



Parents and teachers' compensatory strategies during COVID-19 school closures: A scoping review

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Abstract

After the outbreak of the COVID-19 pandemic, most countries decided to close schools in 2020 to slow down the spread of the virus. The abrupt closure of schools required teachers and families to adapt quickly to an online setting for school activities. The literature review presented here focuses on this adaptive process, summarising research on how parents and teachers tried to curtail the potentially detrimental effects of school closure and remote schooling on students' learning, identifying the compensatory strategies adopted and analysing their impact on students' learning experience and performance. The review highlights that the shift from in-person to remote learning led to significant learning losses, as well as to the emergence of new inequalities and the exacerbation of old ones. Teachers and parents played a pivotal role in minimising learning loss due to emergency remote teaching (ERT). Concerning parents, the three main types of strategies were related to: (1) parental socioeconomic and/or demographic factors; (2) parental involvement and support in learning activities; and (3) the family environment. Concerning teachers, two strategies emerged: (1) the implementation of activities favouring interaction between teachers and students and/or among students; and (2) ad-hoc teaching activities. In almost all cases, the compensatory strategies identified were positively associated with students' learning experience, with a few exceptions.

Keywords COVID-19 · Educationally disadvantaged students · Parent–student relationship · Teacher–student relationship · Emergency remote teaching (ERT)

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Résumé

Stratégies compensatoires des parents et des enseignants lors des fermetures d'écoles liées à la COVID-19 : une étude exploratoire – Suite à la pandémie de COVID-19, la plupart des pays ont décidé de fermer les écoles en 2020 pour ralentir la propagation du virus. La fermeture brutale des écoles a obligé les enseignants et les familles à s'adapter rapidement à un cadre virtuel pour les activités scolaires. L'analyse documentaire présentée ici se concentre sur ce processus d'adaptation. Elle résume la recherche sur la manière dont les parents et les enseignants ont tenté de limiter les effets potentiellement néfastes de la fermeture des écoles et de la scolarisation à distance sur l'apprentissage des élèves, identifie les stratégies compensatoires adoptées et analyse leur impact sur l'expérience et les performances d'apprentissage des élèves. L'étude souligne que le passage de l'apprentissage en personne à l'apprentissage à distance a entraîné des pertes d'apprentissage significatives, ainsi que l'apparition de nouvelles inégalités et l'exacerbation de celles déjà existantes. Les enseignants et les parents ont joué un rôle essentiel dans la réduction des pertes d'apprentissage dues à l'enseignement à distance en situation d'urgence (EDSU). En ce qui concerne les parents, les trois principaux types de stratégies étaient liés aux éléments suivants : (1) les facteurs socio-économiques et/ou démographiques des parents ; (2) l'implication et le soutien des parents dans les activités d'apprentissage ; et (3) l'environnement familial. En ce qui concerne les enseignants, deux stratégies ont été déployées : (1) la mise en œuvre d'activités favorisant l'interaction entre les enseignants et les élèves et/ou entre les élèves ; et (2) des activités d'enseignement ad hoc. Dans la quasi-totalité des cas, les stratégies compensatoires identifiées ont été positivement associées à l'expérience d'apprentissage des élèves, à quelques exceptions près.

Introduction

The outbreak of the COVID-19 pandemic at the beginning of 2020 had an impact not only on health but also on societies and economies worldwide, and its repercussions are expected to be long-term (WEF 2020). Among the sectors most affected by the pandemic was the educational sector, as the gathering of large numbers of children and teachers appeared to be a possible vector for the spread of the virus. In order to slow down the spread of the virus, most countries decided to close schools between February and March 2020 (Buonsenso et al. 2021). While at the time this was considered a temporary solution to minimise infection, schools remained fully closed over the rest of the school year for an average of 95 instruction days globally (Avanesian and Mishra 2021, p. 2). Countries in Latin America and South Asia were the most affected, with 158 and 146 days of average closure respectively (ibid.).

The abrupt closure of schools required teachers and families to adapt quickly to an online setting for school activities. Our review focuses on this process of adaptation, summarising research on how parents and teachers compensated – or did not compensate – for the effect of school closure and remote schooling on students' learning. We sought in particular to answer the following two research questions:

RQ 1 Which compensatory strategies were adopted by parents and teachers during the COVID-19 school closure?

RQ 2 How did these impact students' learning experience and performance?

