Author Accepted Version di: Manca, S., & Delfino, M. (2021). Adapting Educational Practices in Emergency Remote Education. Continuity and Change from a Student Perspective. *British Journal of Educational Technology*, 52(4), 1394-1413. https://bera-journals.onlinelibrary.wiley.com/doi/10.1111/bjet.13098

Adapting Educational Practices in Emergency Remote Education. Continuity and Change from a Student Perspective

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Abstract

In this study, we adopt an ecological perspective to reflect on how a specific Italian school cluster adapted to the challenges of the COVID-19 pandemic by focusing on how students experienced the interplay between continuity and change in school teaching and learning practices caused by the pandemic. Specifically, the study investigates how the school's physical/virtual learning system was (re)configured to provide new opportunities for learning to a thousand-plus population of primary and secondary students, and how they reacted to the transition to distance learning in terms of participation, autonomy, motivation and engagement. The research adopts a mixed-method approach, based on school management system data and a survey tool, and analyses the students' response to the emergency from the perspectives of the students themselves, their teachers and their parents. While these converged in positive evaluation of the experience, a number of lessons were learnt, such as the importance of building on favourable pre-existing conditions and leveraging a solid shared school culture to promote a prompt reaction to the emergency. Significantly, students with an immigrant background displayed varying degrees of participation in online activities. Overall, for

each of the three stakeholder groups surveyed, solid pre-existing digital competence levels and close collaboration within the school community were the most important factors for non-traumatic transition to distance learning.

Practitioner Notes

What is already known about this topic

- Research on the relationship between the COVID-19 pandemic and the effects on teaching and learning processes is constantly increasing.
- Most recently published studies focus on higher education, while very few investigate the impact of the COVID-19 pandemic on K-12 education.
- Very few articles have studied the interplay between change and continuity within an educational ecosystem in times of crisis.

What this paper adds

- This is one of the first studies to analyse the process of systematic transition from onsite learning to online learning within the Italian school system in response to the pandemic.
- This study employs a multiple perspective research approach to analyse Emergency Remote Education in a sizeable school cluster, with a specific focus on student response.
- Teachers, students and their families all saw solid pre-existing digital competence and close school community collaboration as key factors facilitating rapid adjustment to the emergency.

Implications for practice and policy

- Having a solid common school culture to rely on facilitates prompt emergency reaction.
- Encouraging the creation of professional communities of practice that comprise both expert and novice teachers can help prepare educators to deal with an educational emergency through adoption and appropriate use of technological solutions.
- Collaboration between school and families proves to be a key factor for dealing with emergencies.

Introduction

When the COVID-19 pandemic erupted in 2020, Italy was the first country in Europe to enter lockdown (Wikipedia, 2020). One of the first measures the country took in its emergency response to the coronavirus outbreak was to close schools and higher education institutions, a step taken in early March 2020. Although this was initially conceived as a temporary measure, the realisation grew that school closures would last until the end of the school year, which in Italy is in the first half of June. With their on-campus courses suspended, schools and universities progressively moved their classes online so as to continue providing learning opportunities and ensure educational continuity. Although distance learning activities were adopted at all educational levels, with substantial differences in terms of educational approach and use of digital platforms (Carretero Gomez et al., 2021), recent studies into the reactions of Italian educational institutions, teachers, and students have revealed that mixed results were achieved (Gaggi, Kolasinska, Mirri, & Prandi, 2020; Giovannella, Passarelli, & Persico, 2020; Ranieri, Gaggioli, & Kaschny Borges, 2020).

If we look at the pandemic situation on a global scale and how it has been affecting education, research into Emergency Remote Teaching (Hodges, Moore, Lockee, Trust, & Bond, 2020) and Emergency Remote Education (Williamson, Eynon, & Potter, 2020) has highlighted the fundamental issue that crisis-driven online education is significantly different from well-planned online teaching and learning. Although the concepts of "emergency education" (Kagawa, 2005) or "education in times of crisis" (Hatzichristou, Lianos, & Lampropoulou, 2017; McCarthy, 2018; Uscher-Pines et al., 2018) are not new, we are witnessing an unprecedented global use of digital technologies to support educational needs in times of crisis. In particular, the greatest "educational technology (edtech) experiment" (Anderson, 2020) underway has exposed contentious political-economic issues, such as the extraordinary opportunities for the edtech industry to extend its reach, grow markets and increase earnings (Williamson, Eynon, & Potter, 2020). Most importantly, the design of educational technologies embeds powerful assumptions about the nature and dimensions of learning, potentially

raising issues of injustice and marginalization in disadvantaged communities, as well as issues of democracy and economy (Gleason & Heath, 2021).

After initial enthusiasm about the potential spur that the COVID-19 pandemic could give to rethink the role of technology in education systems in a "great online learning experiment" (Zimmermann, 2020), it has been seen that such emergencies can also exacerbate many pre-existing digital divides and inequalities (Beaunoyer, Dupéeré, & Guitton, 2020; Nguyen, Hargittai, & Marler, 2021). In the specific case of Italy, national statistics have shown that 12.3% of 6–17-year-old children do not have access to a computer or tablet at home, while only 6.1% of the children live in family contexts where each family member has their own device (Istituto Nazionale di Statistica, 2020). Like in other Western countries, socio-economic differences have a strong impact on families' level of Internet access, availability of technology, and suitability of housing arrangements, not to mention parents' varying ability to follow their children's educational activities, given their everyday duties, commitments and circumstances (Fontanesi et al., 2020; Poletti & Raballo, 2020). On a positive note, a comprehensive report analysing the impact of the COVID-19 pandemic on primary and secondary education in five European countries (Carretero Gomez et al., 2021) showed that despite digital divide barriers (poor Internet access, lack of suitable digital equipment, low level of digital competence) and different strategies of content delivery online, collaboration among schools, and among teachers and families, proved to be the main factor facilitating the process of remote schooling in Italy.

