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To cite this article: Charlotte Booth, Aase Villadsen, Alissa Goodman & Emla Fitzsimons (2021): PARENTAL PERCEPTIONS OF LEARNING LOSS DURING COVID-19 SCHOOL CLOSURES IN 2020, British Journal of Educational Studies, DOI: [10.1080/00071005.2021.1984390](https://doi.org/10.1080/00071005.2021.1984390)

To link to this article: <https://doi.org/10.1080/00071005.2021.1984390>



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Published online: 25 Oct 2021.



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PARENTAL PERCEPTIONS OF LEARNING LOSS DURING COVID-19 SCHOOL CLOSURES IN 2020

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ABSTRACT: Schools across the UK were mostly closed from March to July 2020 due to Covid-19. Therefore, parents and children found themselves thrust into a prolonged period of home-schooling. In this study, parents ($N = 2,122$) reported on their children's ($N = 3,230$) home-schooling experiences and its impacts on their children's academic progress. Parental reports suggest that children spent around 3 hours each weekday doing schoolwork at home. Children enrolled in private secondary schools received 4 hours of virtual lessons each weekday from teachers, while state school children received just 1 hour. Parents, on the whole, reported concern for children's academic progress. This is particularly so for children in secondary school and, most strikingly, those in school years antecedent to final exams (Years 10 and 12). Parents were less concerned about academic progress for those in Years 11 and 13, who had received their final exam grades shortly before the time of the survey. This study highlights the fact that children have been unequally affected by Covid-19 school closures, depending on their year group and school type, which should be considered in future research and policy.

Keywords: Covid-19, home-schooling, learning loss, parenting

INTRODUCTION

In the year 2020, governments around the world imposed strict public health measures in response to the Covid-19 pandemic. On the 20th of March, the UK government instructed all schools to close, to help reduce the spread of coronavirus. Schools remained partially open, but only for vulnerable children and those of 'key workers', whose parents' jobs were considered critical to the Covid-19 response. Non-key workers were asked to work from home wherever possible, which for many working parents meant juggling work, childcare and home-schooling, often with competing demands for space and other resources within the home.

These public health measures helped to reduce rates of Covid-19; however, concerns have been raised over their negative impacts on children and parents. Children experienced significant learning losses due to school closures, particularly those from more disadvantaged households (Bayrakdar and Guveli, 2020; Pensiero *et al.*, 2020), which is expected to impact their future economic

ISSN 0007-1005 (print)/ISSN 1467-8527 (online)

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<https://doi.org/10.1080/00071005.2021.1984390>

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potential (Fuchs-Schündeln *et al.*, 2020). Parents experienced changes in economic and social circumstances (Wielgoszewska *et al.*, 2020), as well as increased levels of stress and mental health issues (Gallagher and Wetherell, 2020; Tani *et al.*, 2020). Mothers shouldered more of the burden, spending more time home-schooling children (Farre *et al.*, 2020; Villadsen *et al.*, 2020), and particularly increased rates of mental health problems compared to fathers and women without children in the home (Pierce *et al.*, 2020; Zamarro and Prados, 2021; Zhou *et al.*, 2020).

The Covid-19 pandemic resulted in an unprecedented and prolonged period of school closures. The current study aims to provide estimates of children's learning loss and home-schooling experiences during the initial period of school closures, at the end of the 2019/2020 academic year. Parents reported on their children's school attendance, time spent on schoolwork at home, time in virtual lessons from teachers, and time receiving help with schoolwork from parents. A particularly novel feature of the study is that parents were also asked whether they felt that their child's academic progress had suffered during school closures. Analyses were conducted at the level of school year group, providing detailed insights into which children's academic progress was felt to have suffered the most. It is hoped that the results of this study will be used to inform future research and to design and target interventions to mitigate children's learning loss.

Background

Most children in the UK missed more than a term of in-school education due to school closures in 2020, equating to approximately 40% of the 2019/2020 academic year (Andrew *et al.*, 2020). Government policy allowed for certain year groups to return to school after the summer half-term, therefore learning loss may not have been equal across year groups (DfE, 2021). Policy for returning to school also differed across the devolved nations (Pensiero *et al.*, 2020). In England and Wales, from the 1st of June, children in Reception, Year 1 and Year 6 could return to school. Following this, from the 15th of June, children in Year 10 and Year 12 could return. This phased reopening policy intended to get as many children as possible back to school, however children in unselected year groups missed out on the opportunity and many children in selected year groups did not return, due to parental concerns over safety (Sharp *et al.*, 2020).

Previous research has shown that children from disadvantaged households suffer greater learning losses during summer holidays compared to more advantaged children, which can accumulate over time and put children at significant educational disadvantage (Alexander *et al.*, 2007; Slates *et al.*, 2012). During Covid-19 school closures, it has been shown that children from poorer households spent less time doing schoolwork at home compared to more affluent

children (Andrew *et al.*, 2020; Bayrakdar and Guveli, 2020; Eivers *et al.*, 2020). Therefore, there is cause for concern over the widening of educational inequalities due to the Covid-19 pandemic, which could have long lasting effects.