It stands to reason that the forced, almost overnight transition from in-person to online schooling brought many challenges. It is therefore not surprising that most studies on the effect of school closure found that the pandemic had detrimental consequences for students in a number of ways. School closures were found to affect students' wellbeing and mental health, generally for the worse (Baumann et al. 2021; Elharake et al. 2022; Villani et al. 2021). The systematic review conducted so far of studies measuring the effect of COVID-19-related school closures on academic achievement highlighted that most studies reported a negative effect on school performance, which was more pronounced for younger students (Amate et al. 2021; Hammerstein et al. 2021; Storey and Zhang 2021) than older ones. Finally, the closures were also found to have a negative impact on students' motivation and ability to concentrate (Kimball et al. 2021; Tan 2020). When comparing United States college students' motivation before and during the pandemic, Jennifer Corpus et al. (2022) found a steep decline in *identified* and *intrinsic motivation*, but no differences in *extrinsic motivation* or *amotivation*.¹

These findings are in line with what has usually been found when studying the impact of other types of school closures, such as those resulting from individual or institutional processes which cause disruption to teaching time in various ways and for many reasons. The key point here is the positive correlation between time spent in school and pupils' learning outcomes. In her study on instructional time, Helen Abadzi (2009) stressed the importance of limiting instructional time wastage in developing countries, as the quantity of classroom time is related to students' achievement. In a study on Californian elementary schools, Su Jin Jez and Robert Wassmer (2015) estimated that fifteen more minutes of school a day were associated with a 1% increase in average academic achievement and about a 1.5% increase in the achievement of disadvantaged students.

In order to maintain the continuity of teaching and learning during COVID-19-related lockdowns, most governments required schools to move teaching activities online temporarily, a situation that was defined as *emergency remote teaching* (ERT) or *emergency remote education* (ERE). Since ERT was an unplanned practice (Hodges et al. 2020), neither teachers nor students were prepared for this sudden transition. The quality and quantity of students' learning were therefore, unsurprisingly, largely dependent on the way their families and teachers were able to deal with remote teaching.

On the one hand, teachers' ability to use technology and adapt their teaching conditions varied case by case. Teachers had to face a steep learning curve in a very

¹ In a nutshell, identified motivation is prompted by wanting to be/act like someone else (one's idol). Intrinsic motivation is driven by a person's own will, not by other people's ideas or expectations of what that person should be doing. Extrinsic motivation, by contrast, derives from external factors such as advantages, punishments, or the expectations of others. Finally, amotivation is the absence of motivation (Deci and Ryan 1985).

short period of time (Brereton 2021). A cluster analysis conducted on 1,500 instructors in 118 countries identified two distinct groups, differing in both the level of engagement in remote instruction and the ability to cope with its challenges: high in the first group; low in the second (Jelinska and Paradowski 2021). Results suggest that belonging to one group or the other was associated with teachers' prior experience with remote instruction and higher education, use of real-time synchronous modalities, gender, years of teaching experience, and their country's level of economic development.

On the other hand, when the home environment became the setting for formal education, there was a need for parents to contribute to its effectiveness (Richmond et al. 2020), which often required them to reconcile their own working from home with their children's remote learning (Otonkorpi-Lehtoranta et al. 2021). The long-standing research stream on summer learning loss, i.e. students' loss of academic skills during summer vacations, suggests that parents have a tremendous influence on students' self-regulated learning (Cooper et al. 1996). Thus, it was already known before the onset of the COVID-19 pandemic that students whose parents have low socioeconomic status and a lower level of education usually experienced the highest loss during school vacations (Stewart et al. 2018).

It is therefore likely that both teachers and parents played a pivotal role in students' experience of ERT and that both could do a lot to mitigate and compensate for the negative effects of school closures. Several studies have aimed to investigate the effect of teachers' and parents' supportive strategies on students' learning experiences in ERT. Since this experience will be very valuable in assessing how best to minimise future educational disruption of teaching and learning (due to pandemics or other emergencies), we felt that a summary of these results would be useful to inform future research.

Materials and methods

Our methodology followed the guidelines for scoping reviews provided in the *JBIM Manual for Evidence Synthesis* (Peters et al. 2020). First, we developed an *a priori* research protocol by defining research questions, inclusion and exclusion criteria, a search strategy and data sources. From the end of February 2022 to April 2022, two reviewers selected the studies from three online databases (Web of Science, ERIC and Education Database) and citation searching. The key terms used were the following: *([Covid*OR Corona] AND [famil*OR parent*OR teacher*] AND [school OR educ*] AND [involv*OR mitigat*OR compensat*OR help])*.