As ever more countries have now entered a second and third wave of lockdown, it is time to generate evidence-based recommendations in support of policy and decision making, and that underpin sound practices adhering to the principles of responsible research and innovation (Owen, Macnaghten, & Stilgoe, 2012) and recommendations based on ethical and situated approaches. In fact, despite the plethora of new research about Emergency Remote Education, very few studies have been conducted that investigate concrete cases on how schools have dealt with the emergency and the solutions they have adopted to meet the new challenges in educational management and teaching practice.

Through a case study approach, this article analyses how a school cluster adapted to the challenges posed by the COVID-19 pandemic, focusing specifically on students' reactions in terms of participation, autonomy, motivation and engagement in distance learning activities. The research is conducted through the principles of social ecological systems theory (Barron, 2004; Bronfenbrenner, 1979) and suggests an interpretation of change where factors at the microsystem level (i.e., the school) can influence change at the individual level (i.e., single students). In this light, despite the limited existing literature on continuity and change in educational transformation processes (see Carpenter, Krutka, & Trust, 2021), this study explores how early school system adaptation decisions impacted on student response and reactions, and provides indications for successful educational practice in times of uncertainty beyond the current crisis.

Related literature

Reconfiguring educational scenarios in times of pandemic

With the passage of time since the outbreak of the health emergency almost a year ago, the literature on Emergency Remote Teaching (Hodges, Moore, Lockee, Trust, & Bond, 2020) and Emergency Remote Education (Williamson, Eynon, & Potter, 2020) is still growing (e.g., Ferdig, Baumgartner, Hartshorne, Kaplan-Rakowski, & Mouza, 2020). How the COVID-19 pandemic is impacting on educational and school policies continues to attract the attention of scholars, since this situation may provide indications both on how Educational Technology scenarios may end up being reconfigured beyond this pandemic, and on how to deal with future educational emergencies.

Many studies have highlighted the criticalities of school systems and teachers' preparation in adapting promptly to the demands of the new emergency. Teachers' agency has been investigated in terms of needs of preparation and training (Trust & Whalen, 2020) and professional development for adapting and designing new instructional activities (Baran & AlZoubi, 2020; Clausen, Bunte, & Robertson, 2020; Kier & Clark, 2020; Manfra, Lee, & Grant, 2020; Sadler, Friedrichsen, Zangori, & Ke, 2020). Although some studies have shown that while many teachers lacked the experience and preparation

for effective online teaching, they were also fairly willing to use various digital tools in the quest to make teaching effective for their students (Bozkurt et al., 2020; Gudmundsdottir & Hathaway, 2020). Others have highlighted that key individual and contextual variables explain variance in teachers' readiness, factors such as teachers' gender and prior online teaching and learning experience, the context of the online learning shift, the innovation potential in education, and cultural orientation (Scherer, Howard, Tondeur, & Siddiq, 2021).

Other studies have researched attempts to formulate educational frameworks that serve not only for the COVID-19 crisis, but also in future Emergency Remote Teaching environments. In one of these, Whittle, Tiwari, Yan and Williams (2020) engaged K-12 teachers and professional instructional designers through a participatory design methodology, intending to provide an educational framework that considers factors such as multiple subject areas, school districts, learner ages, and socio-economic situations when designing unplanned or responsive remote teaching solutions. In a similar vein, radical flexibility and relationality are suggested as ways to create sustainable education for all and for the future: flexible education needs to be equitable, just, accessible, empowering, and imaginative (Veletsianos & Houlden, 2020). Indications for flexibility and change are also provided by proposals that suggest fostering active learning, community building and civic participation in an emergency through the use of social media in combination with conventional LMS (Greenhow & Chapman, 2020), or supporting students' affective, behavioural and cognitive engagement by leveraging the school community (Borup, Jensen, Archambault, Short, & Graham, 2020).

In these scenarios, it is important to understand that school organisational adaptations during crises are not only influenced by national and local policies and politics, but also that school changes in times of crisis are transacted by teachers, school leaders, and other staff on the ground (Trinidad, 2020). In this sense, change and continuity may be assured through a complex interplay of systems that are dynamic and interrelated (Carpenter, Krutka, & Trust, 2021). However, although research is available on previous crises and health emergencies (Hatzichristou, Lianos, & Lampropoulou, 2017; McCarthy, 2018; Uscher-Pines et al., 2018), much more investigation is needed to understand how

schools have adapted to the COVID-19 pandemic by leveraging existing conditions and creating a sense of stability for their schools through resilience and positive school climates. In this study, we will investigate how one school cluster took advantage of pre-existing conditions of widespread digitalisation to introduce changes according to a logic of continuity.

Addressing issues of social inequities and digital divide

With the unprecedented phenomenon of home-based learning during the COVID-19 pandemic (Wen, Gwendoline, & Lau, 2021), an important stream of research has analysed issues of marginalization and inequalities, especially in disadvantaged communities. Along with the need to rearrange home living spaces to cater for digital learning processes (Hall, Roman, Jovel-Arias, & Young, 2020; Williamson, Eynon, & Potter, 2020), global studies (Bozkurt et al., 2020) have identified the most critical areas that arise in Emergency Remote Education: emerging educational roles of parents/carers; the need for alternative assessment and evaluation methods; issues of digital divide, inequity, and social justice; gender issues; the role of open educational practices; and the essential (soft) skills and competencies to survive in a time of crisis.

The COVID-19 pandemic is indeed deepening the inequity and injustice among the vulnerable communities (Bhaskar et al., 2020). The living conditions of the marginalised, racialized people, migrants and refugees, with their limited and fragmented access to and exercise of health, housing, and other social rights in diverse parts of the world, demand renewed attention (Aguliera & Nightengale-Lee, 2020; Mo, Cukier, Atputharajah, Boase, & Hon, 2020; Zapata & Rosas, 2020). In this respect, the undocumented and immigrants are among those who have disproportionately suffered during the pandemic due to anti-immigrant policies, limited medical access, financial insecurity and language barriers (Page & Flores-Miller, 2021; Serafini et al., 2021).

