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**Why lockdown and distance learning during the COVID-19 pandemic are likely to  
increase the social class achievement gap**

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### **Abstract**

26 The COVID-19 pandemic has forced teachers and parents to adapt quickly to a new  
27 educational context: distance learning. Teachers developed online academic material while  
28 parents taught the exercises and lessons provided by teachers to their children at home.  
29 Considering that the use of digital tools in education has dramatically increased during this  
30 crisis, and it is set to continue, there is a pressing need to understand the impact of distance  
31 learning. Taking a multidisciplinary view, we argue that by making the learning process rely  
32 more than ever on families rather than on teachers, and by getting students to work  
33 predominantly via digital resources school closures exacerbate social class academic  
34 disparities. To address this burning issue, we propose an agenda for future research and  
35 outline recommendations to help parents, teachers, and policymakers to limit the impact of the  
36 lockdown on social class based academic inequality.

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49           The widespread effects of the COVID-19 pandemic that emerged in 2019–2020 have  
50 drastically increased health, social and economic inequalities (1-2). For more than 900 million  
51 learners around the world, the pandemic led to the closure of schools and universities (3). This  
52 exceptional situation forced teachers, parents and students to adapt very quickly to a new  
53 educational context: distance learning. Teachers had to develop online academic materials  
54 that could be used at home in order to ensure educational continuity while ensuring the  
55 necessary physical distancing. Primary and secondary school students suddenly had to work  
56 with various kinds of support, usually provided online by their teachers. For college students,  
57 lockdown often entailed returning to their hometowns while staying connected with their  
58 teachers and classmates via video conferences, email, and other digital tools. Despite the best  
59 efforts of educational institutions, parents, and teachers to keep all children and students  
60 engaged in learning activities, ensuring educational continuity during school closure –  
61 something that is difficult for everyone – may pose unique material and psychological  
62 challenges for working-class families and students.

63           Not only did the pandemic lead to the closure of schools in many countries, often for  
64 several weeks; it also accelerated the digitalization of education and amplified the role of  
65 parental involvement in supporting the schoolwork of their children. Thus, beyond the  
66 specific circumstances of the COVID-19 lockdown, we believe that studying the effects of the  
67 pandemic on academic inequalities provides a way to examine more broadly the  
68 consequences of school closure and related effects (e.g., digitalization of education) on social  
69 class inequalities. Indeed, bearing in mind that (a) the risk of further pandemics is higher than  
70 ever (i.e., we are in a “pandemic era”, 4-5), and (b) beyond pandemics, the use of digital tools  
71 in education (and thus the influence of parental involvement) has dramatically increased  
72 during this crisis, and it is set to continue, there is a pressing need for an integrative and  
73 comprehensive model that examines the consequences of distance learning. Here we propose

74 such an integrative model that helps us to understand the extent to which the school closures  
75 associated with the pandemic amplify economic, digital, and cultural divides which, in turn,  
76 impact the psychological functioning of parents, students and teachers in a way that amplifies  
77 academic inequalities. Bringing together research in social sciences, ranging from economics  
78 and sociology to social, cultural, cognitive, and educational psychology, we argue that by  
79 getting students to work predominantly via digital resources rather than direct interactions  
80 with their teachers, and by making the learning process rely more than ever on families rather  
81 than teachers, school closures exacerbate social class academic disparities.

82 First, we review research showing that social class is associated with unequal access to  
83 digital tools, unequal familiarity with digital skills, and unequal uses of such tools for learning  
84 purposes (6-7). We then review research documenting how unequal familiarity with school  
85 culture, knowledge, and skills can also contribute to the accentuation of academic inequalities  
86 (8-9). Next, we present the results of surveys conducted during the 2020 lockdown, showing  
87 that the quality and quantity of pedagogical support received from schools varied according to  
88 families' social class (e.g., 10-12). We then argue that these digital, cultural, and structural  
89 divides represent barriers to the ability of parents to provide appropriate support for children  
90 during distance learning (Fig. 1). These divides also alter parents and children's levels of self-  
91 efficacy, thereby impacting their engagement in learning activities (13-14). In a final section,  
92 we review preliminary evidence for the hypothesis that distance learning widens the social  
93 class achievement gap, and propose an agenda for future research. In addition, we outline  
94 recommendations that should help parents, teachers, and policymakers to use social science  
95 research to limit the impact of school closure and distance learning on the social class  
96 achievement gap.