We considered only studies in English published between February 2020 and February 2022, since we were interested specifically in COVID-19-related school closures. We merged our results from the first screening of all three databases into one list and removed any duplicates. We conducted the source screening on the Rayyan platform (Ouzzani et al. 2016), based on the criteria previously established in our research protocol. At each step of the screening process, disagreements between the reviewers were discussed and resolved by consensus. The inclusion and exclusion criteria we applied are shown in Table 1.

Table 1 Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Agent: parents and/or teachers	Outcome of the compensatory strategy: not directly related to learning, e.g. mental health, wellbeing
Compensatory strategies: active or passive, conscious or unconscious	Type of study: review
Outcome of the compensatory strategy: to compensate for learning loss, protect students' performance and support the learning process	Language other than English
School closure due to COVID-19 pandemic	Published before February 2020
Research design: quantitative and/or qualitative studies, at least detecting the existence of learning loss and relating it to compensatory strategies	Research design: studies only assuming implications on learning loss, or measuring learning loss but not reporting any compensatory strategy
Sample: primary and secondary school students, their teachers and families	Sample: tertiary education students

In order to answer our first research question, we decided to select only studies *both* describing the strategies adopted by parents and/or teachers to mitigate or compensate for the change in students' learning experience due to school closure *and* linking these strategies to learning loss. These strategies could be adopted either actively and consciously, on purpose, or unconsciously, i.e. elements of parents' behaviour which happened to have an effect on their children's learning but were not deliberately applied for this reason. In such cases, what is considered is just the association between the relevant characteristic, as observed in parents or teachers, and students' learning outcomes.

In order to answer our second research question, we decided to exclude all studies that did not observe an association between compensatory strategies and learning-related outcomes. Outcomes not directly related to the learning experience, such as mental health, were also excluded. Due to this restriction, we excluded the large body of literature concerning the negative impact of the COVID-19 pandemic on pupils' mental health, as opposed to their learning outcomes (Cachón-Zagalaz et al. 2020; Chaabane et al. 2021; Elharake et al. 2022). Finally, we decided also to exclude studies focusing on tertiary education students, since they are relatively independent learners and sometimes already living away from home. Moreover, the relationship between students and college professors is quite different from the one between students and teachers in primary and secondary education.

We extracted information on the research design, the type of agent (parent or teacher), the school grade and country of the sample, the type of compensatory strategy, and its outcome.

Results

Figure 1 shows the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) flow chart (Page et al. 2021) that summarises the results from our screening at each step of the process. Our search strategy across the three

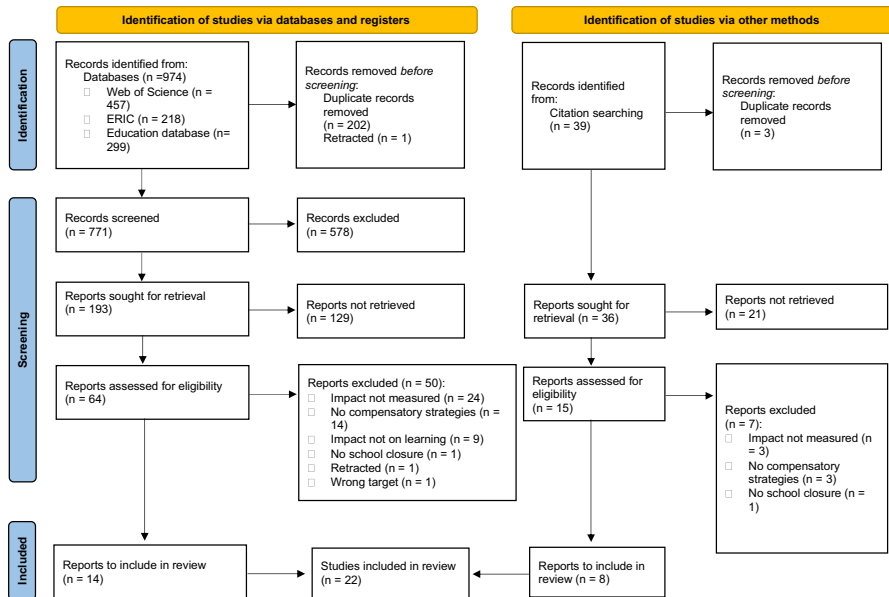


Fig. 1 PRISMA flow chart

databases identified a total of 974 studies, of which 202 were duplicated and one retracted, leaving us with 771 studies. The title screening retained 193 studies, of which 129 were excluded when screening the abstract. Of the 64 studies whose full text was screened, 14 were eligible for inclusion. A screening of the references cited in those studies led to identifying 8 additional sources, resulting in a total of 22 eligible studies.