At the same time, the COVID-19 pandemic is exacerbating digital inequalities in personal technological equipment, limited access to internet connection due to isolation from public spaces or workplaces, limited social support caused by isolation requirements, and limited access to

technological resource at home because of simultaneous use by other family members (Beaunoyer, Dupéeré, & Guitton, 2020; Jæger & Blaabæk, 2020). In the few studies that have explored “digital divide” among people from different socioeconomic backgrounds, class differentials in access, and success within diverse streams of education, researchers have found that issues of digital equity (technology access, social support) are disproportionately affecting disadvantaged students from low-income families, both in developing and in industrialised countries (Greenhow, Lewin, & Staudt Willet, 2020). As a measure to counter issues of inequalities between marginalized and dominant communities, Aguilar (2020), for example, suggests the use of two tools that educators can use to understand the digital equity gap in their communities, a "Digital Equity Gap Interview Protocol" and a "Digital Equity Gap Survey". These tools are aimed at obtaining information from families about Internet Infrastructure at Home, Support for Remote Learning, Indicators of Economic Distress, and Indicators of Community Support.

In this line of research, it will be also important to consider competing values, issues, and priorities that have emerged with school services being disrupted (Armitage & Nellums, 2020). Recent research has found that in a representative sample of US K-12 teachers and school leaders, addressing academic achievement gaps, student engagement, and physical and mental health were the school staff's highest priorities (Trinidad, 2020). In an attempt to address these priorities holistically rather than discreetly, however, three issues remain the major concerns: equity in access to technology; engaging students during this shift in their instruction; and mental health.

In this study, we investigate how problems of student participation, autonomy, motivation and engagement are perceived from a student perspective. While the focus so far has been on teachers' experience during Emergency Remote Education (Lemay, Doleck, & Bazelais, 2021), this study is one of the few that have investigated students’ experience (see Erümit, 2020). In particular, this research reflects on resources and solutions adopted in a specific school cluster, with some focus on students without citizenship from disadvantaged families.

Theoretical approach and research questions

This study adopts a social ecological perspective based on Bronfenbrenner's systems theory (Bronfenbrenner, 1979) to investigate how an ecological model influences continuity and change in the transition from an onsite learning model to distance teaching and learning. According to an ecological model of development, human development is shaped by the interaction between an individual and their environment (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 1998). In this model, it is important to understand the bidirectional influences between individuals' development and their surrounding environmental contexts. In terms of research implications, in contrast to the traditional "confirmatory" approach to hypothesis testing, the bioecological model calls for "primarily generative" research designs that explore interactions between proximal processes and the developing person, environment, time, and developmental outcome.

As highlighted in other studies (Carpenter, Krutka, & Trust, 2021; Michell, Szabo, Falkner, & Szorenyi, 2018), ecological models utilise a multilevel approach or a series of concentric circles to explain how systems develop and change over time. In one of these studies, a model articulated in a series of circles - macrosystem, exosystem, mesosystem, microsystem, and the individual - was used to explain how educators' Professional Learning Networks (PLN) shift over time as "a complicated interplay between educators, schools, professional communities, and the larger social contexts surrounding them" (Carpenter, Krutka, & Trust, 2021, page 3). In our research, we focus on the lower circles of the system - the micro (the school) and the individual (the students) - to understand how the transition from onsite schooling to distance schooling unfolded in response to the pandemic.

In terms of methodological approaches, we combine the instances of the social constructionist paradigm of research (O'Dowd, 2003) with a pragmatic approach (Schoonenboom, 2019). With the Constructivist Design Theory approach (Driscoll, 2005; Richey, Klein, & Tracey, 2011) providing grounds for student agency through self-guided exploration, reflection, and evaluation, theoretical concepts such as student-centred classrooms and active learning environments to solve real-world problems are at the heart. In a similar vein, pragmatic ideas such as those provided in the Performance

Improvement Theory (Swanson, 1999) are used in organizational settings and human resources areas to help practitioners identify and solve performance problems. In our research, it served the purpose of explaining how the school organisation adapted to the suddenly required change.

In this combination of theoretical research approaches, we adopt the perspective according to which the researcher is "very much part of the life-world being studied and acts as an interpreter, mediator or communicator in this world" (O'Dowd, 2003, page 42). Besides, the research is conducted following the researchers' values which also shape how the study data are interpreted (Creswell, 2007). In this light, an ecological perspective is combined with the need to elaborate knowledge which is judged on its applicability and its contribution to solving temporary problems.

With the research problem centred on the challenges that K-12 institutions faced during pandemic times, the purpose of this case study (Stake, 1995; Yin, 2013) is to understand how a public educational institute in Italy incorporating five schools - a primary school, three lower secondary schools and a scientific high school – was able to make the required adjustments to move from onsite to online teaching. The foreground of the study is how the teachers and school leaders identified the teaching and learning needs in the new situation, and thus which learning designs, teaching methods, and tools were to be employed during the emergency in the different teaching contexts. A further objective was to gather information to inform the design of transitions to new forms of flexible and hybrid learning for the future.

The aim of this specific article is to use multiple sources of information (school management system data and a survey tool) to collect feedback from students, teachers and families, primarily to investigate the students' experience (Vogl, Zartler, Schmidt, & Rieder, 2018). This multiple perspective, mixed-method approach focuses on students' participation, autonomy, motivation and engagement during distance learning. We interpret autonomy as the ability to perform required tasks with "a capacity for detachment, critical reflection, decision-making, and independent action" (Little, 1991, page 4), *motivation* as the cognitive and affective processes that trigger students to participate in learning activities and perform academic tasks (Lumsden, 1994; Slavin, 1990), and *engagement* as

"the extent of students' involvement and active participation in learning activities" (Cole & Chan, 1994, page 259). This perspective is adopted to answer the following research questions:

1. How did the students react to the transition to distance learning in terms of participation in online activities? Did Italian and non Italian students react differently?
2. To what extent were students autonomous in participating in online lessons and carrying out their assigned tasks?
3. To what extent were students motivated and engaged in participating in online lessons and carrying out their assigned tasks?