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Insert Fig. 1

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## **The Digital Divide**

### **104 Unequal Access to Digital Resources**

105           Although the use of digital technologies is almost ubiquitous in developed nations,  
106 there is a digital divide such that some people are more likely than others to be numerically  
107 excluded (15, see Fig. 1). Social class is a strong predictor of digital disparities, including the  
108 quality of hardware, software, and Internet access (16-18). For example, in 2019, in France,  
109 around 1 in 5 working-class families did not have personal access to the Internet, compared to  
110 less than 1 in 20 of the most privileged families (19). Similarly, in 2020, in the UK, 20% of  
111 children who were eligible for free school meals did not have access to a computer at home,  
112 compared to 7% of other children (20). In 2021, in the United States, 41% of working-class  
113 families do not own a laptop or desktop computer and 43% do not have broadband, compared  
114 to respectively 8 and 7% of upper/middle-class Americans (21). A similar digital gap is also  
115 evident between lower and higher-income countries (22).

116           Second, simply having access to a computer and an Internet connection does not  
117 ensure effective distance learning. For example, many of the educational resources sent by  
118 teachers need to be printed, requiring access to printers. Moreover, distance learning is more  
119 difficult in households with only one shared computer, compared to those where each family  
120 members has their own (23). Furthermore, upper/middle-class families are more likely to be  
121 able to guarantee a suitable workspace for each child than their working-class counterparts  
122 (24).

123 In the context of school closures, such disparities are likely to have significant  
124 consequences for educational continuity. In line with this idea, a survey of approximately  
125 4,000 parents in the UK confirmed that, during lockdown, more than half of primary school  
126 children from the poorest families did not have access to their own study space, and were less  
127 well equipped for distance learning than higher income families (10). Similarly, a survey of  
128 around 1,300 parents in the Netherlands found that during lockdown, children from working-  
129 class families had fewer computers at home and less room to study than upper/middle-class  
130 children (11).

131 Data from non-western countries highlight a more general digital divide, showing that  
132 developing countries have poorer access to digital equipment. For example, in India in 2018,  
133 only 10.7% of households possessed a digital device (25); in Pakistan in 2020, 31% of higher-  
134 education teachers did not have an Internet access and 68.4% did not have a laptop (26). In  
135 general, developing countries lack access to digital technologies (27-28), and these difficulties  
136 of access are even greater in rural areas (e.g., 29). Consequently, school closures have huge  
137 repercussions for the continuity of learning in these countries. For example, in India in 2018,  
138 only 11% of the rural and 40% of the urban population above 14 years old could use a  
139 computer and access the Internet (25). Time spent on education during school closure  
140 decreased by 80% in Bangladesh (30). A similar trend was observed in other countries (31),  
141 with only 22% of children engaging in remote learning in Kenya (32), 50% in Burkina-Faso  
142 (33). In Ghana, 26 to 32% of children spent no time at all on learning during the pandemic  
143 (34). Beyond the overall digital divide, social class disparities are also evident in developing  
144 countries, with lower access to digital resources amongst low parental educational level  
145 households (vs. high parental educational level households, e.g., 35 in Nigeria; see also 31 for  
146 Ecuador).

147 **Unequal Digital Skills**

148           In addition to unequal access to digital tools, there are also systematic variations in  
149 digital skills (36-37, see Fig. 1). Upper/middle-class families are more familiar with digital  
150 tools and resources and therefore are more likely to have the digital skills needed for distance  
151 learning (38-40). These digital skills are particularly useful during school closures, both for  
152 students and for parents, for organizing, retrieving, and using correctly the resources provided  
153 by the teachers (e.g., sending or receiving documents by e-mail, printing documents, using  
154 word processors, etc.).

155           Social class disparities in digital skills can be explained in part by the fact that children  
156 from upper/middle-class families have the opportunity to develop digital skills earlier than  
157 working-class families (41). In OECD countries, only 23% of working-class children had  
158 started using a computer at the age of 6 or earlier, compared to 43% of upper/middle-class  
159 children (42). Moreover, because working-class people tend to persist less than upper/middle-  
160 class people when confronted with digital difficulties (23), the use of digital tools and  
161 resources for distance learning may interfere with parents' ability to help children with their  
162 schoolwork.

### 163 **Unequal Use of Digital Tools**

164           A third level of digital divide concerns variations in digital tool use (18; 43, see Fig.  
165 1). Upper/middle-class families are more likely to use digital resources for work and  
166 education (6; 41; 44) whereas working-class families are more likely to use these resources  
167 for entertainment, such as electronic games or social media (6; 45). This divide is also  
168 observed among students: working-class students tend to use digital technologies for leisure  
169 activities, whereas their upper/middle-class peers are more likely to use them for academic  
170 activities (46) and to consider that computers and the Internet provide an opportunity for  
171 education and training (23). Furthermore, working-class families appear to regulate their



172 children's digital practices less (47) and are more likely to allow screens in children's and  
173 teenagers' bedrooms without setting limits on times or practices (48).