It might seem that we ended up with a relatively low number of studies, given the wide scope of the review and the high number of papers found by our first search. This reflects the fact that our inclusion conditions were quite restrictive: first, we excluded papers concerning the negative impact of COVID-19 on pupils' condition other than their learning outcome, in particular their mental health; second, to be included in the review a paper had to satisfy two requirements simultaneously, namely detecting learning loss *and* describing compensatory strategies associated with it. The results are in line with those found by other reviews on learning loss and the impact of COVID-19 (e.g. Hammerstein et al. 2021).

Studies' characteristics

Table 2 summarises the studies' characteristics. Most of them adopted a quantitative approach (73%). The mitigatory agent was a parent in 73% of cases, a teacher in 9%, and both parents and teachers in the remaining four studies. The target population of half of the studies (55%) was mixed in age: 23% of studies focused on participants attending primary school, while 18% looked at secondary school students. A

Table 2 Studies' characteristics

	Number of studies (%)
Research design	
Quantitative	16 (73%)
Qualitative	6 (27%)
Agent	
Parent	16 (73%)
Both	4 (18%)
Teacher	2 (9%)
Target	
Primary school	5 (23%)
Middle school	1 (5%)
Secondary school	4 (18%)
Mixed	12 (55%)
Country	
UK	6 (27%)
USA	3 (14%)
Spain	2 (9%)
Germany	2 (9%)
Sweden	1 (5%)
Nigeria	1 (5%)
Greece	1 (5%)
Italy	1 (5%)
Austria	1 (5%)
Mexico	1 (5%)
China	1 (5%)
India	1 (5%)
Netherlands	1 (5%)

number of countries were represented, the most frequent being the United Kingdom (UK) (27%) followed by the United States (USA) (14%).

Compensatory strategies

Table 3 summarises the compensatory strategies investigated in the 22 studies of our final sample. For parents, we identified three main types of strategies. They were related to (1) parents' socioeconomic and/or demographic characteristics (59%); (2) parental involvement and support in learning activities (32%); and (3) the family environment (14%). Compared to the latter two strategies, socioeconomic status (SES) and demographic characteristics are only indirectly linked to learning outcomes and we do not have explicit information on the active strategies related to these factors. However, as typically observed by the literature on

Table 3 Types of compensatory strategies

	Number of studies (%)
Parents	
SES and demographic characteristics	13 (59%)
Involvement and support	7 (32%)
Family environment	3 (14%)
Teachers	
Interaction with and among students	3 (14%)
Teaching activities and strategies	3 (14%)

Note: Since more than one type of strategy might have been observed by the same study, the percentages do not add up to 100

intergenerational transfers, “parents influence their children’s attainments in two ways: through endowments and investments” (Erola and Jalovaara 2016, p. 972), the first being what parents have which can benefit their children, the second the intentional behaviour adopted by parents to influence their children’s outcomes. Therefore, despite a lack of information concerning the actual behaviours and mechanisms at work in compensating for learning loss due to the sudden switch to ERT, we nevertheless decided to include socioeconomic and demographic factors in our picture, since they provide interesting – albeit, in a sense, incomplete – information. As expected, parental characteristics found to be related to children’s learning included educational level, income, nationality (often related to migration status) and employment status, all of which are used in the literature as indicators of the family’s position in social stratification.

Parental involvement and support included all forms of purposive support given by parents to their children and related to online learning, e.g. providing children with the school materials required by teachers (Gouseti 2021), checking what they were doing and helping them with homework (Beattie et al. 2022; J. H. Kim et al. 2021; L. E. Kim et al. 2021; Lam et al. 2022). Finally, family environment refers to the way parents interacted with their children, for instance creating a positive home climate, with parents and children discussing activities, ideas and concerns (Pozzoli et al. 2022), or by having economical, communicative affective and learning interactions (Romero et al. 2021). It also refers to the way parents motivate their children to learn, e.g. with words of encouragement and/or physical punishment (Mak 2021).