Context of the research

The *Istituto Onnicomprensivo Annesso al Convitto "C. Colombo"* is a public educational institute located in the city centre of Genoa (Italy) that incorporates five schools merged in 2011: one primary school (9 classes, 190 students and 26 teachers/educators), three lower secondary schools (32 classes, 710 students and 109 teachers/educators) and a science-stream upper secondary school (13 classes, 253 students and 40 teachers/educators). In all, the Institute totals 54 classes, 1,153 students and 175 teachers/educators.

Even if each school presents different characteristics and specificities reflecting its particular background, they all share the endeavour to develop and improve the use of technologies among teachers and strengthen their application in the classroom. Following the example of one of the three lower secondary schools, whose teaching staff have been pioneering the use of educational technology since the 80s, in the past 15 years or so all teachers/educators have been encouraged to use online collaborative tools to communicate, share ideas, co-design lessons and prepare learning material (Cortigiani, 2009). Meanwhile, all school classes were equipped with the same digital set up: a computer, a widescreen, and a reliable high-speed Internet connection enabling teachers to enact digital learning experiences. After the digital infrastructure was revamped in 2017, all classes and laboratories have been connected to the GARR ultra-broadband network run and used by Italy's

university and research sector (Delfino, Marino, Russo, & Traverso, 2017). Although these features were not brought into play during the 2020 lockdown, their use before then proved beneficial for fostering a widespread culture of digital culture among both teachers and students.

Given the rapid escalation of the COVID-19 pandemic in Italy and the unprecedented impact on education, all schools had to quickly adapt to sudden, unexpected, and drastic changes; many solutions had to be invented from scratch and implemented on the fly. It quickly became clear that teachers wished to maintain their social and teaching role, to guarantee their students a kind of daily routine, based on studies and on social interaction, keeping them busy for a portion of their time at home.

At the point when the pandemic occurred, one of the five schools under examination was already accustomed to using the services of GSuite for Education in their teaching and learning processes, while the other four were about to introduce them. To understand their training and methodological needs, and to emphasize the importance of acting as a community, a survey was addressed to the schools' teachers/educators at the beginning of the lockdown. The results provided indications for measured to improve employment during lockdown and encouraged the teachers across all five schools to work hard to reach their students. The intervention also boosted collaboration: not only did expert teachers help novices to get ready to deal with the new situation and to solve problems, but digital competent teachers also organized training sessions to practice and improve digital skills.

Plans were also made and implemented to ensure that students without access to the necessary digital devices for distance education received them directly from the school: 44 out of the 79 students (55.7%) who applied received these digital devices. The group of 44 successful applicants included 33 students (75.0%) without Italian citizenship. Out of the entire school-cluster cohort of 963 students, 150 (15.6%) were born or live in Italy but do not have Italian citizenship. The family roots of these students originate in 23 different countries outside Italy, most commonly Ecuador (32.0%) and China (16.0%).

Although there were no governmental guidelines about thresholds for onsite schooling during the pandemic, in the fourteen weeks of lockdown in which distance learning was on offer to all students, the school cluster provided an average of 14 hours per week of online schooling, with some variations depending on the specific school (6 hours per week in primary school, 13 hours per week in lower secondary, 20 hours per week in upper secondary) and also specific school years. To set the new routines, students were provided with a daily timetable, similar to the one used in onsite learning, and required to attend lessons on a regular basis. These requirements were included in the Guidelines drawn up by the school-cluster Principle and teachers in charge of distance learning, and distributed to students and their families. A short timeline of the main events in the transition from onsite to distance learning is illustrated in Figure 1.

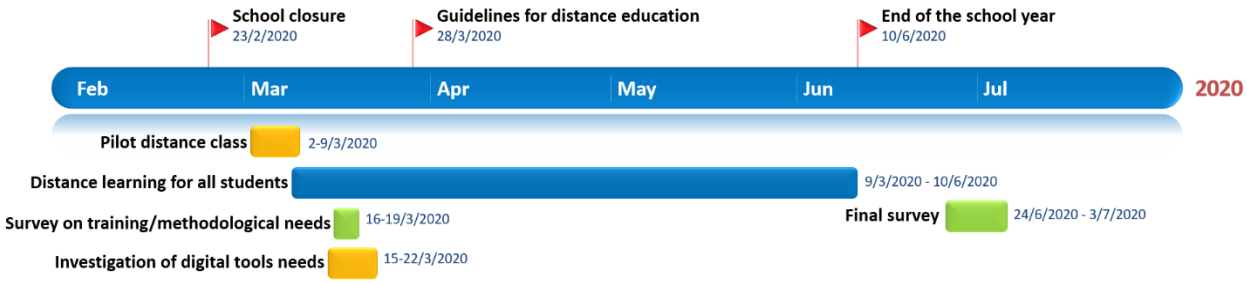

Figure 1. Timeline of the main events that characterised the transition from onsite to distance learning.

Methodological approach

The study reported in this paper uses both quantitative (school management system data, a survey tool) and qualitative methods (thematic analysis of the open questionnaire responses). In the light of the research stance outlined in section Theoretical approach and research questions, we adopt a mixed method approach that relies on "the primary importance of the question asked rather than the methods, and […] the use of multiple methods of data collection to inform the problems under study" (Creswell & Plano-Clark, 2011, page 41). Accordingly, we adopted a variety of different research tools given

that in a mixed-method approach "a researcher or team of researchers combines elements of qualitative and quantitative research approaches [...] for the broad purposes of breadth and depth of understanding and corroboration" (Johnson, Onwuegbuzie, & Turner, 2007, page 123).

It is important to stress that in a qualitative study the researchers' background, role, interest and experience will affect data collection and analysis (Sword, 1999). While this influence is inevitable, reflexivity may be increased by acknowledging the role played by the different authors of the study (Horsburgh, 2003). The second author - a lower secondary school teacher with 20 years of experience - conceived the design of the study and conducted the data collection. The first author was also involved in the study design and developed the conceptual framework of the research.

