes, ‘Oh, I’ve got a meeting in’, and we go from one meeting to another meeting, and we flip in and out, and all this kind of – so, you know, the technology has adapted really, really well, which I really like.” (Participant 12 – Secondary teacher, Switzerland)

Expansion of teachers’ instructional toolkit

Online teaching during lockdown gave teachers the chance to explore a range of digital resources. As the interviews revealed, some proved so effective that teachers chose to integrate them into their post-lockdown classroom practice:

“Our use of this platform has meant we’ve carried on using it, so actually there are certain things we’ve developed which we’re going to carry on doing. So, this is a way of posting homework, a way of getting children to post things and send pictures of things they’re doing at home, and we’ll keep that going.” (Participant 6 – Primary teacher, UK)

“I’m going to use my visualiser now and for my [art] demonstrations on the table in the classroom, where sometimes some people can’t see it and things like that. I’m going to use my visualiser now, so that everybody can see it on the big screen. So, that is definitely going to be used. My newfound tool.” (Participant 8 – Secondary teacher, Romania)

“Personally, [in my online lessons] I’ve used lots of things to do with video, so like short films and so on, for learning. Again, that’s not going to go away, that’s something which has enriched my teaching.” (Participant 9 – Secondary teacher, Italy)

It is worth noting that some of the online resources embraced by teachers appear to offer added value by supporting the needs of specific student groups – such as those unable to attend in person or with learning difficulties – making them beneficial not only for learning but also for promoting greater equity in schools:

“And even things like being able to record lessons for pupils that are absent, and making sure that they can access that work, is a really useful thing. So, I think that will definitely stay as a strategy in this school.” (Participant 7 – Secondary teacher, UK)

“And another valuable resource that I had the opportunity to know were the podcasts. I didn’t listen to many podcasts before, I do now, and sometimes I find something that is very interesting, very close to the content that I am supposed to deliver. And, I think, that is useful, for example, for students with learning issues, maybe if someone suffers from dyslexia, for example, to listen to a podcast could be useful. So, I’m planning on keeping on using those kinds of resources that I have discovered during the lockdown.” (Participant 10 – Secondary teacher, Italy)

Greater student autonomy

Some of the practices or routines adopted in response to the pandemic seem to have strengthened, to some extent, student autonomy. A primary school teacher, for example, commented on the independence that children at his school were able to develop as a result of having to go into the school unaccompanied by their parents:

“Some of the routine things, like going in and out of school, we might keep things similar. That’s been a way of experimenting, which we think, actually, that works quite well. The children, in some ways, are more independent because they are being dropped off at the school gate and they’re coming in themselves. Often the parents would come in, they’d help them settle down. The parents would be in the classroom, they’d get their work out for them. They’d go and put their coats on their pegs. The parents would do all that for the children. Actually, the kids have got to do it for themselves, which we – that sort of independence a little bit in school is actually something that we might try and encourage them to keep going with.” (Participant 6 – Primary teacher, UK)

A form of autonomy also seems to have developed in contexts where students had the opportunity to use their devices during in-person lessons, a practice that became more common following the phase of online teaching:

“I think we have become a bit more reliant on devices, even though we’re in person again. I’m letting the students use their devices more. And that may be a good thing, putting assignments up and having them work and then I

move around the classroom and help. [...]. I did support for Year 11, I wasn't teaching Year 11 class, but some of the kids were very self-directed because they were left to use their devices and search up a video or watch a video on a topic that they were struggling with. So, they were a bit more self-directed and self-motivated." (Participant 1 – Secondary teacher, UK)

Relational benefits

According to the interviewees, the positive impact of the pandemic on education also extended to the domain of interpersonal relations. As indicated below, certain changes resulting from the disruption may have helped to strengthen the relationships among teachers, students and parents.