As regards teachers’ strategies, these were grouped into two categories (shown in Table 3), the first referring to activities regarding the interaction between teachers and students or among students themselves, and the second referring to formal teaching activities. Interaction with and among students included one-to-one communication through individual calls (Nilsberth et al. 2021), promotion of peer-to-peer interaction (Cooper et al. 2021) and teachers’ closeness to their students (Pozzoli et al. 2022). Finally, among the teaching activities reported were regular and systematic schoolwork checks (Bayrakdar and Guveli 2020), efforts to send learning

Table 4 Association of parents' compensatory strategies with students' learning

	Methodology	
	Quantitative	Qualitative
SES and demographic characteristics		
Income	Positive (7)	Positive (1) Negative (1)
Education	Positive (5) Positive, not significant (1)	Positive (1)
Immigrant vs native status	Negative (1)	
Full-time vs part-time job/unemployed	Positive (1)	
Involvement and support	Positive (3) Positive, not significant (1)	Positive (5)
Family environment		
Supportive and positive home climate	Positive (1)	
Family interactions	Positive (1)	
Motivating strategies: goal setting	Negative (1)	
Motivating strategies: physical punishment		

material to students (Dietrich et al. 2021), and the intensity of distance learning (Grewenig et al. 2021).

Compensatory strategies and learning outcomes

The studies reviewed differed in the methodology adopted to assess the association between compensatory strategies and learning-related outcomes. Half of the studies reported the results of regression analysis and three reported descriptive statistics, whereas in 32% of cases the link between compensatory strategies and learning was self-reported or inferred from interviews with teachers. We therefore decided to indicate in the summary tables whether the result was obtained using a quantitative or a qualitative methodology. Table 4 summarises the compensatory strategies adopted by parents and Table 5 those adopted by teachers.

As regards parents, in general, the compensatory strategies identified were positively associated with students' learning experiences, with a few exceptions. On average, students whose parents had a higher socioeconomic status and level of education had a better learning experience during ERT compared to those from low-SES families whose parents had a lower level of education. This positive association was found with respect to several outcomes, including reading scores and comprehension (Weber et al. 2021), students' motivation (Mak 2021), opportunities to learn (Bonal and González 2020), performance (Engzell et al. 2021; Pier et al. 2021), time spent on schoolwork (Bayrakdar and Guveli 2020; Dietrich et al. 2021) and school-related activities (Grewenig et al. 2021). The more robust statistical analysis available in the papers we reviewed, namely a multivariate analysis of the change in final primary school exam scores from pre-COVID to 2020, performed by Per Engzell

Table 5 Association of teachers' compensatory strategies with students' learning

	Methodology	
	Quantitative	Qualitative
Interaction with and among students		
One-to-one communication		Positive (1)
Promotion of peer-to-peer interaction		Positive (1)
Perceived teacher closeness	Positive, not significant (1)	
Teaching activities and strategies		
Checking homework regularly	Positive (1)	
Effort to send students material	Positive (1)	
Intensity of distance learning		

et al. (2021) on population data for the Netherlands, shows an average learning loss which is heterogeneous by parental education, while all other family background measures did not have any significant effect.

In contrast to the other studies, teachers interviewed by Sara Spear et al. (2021) in England reported that parents in higher socioeconomic groups had less time to engage with their children and their distance schooling because they were often working from home themselves, especially during the second period of school closure. Finally, in Catalonia, students with immigrant parents were found to have fewer opportunities to learn during school closure than those with native parents (González and Bonal 2021), whereas those in Germany whose parents worked full-time were more motivated to learn than those with parents who worked part-time or were unemployed (Dietrich et al. 2021).

Not surprisingly, parental involvement and support were found to have a positive association with several learning outcomes, including online learning commitment (Lawrence and Fakuade 2021), participation in class (Gouseti 2021) and time spent learning from home (Easterbrook et al. 2022). Moreover, a positive association was found between learning and a supportive and positive home climate (Pozzoli et al. 2022), family interactions (Romero et al. 2021) and the use of goal setting as a motivating strategy, while the use of physical punishment as a motivating strategy was negatively associated with learning outcomes (Mak 2021).

As regards teachers, the strategies reported were all positively associated with students' learning. These included establishing one-to-one communication with students (Nilsberth et al. 2021), proposing activities favouring interactions among peers (Cooper et al. 2021), checking students' homework regularly (Bayrakdar and Guveli 2020), sending students learning material (Dietrich et al. 2021) and increasing the intensity of distance learning (Grewenig et al. 2021).

A key issue involving both families and teachers appears to be the unstructuring of children's daily life brought about by the closure of schools. This point, made by the English teachers interviewed by Janice H. Kim et al. (2021), is consistent with previous literature which highlighted families' capacity to structure their children's

time and activities as a key mechanism associated with school success among poor families (Lahire 1995).