Tools and procedure

Data for this study were collected using two main tools: the online school management system and a student survey. The former was used to record students' presence during school lessons; keeping a daily record of student attendance and sharing it with the students' families are key duties for teachers and school administrators (Blau & Presser, 2013). During onsite learning before the pandemic, teachers used an online school management system (™Spaggiari-ClasseViva) to track, report and monitor students' attendance. The basic assumption behind this software is that when students are marked as "present", they are in school for a designated period, supervised by the teacher in charge of the lessons. With the lockdown and the beginning of online schooling, there was no widely adopted way of tracking school attendance in the different school systems around the world (Blackwell, Fox, Gyimesi, Grant, Johnson, & Senese, 2020), since this concept depends on the kind of engagement required (e.g., attending synchronous activities, staying in touch with teachers/peers, completing assignments). Indeed, the concept of 'presence' itself needed to be re-examined. After the first weeks of distance learning and a short experiment of tracking attendance using individually configured spreadsheets, the school-cluster teachers realized that they could still benefit from using the school management system to guarantee a good systematic overview of the data. They marked their students

as “attending the hour of online lesson” only after the latter had logged on to the conferencing system and manifested their presence to teachers and peers (e.g., by showing themselves on video, posing/answering questions). The benefits were immediately clear. In this way, not only were teachers able to monitor the number of lessons delivered in the different classes, to check students’ attendance and detect absenteeism, they were also able to compare students’ attendance in onsite and distance learning. In addition, using the management platform served the specific purpose of monitoring disadvantaged students’ attendance data.

The second tool adopted for the study was a survey administered after the end of the school year to collect opinions and feedback from the secondary students, all the teachers/educators, and all the parents. The questions in the three survey versions largely overlapped, albeit appropriately formulated for the different types of recipients. The survey comprised questions seeking socio-demographic information (gender, grade) and others pertaining to the core themes (*autonomy*, *motivation and engagement*), mostly with a set of closed responses based on a four-point Likert scale. Three open questions included to collect respondents’ overall opinions about the students’ experience of the implemented distance schooling intervention: 1) What aspects of the distance schooling experience were most effective?; 2) What did you miss most about the onsite school experience?; 3) What aspects of the distance schooling experience would you change?

The questionnaire, which took around 15 minutes to complete, was administered over a 10-day period after the end of the school year. The data were collected anonymously; those from closed question were analysed through descriptive statistics, while the open answers were analysed through thematic analysis (Guest, MacQueen, & Namey, 2012). A Grounded Theory approach (Corbin & Strauss, 2014) was adopted in the latter case to derive a number of emergent coding categories, which underwent several stages of reflection and comparison with theoretical studies conducted in this domain. In order to provide a level of reliability, an iterative process of data collection and analysis was carried by two coders (the authors), and the independently derived codes were cross-checked by

comparing results. Once the set of codes had been established, dataset coding reliability was calculated: Cohen's k was 0.83.

In this study, we did not monitor primary students' presence/attendance, nor did we survey them, so the presented data exclusively regard the four secondary schools, i.e., 6th to 13th grade. Out of the 963-strong student cohort, 249 (25.9%) responded, while 116 (77.9%) out of 149 teachers/educators and 282 parents did, resulting in a total of 647 completed surveys.

Results

In this section, we present the results derived from analysis of the data collected via the two instruments, with particular reference to the three research questions.

Participation in online activities

Data on participation in onsite schooling from September 2019 to February 2020 and in online activities from March to June 2020 were analysed for the 963 students attending either lower secondary (N=710; 73.7%) or upper secondary school (N=253; 26.3%) students, out of which 150 (15.6%) were students with an immigrant background. The data show that the average rate of student absence from lessons decreased when switching from onsite to distance learning lessons (from 9.6% to 7.3%). However, this average mask substantial heterogeneity: while the absenteeism of students with Italian citizenship decreased from 9.4% to 6.0%, that of students with an immigrant background rose from 10.9% to 14.7% (Figure 2).

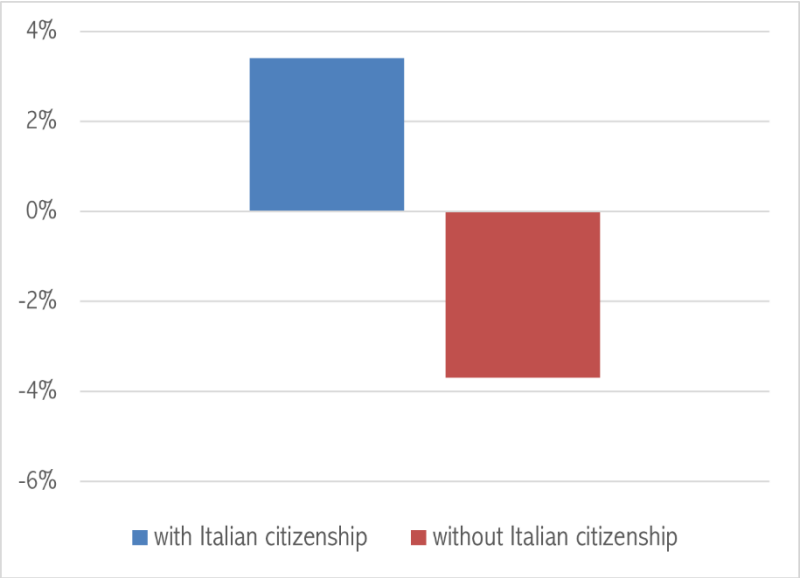

Figure 2. Mean student absenteeism variation between periods of onsite and distance learning.

A mixed-design ANOVA on citizenship (Italian/non-Italian, between-subjects) and type of learning (onsite/distance, within-subjects) confirms the importance of taking into account these two different categories of students. While it is true that, overall, distance learning is associated with a statistically significant reduction in absenteeism (from 9.6% to 7.3%, $p < .0001$), this effect is entirely driven by the effect of distance learning on Italian students, who constitute the vast majority of the student population (84.4%). More importantly, the relationship between citizenship and type of learning is highly significant ($p<0.0001$): contrary to the main effect, during the distance learning period absenteeism significantly increased among students without Italian citizenship (by 3.4 percentage points, $p<0.0001$), while it fell significantly for those with Italian citizenship (by 3.7 percentage points, $p<0.0001$). Crucially, in the onsite learning regime prior to the Covid-19 school closure, the difference in absenteeism between these two citizenship groups was not statistically significant (1.5 percentage points, $p=0.14$).