Exchange of tips and resources among teachers

The sudden shift to online teaching, and the various challenges accompanying it, encouraged many teachers to connect with colleagues from around the world and from different education sectors, and share teaching advice and resources. This sharing process was facilitated by popular social media platforms, fostering a spirit of solidarity and cooperation among educators while helping to create a global community of practice:

"One of the things that I did over lockdown was spend quite a lot of time on Twitter, which I've never used before, and I got into the Education, you know, I follow a lot of education people on Twitter now, whether they're at university or in schools. And it's really – I will have changed my teaching practice totally by the time we go back to normal because of all the stuff that I've managed to learn. [...]. So, all of that's amazing – the sharing of resources between teachers on Twitter and a lot of that stuff is amazing." (Participant 12 – Secondary teacher, Switzerland)

Teachers in more frequent contact with parents

As one interviewee noted, the shift from in-person to online meetings during lockdown enabled teachers in international schools to connect with parents based overseas and to begin building relationships with them:

"And also it [holding meetings online] means we can speak to the parents in China and America, which we never used to be able to do, so it's much more efficient. They're just a normal parent now, whereas before they were these parents that were absent, but they're not anymore – so yeah for us it's much better." (Participant 12 – Secondary teacher, Switzerland)

As remote meetings become normalised in education, and some teacher–parent meetings continue online post-pandemic, communication may become more frequent, potentially strengthening teacher–parent relationships:

"We might keep parent–teacher meetings online, because it's quicker and the parents don't have to travel, so it allows them to be at home, and they can just interface with you." (Participant 2 – Primary teacher, UK)

Parents gained insight into teachers' work

During the period(s) of online teaching, many parents had the opportunity to observe some of their children's lessons, which appears to have deepened their understanding and appreciation of teachers' work:

"The parents, again, are highly supportive, they've seen what we're doing, and a lot of them had to see far more into the classroom than they'd previously done, and they understand us a lot more." (Participant 2 – Primary teacher, UK)

"Because I have been on the screen, the insight that it has given some parents into what we do – as weird as it was knowing that some of those parents were watching my lessons – and then they sent me feedback about it. That was actually really nice, and, I have to say, it gave me a really positive boost when I felt really, probably, quite fed up. So, that was lovely." (Participant 4 – Secondary teacher, UK)

Greater parental involvement in students' learning

School closures resulted in many parents becoming more involved in their children's education. According to an early years teacher, this allowed parents – especially those who pre-pandemic were not very involved in their children's learning – to appreciate this experience. This, in turn, may have incentivised them to seek ways to maintain this "mentoring" relationship and to continue to provide their children with more direct forms of educational support:

"Parents not having to go to work has meant children have seen their parents more during lockdown. And for some parents who've been very busy, it has made them think they would like to not lose that again. And that is very helpful for the growing child, the little child. So, parents realising that they can be part of their child's educational journey, is useful. So, they started to learn to read, for example, with their parent, and now the parents may be thinking, 'I don't want to lose that little link with helping them to read, so I will try and find more time'. So, children and parents, that's been something useful that they have learnt – how valuable it is to be a parent." (Participant 3 – Early years teacher, UK)

Discussion and implications

This study has helped to illuminate some of the less visible and less frequently acknowledged effects of the COVID-19 pandemic on education. Specifically, it has highlighted the ways in which the disruption seems to have generated positive outcomes. While the adverse consequences of the crisis have been widely researched and documented (see e.g., Carroll & Constantinou, 2022; Howard et al., 2021; Thorn & Vincent-Lancrin, 2021), its potential benefits have received comparatively little attention, despite calls within the academic community to view the pandemic as a "blessing in disguise" and an opportunity to reimagine education (e.g., Taberski, 2020; Zhao, 2020). Beyond a limited body of work

highlighting positive developments in educational technology (e.g., Akbana et al., 2021; Moorhouse et al., 2023), few, if any, studies have systematically explored the broader transformative potential of the disruption.

To address this gap, the present study adopted a holistic approach to examining the beneficial impact of the pandemic on education. Drawing on interviews with early years, primary, and secondary teachers based in schools across various European countries, the study identified four domains in which the disruption seems to have had a positive influence: the ideational, the affective, the behavioural, and the relational. These domains correspond to the thoughts, emotions, practices, and relationships of key educational stakeholders (i.e., teachers, students, and parents) respectively.