174 In sum, inequalities in terms of digital resources, skills, and use have strong  
175 implications for distance learning because they make working-class students and parents  
176 particularly vulnerable when learning relies on extensive use of digital devices, rather than on  
177 face-to-face interaction with teachers.

### 178 **The Cultural Divide**

179 Even if all three levels of digital divide were closed, upper/middle-class families  
180 would still be better prepared than working-class families to ensure educational continuity for  
181 their children. They are more familiar with the academic knowledge and skills that are  
182 expected and valued in educational settings, as well as with the independent, autonomous way  
183 of learning that is valued in the school culture and becomes even more important during  
184 school closure (Fig. 1).

### 185 **Unequal Familiarity with Academic Knowledge and Skills**

186 According to classic social reproduction theory (8; 49), school is not a neutral place in  
187 which all forms of language and knowledge are equally valued. Academic contexts expect  
188 and value culture-specific and taken-for-granted forms of knowledge, skills, and ways of  
189 being, thinking, and speaking that are more in tune with those developed through  
190 upper/middle-class socialization (i.e., *cultural capital*; 8; 50-53). For instance, academic  
191 contexts value interest in arts, museums, and literature (54-55), a type of interest that is more  
192 likely to develop through socialization in upper/middle-class families than in working-class  
193 socialization (54; 56). Indeed, upper/middle-class parents are more likely than working-class  
194 parents to engage in activities that develop this cultural capital. For example, they possess  
195 more books and cultural objects at home, read more stories to their children, and visit  
196 museums and libraries more often (e.g., 51; 54-55). Upper/middle-class children are also

197 more involved in extra-curricular activities (e.g., playing a musical instrument) than working-  
198 class children (55-57).

199         Beyond this implicit familiarization with the school curriculum, upper/middle-class  
200 parents more often organize educational activities explicitly designed to develop their  
201 children's academic skills (57-59). For example, they are more likely to monitor and reexplain  
202 lessons or use games and textbooks to develop and reinforce academic skills (e.g., labeling  
203 numbers, letters, colors; 57; 60). Upper/middle-class parents also provide higher levels of  
204 support and spend more time helping children with homework than working-class parents  
205 (e.g., 61-62). Thus, even if all parents are committed to the academic success of their children,  
206 working-class parents have fewer chances to provide the help that children need to achieve  
207 homework (63) and homework is more beneficial for children from upper-middle class  
208 families than for children from working-class families (64-65).

### 209 **School Closures Amplify the Impact of Cultural Inequalities**

210         The trends described above have been observed in 'normal' times, when schools are  
211 open. School closures, by making learning rely more strongly on practices implemented at  
212 home (rather than at school), are likely to amplify the impact of these disparities. Consistent  
213 with this idea, research has shown that the social-class achievement gap usually widens  
214 greatly during school break—a phenomenon described as *summer learning loss* or *summer*  
215 *setback* (66-68). During holidays, children's learning tends to decline, and this is particularly  
216 pronounced in children from working-class families. Consequently, the social class  
217 achievement gap grows more rapidly during the summer months than it does in the rest of the  
218 year. This phenomenon is partly explained by the fact that during the break from school,  
219 social class disparities in investment in activities that are beneficial for academic achievement  
220 (e.g., reading, traveling to a foreign country, museum visits) are more pronounced.

221           Therefore, when they are out of school, children from upper/middle-class backgrounds  
222 may continue to develop academic skills, unlike their working-class counterparts, who may  
223 stagnate or even regress. Research also indicates that learning loss during school breaks tends  
224 to be cumulative (66). Thus, repeated episodes of school closure are likely to have profound  
225 consequences for the social class achievement gap. Consistent with the idea that school  
226 closure could lead to similar processes as those identified during summer breaks, a recent  
227 survey indicated that during the COVID-19 lockdown in the UK, children from upper/middle-  
228 class families spent more time on educational activities (5.8 hours a day) than those from  
229 working-class families (4.5 hours per day, 7; 69).

### 230 **Unequal Dispositions For Autonomy and Self-regulation**

231           School closure has encouraged autonomous work among students. This “independent”  
232 way of studying is compatible with upper/middle-class students’ family socialization, but  
233 does not match the interdependent norms more commonly associated with working-class  
234 contexts (9). Upper/middle-class contexts tend to promote cultural norms of independence  
235 whereby individuals perceive themselves as autonomous actors, independent of other  
236 individuals and of the social context, able to pursue their own goals (70). For example,  
237 upper/middle-class parents tend to invite children to express their interests, preferences, and  
238 opinions during the various activities of everyday life (54-55). Conversely, in working-class  
239 contexts characterized by low economic resources, where life is more uncertain, individuals  
240 tend to perceive themselves as interdependent, connected to others and members of social  
241 groups (53; 70-71). This interdependent self-construal fits less well with the independent  
242 culture of academic contexts. This cultural mismatch between interdependent self-construal  
243 common in working-class students and the independent norms of the educational institution  
244 has negative consequences for academic performance (9).