Autonomy and support

The first topic investigated in the questionnaire, *student autonomy*, was analysed through four questions addressed to students and to parents in different terms. The first question - “Did you ever

need help in tackling your distance learning activities?" / "Did your son/daughter ever need help in tackling his/her distance learning activities?" - was measured on a four-point Likert scale, ranging from 1=Never to 4=Often. The mean of frequency was 2.40 (SD=0.81) and 2.41 (SD=0.91) for students and parents, respectively.

The second question asked how far students were autonomous in accomplishing a series of actions on their own. Responses were measured on a four-point Likert scale, ranging from 1=Not at all to 4=Very much. Table 1 shows that autonomy for all the activities was generally rated high by students and parents, with a higher rate for general use of digital tools (64.7% and 62.4%) and for completing and sending assignments to teachers (55.0% and 51.4%). There is a general convergence of students' and parents' evaluation of students' autonomy in all the four types of activities.

Using digital tools	1-Not at all	2-Low	3-Moderate	4-Very much
Students	1 (0.4%)	5 (2.0%)	82 (32.9%)	161 (64.7%)
Parents	2 (0.7%)	7 (2.5%)	97 (34.4%)	176 (62.4%)
Doing homework and study				
Students	1 (0.4%)	15 (6.0%)	111 (44.6%)	122 (49.0%)
Parents	6 (2.1%)	24 (8.5%)	113 (40.1%)	139 (49.3%)
Finding learning materials on the digital learning platform				
Students	1 (0.4%)	11 (4.4%)	116 (46.6%)	121 (48.6%)
Parents	3 (1.1%)	23 (8.2%)	127 (45.0%)	129 (45.7%)
Completing and returning assignments				
Students	1 (0.4%)	15 (6.0%)	96 (38.6%)	137 (55.0%)
Parents	2 (0.7%)	26 (9.2%)	109 (38.7%)	145 (51.4%)

Table 1. Perceived autonomy of students in accomplishing different tasks.

A third question was addressed only to parents, asking them to rate their children's level of autonomy in carrying out learning activities at home (homework, study, etc.) before the lockdown. Responses were rated on a four-point scale, ranging from 1=None to 4=High. Most of the responses assigned a 4-High rating (N=140; 49.7%), followed by 3-Moderate (N=108; 38.3%), 2-Low (N=29; 10.3%) and 1-None (N=5; 1.8%).

Finally, a fourth question addressed to both students and parents focused on who provided support to students during the lockdown. Table 2 shows that most of the responses indicated parents (N=134;

53.8% and N=199; 70.6%) and teachers (N=83; 33.3% and N=103; 36.5%) as the chief provider of support, followed by schoolmates (N= 75; 30.1% and N=78; 27.7%), friends (N=33; 13.3% and N=11; 3.9%), siblings (N=20; 8.0% and N=27; 9.6%) and grandparents (N=3; 1.2% and N=7; 2.5%).

	Teachers	*Parents*	*Schoolmates*	*Friends*	*Siblings*	*Grandparents*	*Other*	*No support was asked*
Students	83 (33.3%)	134 (53.8%)	75 (30.1%)	33 (13.3%)	20 (8.0%)	3 (1.2%)	6 (2.4%)	17 (6.8%)
Parents	103 (36.5%)	199 (70.6%)	78 (27.7%)	11 (3.9%)	27 (9.6%)	7 (2.5%)	6 (2.1%)	33 (11.7%)

Table 2. Who provided support to students with distance learning.

The topic of *motivation and engagement* was investigated with two closed questions that were addressed to all three target groups, together with three open questions aimed at collecting opinions about what were the most and least effective elements of distance schooling.

The first question asked to what extent students were motivated to perform the distance learning activities (this question was addressed both to students and parents) and to what extent teachers were able to motivate their students to perform the distance learning activities (this question was addressed only to teachers/educators). These questions used a four-point scale, ranging from 1=Not at all to 4=Very much. If we compare students' self-rated motivation with their parents' viewpoint on the matter (Table 3), the majority of both students (N=163; 65.5%) and parents (N=195; 69.1%) rated students' motivation as 3-Moderate (N=113; 45.4% and N=143; 50.7%, respectively) and as 4-Very high (N=50; 20.1% and N=52; 18.4%). The majority of teachers (N=92; 79.3%) declared moderate success in motivating their students to perform distance learning activities, the highest incidence being 3-Moderate (N=83; 71.6%).

	1-Not at all	2-Low	3-Moderate	4-Very much	TOT
Students	14 (5.6%)	72 (28.9%)	113 (45.4%)	50 (20.1%)	249 (100.0%)

Parents	8 (2.8%)	79 (28.1%)	143 (50.7%)	52 (18.4%)	282 (100.0%)
Teachers	3 (2.5%)	21 (18.1%)	83 (71.6%)	9 (7.8%)	116 (100.0%)

Table 3. Views of student motivation to perform distance learning activities.

The second question asked respondents to compare motivation in distance learning with motivation in onsite learning. Table 4 shows that the majority of students, parents and teachers found that distance learning was less motivating for students (60.6%, 63.5% and 60.3%, respectively), while only a minority indicated distance learning as more motivating (15.3%, 3.9% and 7.8%, respectively). Despite the fact that students expressed a more favourable attitude than parents and teachers did, we cannot reject the null hypothesis that the distribution of answers in the three groups are the same by means of a Kruskal-Wallis test (chi-squared=2.438, p=0.296).

	Distance learning was LESS motivating than onsite learning	I did not see any difference between distance learning and onsite learning	Distance learning was MORE motivating than onsite learning	I do not know	TOT
Students	151 (60.6%)	60 (24.1%)	38 (15.3%)	-	249 (100.0%)
Parents	179 (63.5%)	67 (23.8%)	25 (3.9%)	11 (8.9%)	282 (100.0%)
Teachers	70 (60.3%)	25 (21.6%)	9 (7.8%)	12 (10.3%)	116 (100.0%)

Table 4. Student motivation in distance learning versus onsite learning.