Discussion

The abrupt decision to close schools to limit the spread of COVID-19 meant that families and teachers had to adapt quickly to a new and challenging type of schooling at home: emergency remote teaching (ERT). Our literature review aimed to summarise the strategies they adopted to mitigate and compensate for the learning loss related to ERT.

The papers we reviewed singled out a set of recurrent strategies adopted by either parents or teachers. For parents, these strategies included parental support and involvement in children's school-related activities, the maintenance of a positive family environment, and, indirectly, the possession of certain characteristics, e.g. high socioeconomic status and level of education. These characteristics are not always conducive to support *per se*, since what is observed is merely a statistical correlation. But due to their association with desirable compensatory outcomes at the population level, it is reasonable to assume that they favour the implementation of successful compensation strategies. In the case of teachers, strategies included interaction with and among students and activities related to teaching. The association between these compensatory strategies and learning was positive, with few exceptions.

Parents' strategies

Despite the novelty and exceptionality of the situation, results regarding parents are coherent with what has usually been found when studying parents' influence on their children's academic outcomes. A meta-analysis conducted by Xitao Fan and Michael Chen (2001) revealed that, on average, parental involvement has a small to moderate positive relationship with children's academic achievement, a result replicated more recently by María Castro et al. (2015). This consistency with earlier studies is no cause for surprise, since the shift to ERT did not reduce but rather increased students' need for their parents' support, especially the youngest. The study conducted by Sara Mori et al. (2021) on a large Italian sample shows that parents played an instrumental role in their children's home learning, as they were in charge of matters such as handling school communications, supplementing learning material and organising the weekly schedule.

Similarly, results on parental socioeconomic status confirmed what has usually been found in previous studies, i.e. that a higher parental income and level of education are on average associated with their children's higher academic achievement and performance (Breen and Jonsson 2005; Chen et al. 2018; Ermisch and Pronzato 2010; Perry and Mcconney 2010, Andrew et al. 2020). This positive association has multiple explanations. Children from high-SES families have more experiences that

help them develop fundamental skills (Buckingham et al. 2013), greater access to learning materials (Bradley et al. 2001) and live in a less stressful home environment (Mistry et al. 2009). Xavier Bonal and Sheila González (2020) also note that the post-school afternoon activities preferred by high-SES families, typically more formalised (such as classes in sports, foreign languages and art) were more likely to continue online during the lockdown than the activities preferred by low-SES families (playing in the neighbourhood, visiting grandparents; see Lareau 2011).

In an extraordinary situation like the COVID-19 pandemic, the explanation for the difference between high- and low-income families goes beyond factors like the availability of computer equipment and internet connectivity, books and learning materials at home. Preliminary studies conducted in the first wave of the pandemic showed that the ability to reconcile work and childcare varied depending on parents' income. Low-income parents were less likely to work from home than high-income parents, as home-working was more frequent among more highly paid and skilled employees (Bonacini et al. 2021). Furthermore, low-income parents also reported higher levels of anxiety, depression and stress that will doubtless have interfered with parenting (Kerr et al. 2021); all these factors are likely to influence the home environment and parents' involvement in children's learning activities.

In this light, a statement made by one of the primary teachers interviewed by Spear et al. stands out. This teacher said that:

lots of our children in many ways are deprived, just not in a financial way, because the parents are often highly academic, or motivated to work and earn lots of money. So being locked down for lots of our families meant they were working from home more steadfastly than ever before. So the children had very little kind of engagement in the home (Spear et al. 2021, p. 11).

However, without further information on families' characteristics it is impossible to understand why in that case high-income families provided less parental support. It could be that high-SES families were more likely to have dual-career parents and thus less time to devote to their children compared to families where only one of the parents worked. However, this result still stands out as unexpected and might be related to the particular context from which the teacher spoke.

It is important to note that these factors were usually found to be interrelated and combinatorial, eventually determining a cumulative structure of advantage and disadvantage known as the *Matthew effect* (DiPrete and Eirich 2006).² As reported by Matthew Easterbrook et al. (2022), families facing a difficult financial situation were also more likely to have a disadvantaged home environment, e.g. insufficient technology, lack of space or parents not being able to supervise their children's work. A similar association was reported for parental educational level, as those with a bachelor's degree were more confident in their ability to help their children during home learning than those without a degree. This is in line with the association usually

² In a nutshell, the Matthew effect posits that the already advantaged (e.g. being rich) are likely to further increase their advantage (wealth), while the already disadvantaged (e.g. being poor) are likely to increase their disadvantage (poverty).

found between parents' own level of education and the role they play in the education of their children (Hill and Taylor 2004).