245           Once again, the impact of these differences is likely to be amplified during school  
246 closure, when being able to work alone and autonomously is especially useful. The  
247 requirement to work alone is more likely to match the independent self-construal of  
248 upper/middle-class students than the interdependent self-construal of working-class students.  
249 In the case of working-class students, this mismatch is likely to increase their difficulties in  
250 working alone at home. Supporting our argument, recent research has shown that working-  
251 class students tend to underachieve in contexts where students work individually, by  
252 comparison with contexts where students work with others (72). Similarly, during school  
253 closure, high self-regulation skills (e.g., setting goals, selecting appropriate learning  
254 strategies, maintaining motivation; 73) are required to maintain study activities and are likely  
255 to be especially useful for using digital resources efficiently. Research has shown that  
256 students from working-class backgrounds typically develop their self-regulation skills to a  
257 lesser extent than those from upper/middle-class backgrounds (74-76).

258           Interestingly, some authors have suggested that independent (versus interdependent)  
259 self-construal may also affect communication with teachers (77). Indeed, in the context of  
260 remote courses, working-class families are less likely to respond to teachers' communication  
261 because their "interdependent" self leads them to respect hierarchies, and thus to perceive  
262 teachers as an expert who "can be trusted to make the right decisions for learning."  
263 Upper/middle class families, relying on "independent" self-construal, are more inclined to  
264 seek individualized feedback, and therefore tend to participate to a greater extent in exchanges  
265 with teachers. Such cultural differences are important because they can also contribute to the  
266 difficulties encountered by working class families.

### 267                           **The Structural Divide: Unequal Support from Schools**

268           The issues reviewed thus far all increase the vulnerability of children and students  
269 from underprivileged backgrounds when schools are closed. To offset these disadvantages, it

270 might be expected that the school should increase its support by providing additional  
271 resources for working-class students. However, recent data suggest that differences in the  
272 material and human resources invested in providing educational support for children during  
273 periods of school closure were—paradoxically—in favor of upper/middle-class students (Fig.  
274 1). In England, for example, upper/middle-class parents reported benefiting from online  
275 classes and videoconferencing with teachers more often than working-class parents (10).  
276 Furthermore, active help from school (e.g., online teaching, private tutoring, or chats with  
277 teachers) occurred more frequently in the richest households (64% of the richest households  
278 declared having received help from school) than in the poorest households (47%). Another  
279 survey found that in the UK, upper/middle-class children were more likely to take online  
280 lessons every day (30%) than working-class students (16%; 12). This substantial difference  
281 might be due, at least in part, to the fact that private schools are better equipped in terms of  
282 online platforms (60% of schools have at least one online platform) than state schools (37%,  
283 and 23% in the most deprived schools) and were more likely to organize daily online lessons.  
284 Similarly, in the UK, in schools with a high proportion of students eligible for free school  
285 meals, teachers were less inclined to broadcast an online lesson for their pupils (78).  
286 Interestingly, 58% of teachers in the wealthiest areas reported having messaged their students  
287 or their students' parents during lockdown, compared to 47% in the most deprived schools. In  
288 addition, the probability of children receiving technical support from the school (e.g., by  
289 providing pupils with laptops or other devices) is, surprisingly, higher in the most advantaged  
290 schools than in the most deprived (78).

291         In addition to social class disparities, there has been also less support from schools for  
292 African-American and Latinx students: During school closures in the US, 40% of African-  
293 American students and 30% of Latinx students received no online teaching, compared to 10%  
294 of white students (79). Another source of inequality is that the probability of school closure

295 was correlated with social class and race: In the United States, for example, school closures  
296 from September to December 2020 were more common in schools with a high proportion of  
297 racial/ethnic minority students, who experience homelessness, and are eligible for  
298 free/discounted school meals (80).

299 Similarly, access to educational resources and support was lower in poorer (as  
300 compared to richer) countries (81). In sub-Saharan Africa, during lockdown, 45% of children  
301 had no exposure at all to any type of remote learning. Of those who did, the medium was  
302 mostly radio, TV, or paper, rather than digital. In African countries, at most 10% of children  
303 received some material through the internet. In Latin America, 90% of children received some  
304 remote learning; but less than half of that was through the internet – the remainder being via  
305 radio and TV (81). In Ecuador, high-school students from the lowest wealth quartile had  
306 fewer remote learning opportunities, such as Google class/Zoom, than students from highest  
307 wealth quartile (31).