The final part of the survey tool presented three open questions. Regarding the first question ("What aspects of the distance school experience were most effective?"), parents highlighted the *organisational promptness of the school* (parents N=56; 21.3%) and the *timely reaction to ensure learning continuity* (parents N=43; 15.2%) and *reaching learning objectives* (parents N=36; 12.8%). One parent wrote: "I think that the school intervened promptly in making arrangements for online learning, that lessons were well organised and that the teachers were always present, trying to do their best to involve students". They also appreciated *teachers' high commitment, readiness, and*

preparation in facilitating the transition between the two teaching methods (parents N=60; 21.3%). Appreciation for teaching organization was strongly expressed by students and teachers, who highly valued *online lessons and assigned tasks* (students: N=70; 28.1%; teachers: N=32; 27.6%). In one parent's words, "The timeliness and actions taken to avoid students feeling alone worked well (e.g., the daily podcast, lessons, reception by the teachers, homework, study). It was a great help for us parents too… and we benefited from it. We didn't feel alone either". More than half of the teachers also explicitly mentioned the use of *digital tools* (teachers: N=62; 53.4%).

As regards the second question ("What did you miss most about the onsite school experience?"), all categories of respondents (N=197; 30.4%) cited *relationships, interactions and involvement* (parents: N=104; 36.9%; students: N=52; 20.9%; teachers: N=41; 35.3%). Other aspects that were missed (N=179; 27.7%) were *physical presence and physical contacts* (parents: N=86; 30.5%; students: N=46; 18.5%; teachers: N=47; 40.5%). As one student said, "I really missed the face-to-face lessons, with a real blackboard and real teachers up front, as [in that way] it was certainly easier to keep a continuous focus on the subject, without getting lost in what was happening at home". One teacher wrote: "I missed the students' gaze, their spontaneous interventions, which are more difficult [to make] in distance learning, especially for the shy ones. I missed the exchange of impressions with colleagues between lessons. I missed playing [musical] instruments together, being able to correct students one by one while they were playing and not in front of the screen. I missed seeing the whole class involved. Seeing how the students behave when eating together". As for missing physicality, students mentioned the *lack of "real" people such as peers, friends and teachers* (N=87; 34.9%), while teachers mentioned *eye contact, eyes, real voices, bodies* (N=21; 18.1%) as elements functional for their teaching. One teacher wrote: "I missed the faces that let you understand when students are not understanding our lessons".

In their answers to the third open question ("What aspects of the distance school experience would you change?"), respondents (N=109; 16.8%) focused on detailed proposals related to *distance school time management* (parents: N=42; 14.9%; students: N=41; 16.5%; teachers: N=26; 22.4%), variously

expressed according to the diverse perspectives. Apart from parents suggesting the school *increase the number of daily distance lessons* (N=24; 8.5%) or *decrease them* (N=14; 5.0%), all the other recommendations (e.g., *reschedule lessons throughout the day/week*; *increase/decrease the time of online lessons*) were expressed to a minor extent. Some of these comments were linked to the desire to change the course of events, which are not relevant from a statistical point of view but are interesting in terms of the respondents' mood: "I would change everything. We need to work onsite, in safety, in large classrooms, with fewer pupils and more teachers on duty" (as written by a teacher), or "Face-to-face teaching is not replaceable in any way" (as written by a parent), or "I didn't want this pandemic to happen" (as written by a student).

Discussion

This study investigated how the groups in an Italian school cluster comprising five schools perceived the challenges posed by the COVID-19 pandemic and coped with the adjustments required to move from onsite to online teaching. This is one of the first studies that analyses the transition process and the adjustments required by Emergency Remote Education in a specific school by focusing on the transition to change and on how students reacted to online teaching. While previous studies have analysed the global phenomenon in a series of countries (Bozkurt et al., 2020; Carretero Gomez et al., 2021), this research study focuses on a specific school cluster, collecting feedback from three educational community target groups (students, teachers, and parents) and thereby adopting the lens of multiple perspectives research (Vogl, Zartler, Schmidt, & Rieder, 2018). This allowed us to address three interrelated research questions: (1) how students' attendance and participation were affected by the sudden shift to online education, (2) the level of students' autonomy during lockdown, and (3) the impact of online activities on students' motivation and engagement.

As to the first research question, thanks to the use of the same digital tools for tracking attendance before and after school shutdown, teachers were able to notice that students from immigrant backgrounds suffered the most attendance-wise from the switch to online learning. While students

with Italian citizenship increased their presence online, the others progressively decreased their participation: comparing attendance during onsite schooling and during online teaching demonstrates that the greater absenteeism of immigrant-heritage students was specifically tied to the shift to online learning, since prior to school shutdown their level of attendance was analogous to that of their peers with citizenship. This happened in spite of the school's proactive efforts to bridge the digital divide, by activating online support and by purchasing and loaning to immigrant-heritage students the digital devices they needed. These results are in line with the general world-wide trend of digital inequalities exposed by the pandemic (Beaunoyer, Dupéeré, & Guitton, 2020; Greenhow, Lewin, & Staudt Willet, 2020; Hall, Roman, Jovel-Arias, & Young, 2020; Williamson, Eynon, & Potter, 2020), where inequalities are particularly exacerbated in smaller disadvantaged communities such as those of first and second generation immigrant families (Aguliera & Nightengale-Lee, 2020; Mo, Cukier, Atputharajah, Boase, & Hon, 2020; Zapata & Rosas, 2020). However, more investigation is needed to correlate lack of participation with motivation and engagement in addition to digital inequity. While it is clear that it is not enough for schools to offer digital devices without offering more real opportunities to include marginalized students, families, and communities, it is also important to reflect on how school platforms and learning management systems embody powerful assumptions about the nature and dimensions of learning. Their technological design may paradoxically limit educational opportunities and allow students as technology users little agency or control, if issues of implicit injustice are not specifically addressed (Gleason & Heath, 2021). In this sense, there is a need for future research to analyse how educational opportunity may benefit from the importance of a "social envelope" (Attewell, 2009) that provides the social tools, resources and capacity to help students succeed in times of global crisis.