It is worth mentioning here the highly discussed issue of the gender inequalities concerning people's work–life balance which emerged during the pandemic. This relates to a long-debated issue in social stratification research, namely whether and to what extent the impact of parental resources on school attainment is gendered (Ballarino et al. 2021). Data on the care arrangements pointed towards a systematic gender difference in the association between parental working conditions and the division of care work, with mothers being more likely than fathers to change their working hours (Zoch et al. 2021) and carry the heavier load in the provision of childcare (Kenny and Yang 2021; Meraviglia and Dudka 2021; Sakuragi et al. 2021; Sevilla and Smith 2020; Zamarro and Prados 2021). Unfortunately, among the studies included in this review, only a few tested the differences between the compensatory strategies of mothers and fathers. Bonal and González (2020) found that mothers in their sample dedicated more time to helping their children than fathers did. As regards parents' level of education, Sait Bayradkar and Ayse Guveli (2020) did not find any statistically significant difference between the impact of the mother's or the father's educational level, although Hans Dietrich et al. (2021) found that paternal education was more influential than maternal education as a predictor of SES differences in home learning.

Teachers' strategies

While parental compensatory strategies during ERT did not differ much from those adopted in ordinary times, those adopted by teachers were more directly related to the extraordinary situation they were facing. We identified two main categories of actions by which teachers tried to compensate for the possible harm caused to students by ERT. The first category groups together strategies related to interaction and communication; the second comprises those related to the way teachers adapted their learning approaches to the new context and its virtual platforms.

As regards the first type of strategy, interviews with parents and teachers usually mentioned limited communication and keeping students engaged among the main problems they faced during the pandemic (J. H. Kim et al. 2021). However, only two studies (Azmat and Ahmad 2022; Cooper et al. 2021) showed how strategies related to communication and interaction with students were associated with learning outcomes. Amanda Cooper et al. (2021) reported the experience of a teacher who decided to engage students in activities promoting peer-to-peer interactions. As noted by the authors, “[teachers] realised that this was a major area that students were missing due to school closures – interactions with friends” (ibid., p. 93). The detrimental effects of a lack of social interaction, especially for younger people, are well-known. Momna Azmat and Ayesha Ahmad (2022) found that reduced social interaction affected students' satisfaction levels and contributed to psychological issues such as depression. A survey conducted in Ireland on 506 parents (Egan et al. 2021) found that what children in primary

school missed the most was playing with other children and interacting with their friends, which in turn negatively affected their social and emotional wellbeing. According to Spear et al. (2021), some teachers in England managed to upskill the parents, in this way guaranteeing a much better support for their children's learning. Of course, as the authors note, this intervention is more effective among educated and skilled parents, so might actually reinforce inequalities in learning.

As regards the second type of strategy, interviews revealed that teachers experienced a number of difficulties in adapting their teaching methods to an online setting. Teachers interviewed by Cooper et al. (2021) acknowledged that both their technological and pedagogical capacities were key to the effective implementation of remote learning. Those who were already familiar with online platforms experienced a smoother transition to ERT. Furthermore, the shift from static learning approaches to targeted formative feedback strategies was pivotal in ensuring students' engagement.

Given these premises, it is clear that teachers adopted compensatory strategies mainly on a subjective and individual basis. As reported by Marie Nilsberth et al. (2021), teachers soon realised that the different conditions in students' home environments were increasing inequalities in the learning process, and that they should actively find new ways to compensate for such differences, e.g. by providing more support to students who were more in need. The novelty of the situation meant that there were few specific institutional guidelines on how to deal with these inequalities, so it was all the more important that teachers developed compensatory strategies of their own. An international report on government responses to COVID-19 (Vegas 2020) highlighted that countries varied in whether they provided training and guidance to teachers on remote teaching and how to communicate with students. However, to our knowledge, a comparative analysis of the association between the characteristics of educational systems and their response to the COVID-19 pandemic has not yet been conducted.

An interesting insight on this issue comes from Anastasia Gouseti (2021), who interviewed teachers from two countries, the UK and Greece, using a comparative qualitative design. The centralised structure of the Greek school system pushed the government to require all schools to use the same virtual learning environment, and teachers were provided with detailed guidelines on how to use online educational resources. In the less centralised British school system, by contrast, schools had greater flexibility in the implementation of ERT. It was down to each school to organise their ERT provision and choose which online platform to use. This flexibility allowed UK teachers to choose the most user-friendly platforms and/or those with which they were more familiar, which appears to have had beneficial consequences on their ability to use them. Consistently with this, Nilsberth et al. (2021) similarly underlined how many of the Swedish teachers they interviewed used online platforms of their choice instead of the "official" one provided by the government.