308 Thus, the achievement gap and its accentuation during lockdown are due not only to  
309 the cultural and digital disadvantages of working-class families, but also to unequal support  
310 from schools. This inequality in school support is not due to teachers being indifferent to or  
311 even supportive of social stratification. Rather, we believe these effects to be fundamentally  
312 structural. In many countries, schools located in upper/middle-class neighborhoods have more  
313 money than those in poorest neighborhoods. Moreover, upper/middle-class parents invest  
314 more in their children's schools than working class parents (e.g., 82) and schools have an  
315 interest in catering more for middle- and high-SES families than for working-class families  
316 (83). Additionally, teachers' expectations may be lower for working-class children (84). For  
317 example, they tend to estimate that lower class students invest less effort in learning than their  
318 upper/middle-class counterparts (85). These differences in perception may have influenced  
319 teachers' behavior during school closure, such that teachers in privileged neighborhoods

320 provided more information to students because they expected more from them, in term of  
321 efforts and achievement. The fact that upper/middle-class parents are better able than  
322 working-class parents to comply with teachers' expectations (e.g., 55; 86) may have  
323 reinforced this phenomenon. These discrepancies echo data showing that working class  
324 students tend to request less help in their schoolwork than upper/middle-class ones (87), and  
325 may even avoid asking for help because they believe that such requests could lead to  
326 reprimands (88). During school closure, these students (and their families) may in  
327 consequence have been less likely to ask for help and resources. Jointly, these phenomena  
328 have resulted in upper/middle-class families receiving more support from schools during  
329 lockdown than their lower-class counterparts.

### 330 **Psychological Effects of Digital, Cultural, and Structural Divides**

331 Despite being strongly influenced by social class, differences in academic achievement  
332 are often interpreted by parents, teachers, and students as reflecting differences in ability (89).  
333 As a result, upper/middle-class students are usually perceived—and perceive themselves—as  
334 smarter than working-class students, who are perceived—and perceive themselves—as less  
335 intelligent (90-92) or less able to succeed (93). Working-class students also worry more about  
336 the fact that they might perform more poorly than upper/middle-class students (94-95). These  
337 fears influence academic learning in important ways. In particular, they can consume  
338 cognitive resources when children and students work on academic tasks (96-97). Self-efficacy  
339 also plays a key role in engaging in learning and perseverance in the face of difficulties (13;  
340 98). In addition, working-class students are those for whom the fear of being outperformed by  
341 others is the most negatively related to academic performance (99).

342 The fact that working-class children and students are less familiar with the tasks set by  
343 teachers, and also less well equipped and supported, makes them more likely to experience  
344 feelings of incompetence (Fig. 1). Working-class parents are also more likely than their

345 upper/middle-class counterparts to feel unable to help their children with schoolwork.  
346 Consistent with this, research has shown that both working-class students and parents have  
347 lower feelings of academic self-efficacy than their upper/middle-class counterparts (100-101).  
348 These differences have been documented under ‘normal’ conditions but are likely to be  
349 exacerbated during distance learning. Recent surveys conducted during the school closures  
350 have confirmed that upper/middle-class families felt better able to support their children in  
351 distance learning than did working-class families (10) and that upper/middle-class parents  
352 helped their children more and felt more capable to do so (11-12).

### 353 **Pandemic Disparity, Future Directions, and Recommendations**

354 The research reviewed thus far suggests that children and their families are highly  
355 unequal with respect to digital access, skills, and use. It also shows that upper/middle-class  
356 students are more likely to be supported in their homework (by their parents and teachers)  
357 than working-class students, and that upper/middle-class students and parents will probably  
358 feel better able than working-class ones to adapt to the context of distance learning. For all  
359 these reasons, we anticipate that, as a result of school closures, the COVID-19 pandemic will  
360 substantially increase the social class achievement gap. Because school closures are a recent  
361 occurrence, it is too early to measure their effects on the widening of the achievement gap  
362 with precision. However, some recent data are consistent with this idea.

### 363 **Evidence for a Widening Gap During the Pandemic**

364 Comparing academic achievement in 2020 with previous years provides an early  
365 indication of the effects of school closures during the pandemic. In France, for example, first  
366 and second graders take national evaluations at the beginning of the school year. Initial  
367 comparisons of the results for 2020 with those from previous years reveal that the gap  
368 between schools classified as “priority schools” (those in low-income urban areas) and



369 schools in higher-income neighborhoods – a gap observed every year – is particularly  
370 pronounced in 2020, in both French and mathematics (102).