Overall, global results from the survey tool exhibit homogeneity, with the three categories of respondents tending to coalesce towards common views. Specifically, as regards the second research question, both students and parents reported that students requested occasional support to conduct their online activities at home and, in most cases, help was provided by parents, followed by teachers

and schoolmates. The students seem to attribute a minor role to parents compared that declared by the parents themselves; data further investigation of this is difficult, given that anonymity prevents us from matching the data from parents and students. Both students and parents agreed that students' autonomy was very high in the use of digital tools and in the delivery of assignments, while in doing homework and finding learning materials on the digital learning platforms they declared a lesser degree of autonomy. These results can be explained in terms of continuity, in schools in which digital tools were already in use before the pandemic occurred, and with the efforts made by teachers during the initial phases of the lockdown, when supplementary instruction about the use of the school platform was provided to novice students. For the students, the transition from onsite schooling to distance schooling was facilitated by previously gained familiarity with the digital tools. As to teachers, they could rely on their colleagues' support in introducing the new tools. However, some of the questions in the survey, although anonymous, may have generated answers aimed at obtaining social approval within the desired context. In sensitive surveys, respondents may underreport socially undesirable activities and overreport socially desirable ones (Krumpal, 2013). However, there is a factor that might have partially counterbalanced biases in responding to the survey questions. Unlike other studies that have stressed teachers' moderate preparation in the use of digital tools (Bozkurt et al., 2020; Gudmundsdottir & Hathaway, 2020), in our case the teachers could count on their solid digital competence in order to deal with the new situation, and most students were already familiar with a plethora of digital tools. This is especially confirmed by parents, who reported promptness and timely reaction to ensure learning continuity, and teachers' preparation in facilitating the transition between the two teaching methods, among the most effective measures adopted by the school in the face of the pandemic and attendant changes.

Finally, regarding the third research question, the results show that students' perceived motivation was high, as expressed by both students and parents, while teachers reported a very high capability in motivating their students. Also in this case, there is a significant convergence of perspectives which is reflected in what parents reported as one of the most effective factors of distance learning, that is

teachers' high level of commitment in supporting the transition to online schooling. However, when comparing onsite to distance learning, all three groups found distance learning less motivating than onsite learning, and only a minority of students declared a preference for distance learning. These data are complemented with the qualitative data highlighting the aspects most keenly missed during distance learning, namely lack of physical presence and interactions with peers, friends and teachers. The discrepancy of reported attitudes between closed answers and open answers may be explained again with social desirability bias, mostly concerned with the questions based on Likert-scale items, while respondents may have felt more secure in expressing their concerns in the free comment sections. Future research should investigate indicators of online social presence in K-12 education as argued in recent research about the importance of establishing and maintaining a positive classroom environment to boost learning presence (Zhang & Lin, 2020). It will also be important to investigate aspects of motivation and engagement through the application of other research tools able to balance self-presentation concerns, such as assessment of learning outcomes or in-depth interviews.

Conclusions and implications for practice

Care must be taken in generalizing from these data due to the sampling procedure and the differences in the number of responses collected from the three study targets. Besides, the case study method used provides little basis for generalization of results to the wider population and does not protect against possible researcher bias, despite the control measures taken. Moreover, social desirability bias may have affected self-reported motivation and autonomy. However, despite these limitations, our results show that the cluster of schools under examination was able to cope with the emergency thanks to a number of factors. The transition from onsite to online schooling was effective, as expressed in the data revealing convergence of perspectives and opinions. This was possible not because the school was prepared for instructional continuity in the event of a widespread pandemic, as other studies have reported (Christensen & Alexander, 2020), but because pre-existing digital competence and confidence in the use of tools allowed for a non-traumatic transition.

On the basis of these results, some considerations for future studies and practice can be drawn. First of all, we suggest leveraging the role of teachers' communities and professional learning networks - both online and grassroots - in which more experienced teachers can support less experienced ones, something that can also help to strengthen relational ties with students (Lantz-Andersson, Lundin, & Selwyn, 2018; Trust, Krutka, & Carpenter, 2016). Continuous professional learning aimed at understanding teacher confidence and competence in technology integration proves to be effective, if we want to cultivate a *pedagogy of teaching online* rather than emergency teaching (Hodges, Moore, Lockee, Trust, & Bond, 2020; Williamson, Eynon, & Potter, 2020). As stressed by some scholars, no matter the perspective of educational practices, "there remains a need for the rapid deployment of tutorials, best practice videos and scenarios, professional development programs, and other guidance for synchronous as well as asynchronous instruction" (Bonk, 2020, page 589).

A second consideration pertains to the creation of an alliance with families. As already reported in other studies (Carretero Gomez et al., 2021), collaboration among schools and among teachers and families is the main factor that may ease the transition from school-based learning to home-based learning. In this light, special support should be devoted to disadvantaged families, including those with an immigrant background, for example, through the preparation of guidelines or documents in several languages that be address non-native speaking parents. In this sense, it will be important to promote forms of solidarity and emotional support both in wider society and among family members of disadvantaged and minority communities (Falicov, Nino, & D'Urso, 2020).

Finally, since schools will probably still face several cycles of reopening and closure, with an alternation of onsite and distance schooling, it will be important to monitor learning and teaching processes using both quantitative (e.g., learning analytics) and qualitative research tools (e.g., focus groups, in-depth interviews). Greater integration of teaching and monitoring tools will also make it possible to manage the alternation of the different phases in such a way as to guarantee continuity.

Statements on open data, ethics and conflict of interest

The data in this study can be accessed upon request.

This study complied with all the ethical guidelines and standards for online surveys with human participants, in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate and to authorise the participation of their children in this study and were free to quit the survey at any time.

There are no conflicts of interest to disclose.

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