The relevance of the institutional context for the behaviour of teachers was also highlighted by Spear et al. (2021), whose mixed-method study on primary educators in England underlined how the second lockdown saw stronger intervention from the Department for Education encouraging schools to set up online

learning platforms. This increased communication between teachers and parents, thereby furthering parents' engagement in their children's remote learning. A similar pattern was found by Cooper et al. (2021), who analysed a governmental programme to support families in the Canadian state of Ontario. They found that coordination and communication between the state and schools appeared to have a notable impact on the results of the intervention.

Also related to the impact of the institutional setting is the finding by González and Bonal (2021) who, in their study conducted in Catalonia, found private schools to be more effective in producing "opportunities to learn", a synthetic measure including time spent on schoolwork at home, contact with teachers and online lessons. This advantage of course builds on those arising directly from parents' intervention, according to the cumulative pattern of advantage/disadvantage mentioned above. Similarly, Emma Dorn et al. (2020), in a study conducted in the United States, found evidence of learning loss stratified by race. They also found that interventions such as additional learning time and high-intensity tutoring had a positive impact, but recognised that these might be costly and out of reach for most public schools.

In sum, whatever their personal characteristics, skills and experience, teachers were more effective in supporting families when the school system provided them with access to the required technical tools (online platforms in particular), but left them able to use these tools flexibly, adapting them both to their own skills and to the families' resources. It must be added, however, that only a few of the reviewed papers featured a longitudinal or comparative design enabling such comparisons. Our conclusions concerning the impact of governments' school policies on the learning process are therefore only provisional and require further research.

Limitations

This review certainly has some limitations. First of all, we decided to include both quantitative and qualitative studies. On the one hand, this gives access to more information, as many studies were conducted using an exploratory approach due to the novelty of the situation and the difficulty of collecting systematic data during the first period of the pandemic. On the other hand, it is difficult to compare the results from qualitative and quantitative studies in a systematic way, and not just because of different designs and measures. The qualitative studies included in this review were conducted mainly by interviewing teachers about their experience of school closure. Compensatory strategies were thus inferred from what was observed by teachers, implying that answers could be biased or highly dependent on the specific context and experience. Moreover, we cannot rule out the possibility that the evidence provided by the qualitative studies was affected by a positive selection bias, as teachers who were more active and effective during ERT might also have been more willing to be interviewed. Furthermore, most studies included in the review were conducted

in Western or developed countries, so we only have a first-world perspective on the issue. Finally, the review is subject to the general limitations of any review of this kind, such as that relevant sources of information may have been omitted and we were not able to rate the quality of evidence.

Conclusion

This literature review highlights that school closures and the shift from in-person to remote learning due to the COVID-19 pandemic led to the emergence of new inequalities and the exacerbation of old ones.

Overall, the papers we reviewed are consistent with the general statements that schooling reduces inequalities in learning and that the absence or reduction of schooling increases the importance of families (Bonal and González 2020; Raudenbush and Eschmann 2015). Both parents and teachers played a pivotal role in compensating for learning loss due to ERT. In the case of parents, what counted during the pandemic were their socioeconomic and demographic characteristics, their involvement and support in children's school activities, and the family environment. As regards teachers, the implementation of activities favouring interaction with and among students and the choice of ad-hoc teaching activities were both positively associated with students' learning experience.

Finally, our review also highlights the importance of the school system as the institutional context in which teaching and learning take place, since it provides resources and expectations to all actors involved in these processes. The decision to close schools was of course taken by governmental authorities, without involving either school personnel or families. Nevertheless, the evidence we reviewed suggests that the way school authorities reacted to the outbreak of the pandemic made a substantial difference to the effectiveness of teachers' work and, in turn, how well parents managed to support their children's remote learning.

To conclude, we note that, like in other situations of school closure, e.g. summer holidays, the heterogeneity in parents' and teachers' efforts to stimulate students' learning is likely to determine differences in the effects of the COVID-19 pandemic on students. Those students who were able to profit more from the compensatory strategies enacted by their families and schools are likely to suffer only modest learning loss, if any, while those who had fewer or no compensatory strategies at their disposal are likely to suffer long-term disadvantages, due to the cumulative nature of learning.

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Declarations

Conflict of interest The authors report there are no competing interests to declare. They did not receive any funding for this study.

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*The 22 studies which were included in our review are marked with an asterisk

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