371 Similarly, in the Netherlands, national assessments take place twice a year. In 2020,  
372 they took place both before and after school closures. A recent analysis compared progress  
373 during this period in 2020 in math/arithmetic, spelling, and reading comprehension for 7- to  
374 11- year-old students with the same period in the three previous years (103). Results indicate  
375 a general learning loss in 2020. More importantly, for the 8% of working-class children, the  
376 losses were 40% greater than they were for upper/middle-class children.

377 Similar results were observed in Belgium among students attending the final year of  
378 primary school. Compared to students from previous cohorts, students affected by school  
379 closures experienced a significant decrease in their math and language scores, with children  
380 from more disadvantaged backgrounds experiencing greater learning losses (104). Likewise,  
381 oral reading assessments in more than 100 U.S. school districts showed that the development  
382 of this skill among children in second and third grade significantly slowed between Spring  
383 and Fall 2020, but this slowdown was more pronounced in schools from lower achieving  
384 districts (105).

385 It is likely that school closures have also amplified racial disparities in learning and  
386 achievement. For example, in the United States, after the first lockdown, students of color lost  
387 the equivalent of three to five months of learning, whereas white students were about one to  
388 three months behind. Moreover, in the Fall, when some students started to return to  
389 classrooms, African-American and Latinx students were more likely to continue studying at  
390 distance, despite being less likely to have access to the digital tools, internet access, and live  
391 contact with teachers (106).

392 In some African countries (e.g., Ethiopia, Kenya, Liberia, Tanzania, and Uganda) the  
393 COVID crisis has resulted learning loss ranging from 6 months to more one year (107) and

394 this learning loss appears to be greater for low-SES children (i.e., those attending no-fee  
395 schools) than for middle-SES children (108).

396         These findings show that school closures have exacerbated achievement gaps linked to  
397 social class and ethnicity. However, more research is needed to address the question of  
398 whether school closures differentially affect the learning of students from working- and  
399 upper/middle-class families.

#### 400 **Future Directions**

401         First, in order to assess the specific and unique impact of school closures on student  
402 learning, longitudinal research should compare student achievement at different times of the  
403 year, before, during, and after school closures, as has been done to document the summer  
404 learning loss (66; 109). In the coming months, alternating periods of school closure and  
405 opening may occur, presenting opportunities to do such research. This would also make it  
406 possible to examine whether the gap diminishes a few weeks after children return to in school  
407 or whether, conversely, it increases with time, because the foundations have not been  
408 sufficiently acquired to facilitate further learning (110).

409         Second, the mechanisms underlying the increase of social class disparities during  
410 school closures should be examined. As discussed above, school closures result in situations  
411 for which students are unevenly prepared and supported. It would be appropriate to seek to  
412 quantify the contribution of each of the factors that might be responsible for accentuating the  
413 social class achievement gap. In particular, distinguishing between factors that are relatively  
414 “controllable” (e.g., resources made available to pupils) and those that are more difficult to  
415 control (e.g., parents’ self-efficacy in supporting their children’s schoolwork) is essential to  
416 inform public policy and teaching practices.

417         Third, existing studies are based on general comparisons, and very few provide  
418 insights into the actual practices that took place in families during school closure and how

419 these practices impacted the achievement gap. For example, research has documented that  
420 parents from working-class backgrounds are likely to find it more difficult to help their  
421 children to complete homework and to provide constructive feedback (63; 111), something  
422 that could in turn have a negative impact on their children's continuity of learning. In  
423 addition, it seems reasonable to assume that, during lockdown, parents from upper/middle-  
424 class backgrounds encouraged their children to engage in practices that, even if not explicitly  
425 requested by teachers, would be beneficial to learning (e.g., creative activities, reading).  
426 Identifying the practices that best predict the maintenance or decline of educational  
427 achievement during school closure would help to identify levers for intervention.

428 Finally, it would be interesting to investigate teaching practices during school  
429 closures. The lockdown in the spring of 2020 was sudden and unexpected. Within a few days,  
430 teachers had to find a way to compensate for the school closure, which led to highly variable  
431 practices. Some teachers posted schoolwork on platforms, others sent it by email, some set  
432 work on a weekly basis while others set it day by day. Some teachers also set up live sessions  
433 in large or small groups, providing remote meetings for questions and support. There also  
434 have been variations in the type of feedback given to students, notably through the monitoring  
435 and correcting of work. Future studies should examine in more detail what practices schools  
436 and teachers used to compensate for the school closures and their effects on widening,  
437 maintaining, or even reducing the gap, as has been done for certain specific literacy programs  
438 (112) as well as specific instruction topics (e.g., ecology and evolution, 113).