At the ideational level (domain of thoughts), the disruption challenged dominant educational ideologies and practices, opening up space for alternative approaches. These included a renewed focus on simplicity and outdoor learning, greater attention to student wellbeing and mental health, reconsideration of assessment practices, environmentally sustainable teaching (e.g., “paperless classrooms”), and the integration of student devices into face-to-face lessons. At the affective level (domain of emotions), the pandemic fostered positive emotional responses and attitudes, such as gratitude, resilience, openness to change, and enhanced self-efficacy through upskilling. Behaviourally (domain of practices), the benefits ranged from the expansion and refinement of digital tools by educational providers to the continued use of such tools by teachers in post-lockdown classroom practice. Relationally (domain of relationships), the disruption appeared to strengthen connections among teachers, students, and parents. Specifically, it offered each party greater insight into one another’s work and circumstances (e.g., parents observing teachers’ online lessons), while also increasing opportunities for interaction (e.g., parents becoming more involved in their children’s learning during lockdown and wishing to sustain this involvement post-lockdown; teacher–parent communication being facilitated by the shift from in-person to online meetings).

In line with the literature on post-traumatic growth, these multi-dimensional benefits suggest that major educational disruptions, such as those caused by pandemics, can also yield constructive outcomes. To develop a more balanced and comprehensive understanding of the impact of such events, it is essential to investigate both their negative and positive dimensions. By proposing a typology of crisis-induced educational benefits (see Table 2), this study aims to support future efforts to assess the educational implications of crises such as epidemics, natural disasters, and armed conflicts. Given the increasing frequency of such events globally (see e.g., Acevedo & Novta, 2017; Haileamlak, 2022), frameworks like the one developed here are vital for advancing a more nuanced understanding of their effects on education.

If embraced and further explored, the trends and directions identified in this study could help shape a future for education that is not only more effective, but also more inclusive, resilient, and environmentally sustainable. By capturing and documenting these “seeds of change”, the study seeks to inform and inspire ongoing discussions about the future(s) of education. Crucially, it aims to help sustain the momentum for educational transformation sparked by the COVID-19 crisis.

Table 2: A typology of crisis-induced educational benefits

Macro-level benefits	Micro-level benefits
Ideational benefits	Students using electronic devices in face-to-face lessons
	Playing to technology's strengths
	Hybrid lessons
	Paperless classrooms
	Simplicity and outdoor learning
	Importance of wellbeing
	Alternative approaches to assessment
Affective benefits	Gratitude
	Professional confidence
	Willingness to change
	Resilience
Behavioural benefits	Movement of professional development courses online
	Increase in the supply of online educational resources
	Improvements in the usability of technology
	Expansion of teachers' instructional toolkit
	Greater student autonomy
Relational benefits	Exchange of tips and resources among teachers
	Teachers in more frequent contact with parents
	Parents gained insight into teachers' work
	Greater parental involvement in students' learning

Limitations and future directions

Given the small sample size, the range of positive effects and the domains identified are unlikely to be exhaustive. Further research involving larger and more diverse teacher populations is therefore needed to extend this understanding. Such work would provide deeper insight into the positive impact of the COVID-19 pandemic – and potentially of similar future disruptions – on education, as well as into the durability of these effects over time.

While the experiences captured here may resonate with many teachers globally, they do not reflect the experiences of all. Future studies should explore (a) how widespread these views are, and (b) the personal, socioeconomic, cultural, and political factors that may explain variation. This is crucial for understanding the diverse challenges and opportunities across teaching contexts, and for identifying potential inequalities within the profession.

Finally, the possibilities for the future of education identified in this study offer promising directions for further research. For example, it would be valuable to investigate the conditions under which some of these possibilities, or innovations, can be effectively implemented to enhance learning outcomes in both crisis and non-crisis contexts. Key questions that merit exploration include:

- How can devices be best integrated into in-person lessons?
- What kinds of assessment approaches could help make education more crisis-proof?
- How can hybrid lessons be designed to ensure high-quality learning for both in-person and remote students?

These questions are now even more relevant. The interviews were conducted before generative AI chatbots, such as ChatGPT and Copilot, became widely available. In post-2022 contexts, teachers may view the integration of devices into in-person lessons differently, particularly in relation to when technology strengthens learning and how far it supports or constrains student autonomy. Similarly, debates about more crisis-proof assessment approaches may now need to consider how learning can be evidenced when students have access to AI-generated support. Future research could therefore examine whether, and how, generative AI has reshaped teachers' views on these issues.

Overall, it is hoped that the current findings and the questions they raise will inspire further research into more effective and inclusive approaches to delivering education in the future.

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