### 439 **Practical Recommendations**

440 We are aware of the debate about whether social science research on COVID-19 is  
441 suitable for making policy decisions (114), and we draw attention to the fact that some of our  
442 recommendations (see Table 1) are based on evidence from experiments or interventions  
443 carried out pre-COVID, while others are more speculative. In any case, we emphasize that

444 these suggestions should be viewed with caution and be tested in future research. Some of our  
445 recommendations could be implemented in the event of new school closures, others only  
446 when schools reopen. We also acknowledge that while these recommendations are intended  
447 for parents and teachers, their implementation largely depends on the adoption of structural  
448 policies. Importantly, given all the issues discussed above, we emphasize the importance of  
449 prioritizing, wherever possible, in-person learning over remote learning (115) and where this  
450 is not possible, of implementing strong policies to support distance learning, especially in  
451 disadvantaged families.

452         Where face-to face teaching is not possible and teachers are responsible for  
453 implementing distance learning, it will be important to make them aware of the factors that  
454 can exacerbate inequalities during lockdown and to provide them with guidance about  
455 practices that would reduce these inequalities. Thus, there is an urgent need for interventions  
456 aimed at making teachers aware of the impact of children's and families' social class on (a)  
457 access to, familiarity with, and use of digital devices; (b) familiarity with academic  
458 knowledge and skills; and (c) preparedness to work autonomously. Increasing awareness of  
459 the material, cultural, and psychological barriers that working-class children and families face  
460 during lockdown should increase the quality and quantity of teachers' support and thereby  
461 positively impact working-class students' achievement.

462         In addition to increasing teachers' awareness of these barriers, teachers should be  
463 encouraged to adjust the way they communicate with working-class families, due to  
464 differences in self-construal compared to upper/middle-class families (77). For example,  
465 questions about family (rather than personal) well-being would be congruent with  
466 interdependent self-construals. This should contribute to a better communication and help to  
467 keep a better track of students' progress during distance learning.

468           It is also necessary to help teachers to engage in practices that have a chance of  
469 reducing inequalities (53; 116). Particularly important is that teachers and schools ensure that  
470 homework can be done by all children, for example by setting up organizations that would  
471 help children whose parents are not in a position to monitor or assist with their children's  
472 homework. Options include homework help groups and tutoring by teachers after class. When  
473 schools are open, the growing tendency to set homework through digital media should be  
474 resisted as far as possible, given the evidence we have reviewed above. Moreover, previous  
475 research has underscored the importance of homework feedback provided by teachers, which  
476 is positively related to the amount of homework completed and predictive of academic  
477 performance (117). Where homework is web-based, it has also been shown that feedback on  
478 web-based homework enhances students' learning (118). It therefore seems reasonable to  
479 predict that the social class achievement gap will increase more slowly (or even remain  
480 constant or be reversed) in schools that establish individualized monitoring of students, by  
481 means of regular calls and feedback on homework, compared to schools where the support  
482 provided to pupils is more generic.

483           Given that learning during lockdown has increasingly taken place in family settings,  
484 we believe that interventions involving the family are also likely to be effective (119-121).  
485 Simply providing families with suitable material equipment may be insufficient. Families  
486 should be given training in the efficient use of digital technology and pedagogical support.  
487 This would increase parents' and students' self-efficacy, with positive consequences for  
488 achievement. Ideally, such training would be delivered in person, in order to avoid problems  
489 arising from the digital divide. Where this is not possible, individualized online tutoring  
490 should be provided. For example, studies conducted during the lockdown in Botswana and  
491 Italy have shown that individual online tutoring targeting either parents or middle school

492 students directly has a positive impact on students' achievement, particularly for low-SES  
493 students (122; 123).

494 Interventions targeting families should also address the psychological barriers faced by  
495 working-class families and children. Some interventions have already been designed and been  
496 shown to be effective in reducing the social class achievement gap, particularly in math and  
497 language (124-126). For example, research showed that an intervention designed to train low-  
498 income parents in how to support their pre-kindergarten children's mathematical development  
499 (including math classes and access to a library of math kits to use at home) increased the  
500 quality of parents' support, with a corresponding impact on the development of their  
501 children's mathematical knowledge. Such interventions should be particularly beneficial in  
502 the context of school closure.

503 Beyond its impact on academic performance and inequalities, the COVID-19 crisis has  
504 shaken the economies of countries around the world, casting millions of families around the  
505 world into poverty (127-129). As noted earlier, there has been a marked increase in economic  
506 inequalities, bringing with it all the psychological and social problems that such inequalities  
507 create (130-131), especially for people who live in scarcity (132). The increase in educational  
508 inequalities is just one facet of the many difficulties that working-class families will encounter  
509 in the coming years, but it is one that could seriously limit the chances of their children  
510 escaping from poverty by reducing their opportunities for upward mobility. In this context, it  
511 should be a priority to concentrate resources on the most deprived students. A significant  
512 proportion of the poorest households do not own a computer and do not have personal access  
513 to the Internet, which has important consequences for distance learning. During school  
514 closures, it is therefore imperative to provide such families with adequate equipment and  
515 Internet service, as was done in some countries in spring 2020. Even if the provision of such

516 equipment is not in itself sufficient, it is a necessary condition for ensuring pedagogical  
517 continuity during lockdown.

518         Finally, after prolonged periods of school closure, many students may not have  
519 acquired the skills needed to pursue their education. A possible consequence would be an  
520 increase in the number of students for whom teachers recommend class repetitions. Class  
521 repetitions are contentious. On the one hand, class repetition more frequently affects working-  
522 class children, and is not efficient in term of learning improvement (133). On the other hand,  
523 accepting lower standards of academic achievement or even suspending the practice of  
524 repeating a class could lead to pupils pursuing their education without mastering the key  
525 abilities needed at higher grades. This could create difficulties subsequent years and, in this  
526 sense, be counterproductive. We therefore believe that the most appropriate way to limit the  
527 damage of the pandemic would be to help children catch up rather than allowing them to  
528 continue without mastering the necessary skills. As is being done in some countries—  
529 systematic remedial courses (e.g., summer learning programs) should be organized and  
530 financially supported following periods of school closure, with priority given to pupils from  
531 working-class families. Such interventions have genuine potential, in that research has shown  
532 that participation in remedial summer programs is effective in reducing learning loss during  
533 summer (134-136). For example, in one study, 438 students from high-poverty schools were  
534 offered a multiyear summer school program including various pedagogical and enrichment  
535 activities (e.g., science investigation, music) and were compared to a no-treatment control  
536 group (137). Students who participated in the summer program progressed more than students  
537 in the control group. A meta-analysis of 41 summer learning programs (i.e., classroom- and  
538 home-based summer interventions), involving children from kindergarten to Grade 8 showed  
539 that these programs had significantly larger benefits for children from working-class families  
540 (138). Although such measures are costly, the cost is small compared to the price of failing to

541 fulfil the academic potential of many students simply because they were not born into  
542 upper/middle-class families.

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Insert Table 1

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### **Conclusion**

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The unprecedented nature of the current pandemic means that we lack strong data on what the school closure period is likely to produce in terms of learning deficits and the reproduction of social inequalities. However, the research discussed in this article suggests that there are good reasons to predict that this period of school closure will accelerate the reproduction of social inequalities in educational achievement.

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By making school learning less dependent on teachers and more dependent on families and digital tools and resources, school closures are likely to greatly amplify social class inequalities. At a time when many countries are experiencing second, third or fourth waves of the pandemic, resulting in fresh periods of local or general lockdowns, systematic efforts to test these predictions are urgently needed, along with steps to reduce the impact of school closures on the social class achievement gap.



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#### 909 **Declaration of Competing Interests**

910 The authors declare no competing interests.

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914

915 Fig. 1. Social inequalities processes during school closure: economic, structural, digital and  
 916 cultural divides influence parents and students' psychological functioning in a way that  
 917 amplify inequalities.

918

919 Table 1. Synthesis of practical recommendations

<b>Goal</b>	<b>Recommendations</b>
<b>Improve teachers' support</b>	Increase awareness of material, cultural, and psychological barriers faced by working-class children and families during lockdown. Encourage adjusted communication strategies. Encourage the use of practices and evidence-based interventions that have a chance of reducing inequalities.

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	Encourage individualized monitoring of students (e.g., provide appropriate homework feedback).
<b>Helping students and their families handling the lockdown situation</b>	Train families and students in efficient use of digital technology. Implement evidence-based interventions focused on family support (e.g., reading programs, homework help).
<b>Enhancing targeted policies</b>	Prioritize, wherever possible, in-person learning over remote learning. Concentrate resources on the most deprived students (e.g., provide adequate equipment and Internet service to low-income families). Provide financial support for systematic remedial courses (e.g., summer learning programs)

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## Digital divide

Access to digital tools & resources

Familiarity with digital tools

Educational (vs. recreational) use of digital tools

Psychological functioning

Parents

Students

± Self-efficacy

± Feeling of competence

± Achievement

Space to study

Support from schools

Interdependent self-regulation & self-regulation skills (vs. independent)

Familiarity with academic knowledge and skills

Economic & structural divide

Cultural divide

Inequalities