Research from the UK Household Longitudinal Study (UKHLS) on schooling during the pandemic, found that children in primary school spent around 2.5 hours per day doing schoolwork at home, while children in secondary school spent around 3 hours per day, although estimates varied depending on socio-demographic factors (Pensiero *et al.*, 2020). The authors estimated that children from the most advantaged households spent approximately 26% longer doing schoolwork in primary school and 46% longer doing schoolwork in secondary school, compared to the most disadvantaged children.

The loss of in-school education was partly mitigated by teachers' efforts to deliver academic content and feedback to children at home. However, this mitigation was not equal across the population. One study found that as many as 74% of children enrolled in private schools benefitted from a full school day of virtual lessons, compared to only 38% of children enrolled in state schools (Major *et al.*, 2020). Another study found that teachers provided less content to certain year groups and that half of all Year 11 and Year 13 students received no school work at all to complete (Eivers *et al.*, 2020). This was likely because their summer exams had been cancelled, but it means that these students missed out on six months of academic work.

It is difficult to predict how school closures will affect children's long-term outcomes. Research commissioned by the Department for Education (DfE) looked at average reading and maths scores across year groups and found that scores were lower than expected in Autumn 2020 compared to previous years, which was attributed to Covid-19 school closures (DfE, 2021). Children in primary school were more adversely affected than those in secondary school, and maths scores were impacted worse than reading scores (DfE, 2021). Economists predict that school closures will have a negative impact on children's human development and future earning potential, as education attainment is a crucial determinant of wages (Fuchs-Schündeln *et al.*, 2020). The authors predict that primary school children will be more adversely affected, as they accrue the largest benefit from time at school, therefore will have experienced a greater loss of human capital. However, that this loss could be partly mitigated by parental time spent home-schooling (Fuchs-Schündeln *et al.*, 2020).

Previous research has shown that maternal time investment in educational and recreational activities can have positive and long-lasting benefits for children's cognitive and emotional development, particularly if mothers have a higher (degree) level of education (Carneiro and Rodrigues, 2009; Del Bono *et al.*, 2016). In relation to the Covid-19 pandemic, research has shown that children spent more time doing schoolwork if they had a parent with a higher

level of education (Bayrakdar and Guveli, 2020), or a higher level of occupation status (Pensiero *et al.*, 2020).

The current study is based on data collected to help understand the impacts of the Covid-19 pandemic, across five nationally representative British birth cohorts, spanning generations from the 1940's to the 2000's (<https://cls.ucl.ac.uk/>). Three online surveys have been completed and data presented in this report are from parents of school age children who completed Wave 2, conducted in September/October 2020 (Brown *et al.*, 2020). We previously published a report using Wave 1 data, collected during the first UK lockdown in April/May 2020, which found that mothers spent around 50% longer engaging in educational and recreational activities with their children compared to fathers (Villadsen *et al.*, 2020). In this study, parents were asked to recount experiences of home-schooling across the entirety of the summer term (April – July 2020), for each of their children individually, giving a broader view of home-schooling and potential learning loss.

METHODS

Participants

Participants were existing members of two nationally representative birth cohorts, who completed Wave 2 of the Covid-19 survey in September/October 2020 (Brown *et al.*, 2020). These two cohorts reflected populations with a substantial proportion of school-age children. Data were from 3,664 members of the Next Steps (NS) cohort (32% response rate), born in 1989–1990 (aged 30–31 years, 62% female), and 5,320 members of the British Cohort Study (BCS) cohort (44% response rate), born in 1970 (aged 50 years, 56% female). Participants were asked whether they currently lived with any of their children (including adult children, stepchildren and adopted children). Within the NS cohort, 33% of the sample reported living with children ($N = 1,232$). Within the BCS cohort, 62% reported living with children ($N = 3,316$).

School Children

Participants were asked to report information about each of their children individually. The sample included children enrolled in school in England or Wales, during the summer term of 2020 ($N = 3,230$). Those from Scotland ($N = 242$) and Northern Ireland ($N = 4$) were excluded, because their school systems and lockdown policies were different to England and Wales and there were too few children to conduct country specific analyses. **Table 1** presents the number of children enrolled in each year group ranging from Reception to Year 13. Key stage (KS) is used in the UK to distinguish key learning phases. KS1 and KS2 represent primary school, KS3 and KS4

TABLE 1. Number of children in each year group and their gender distribution

| Year group | NS cohort | | BCS cohort | | Total | |
|------------|-----------|-----------|------------|--------|----------|--------|
| | <i>N</i> | Female | <i>N</i> | Female | <i>N</i> | Female |
| Reception | 137 | 54% | 31 | 42% | 168 | 52% |
| Year 1 | 102 | 46% | 41 | 39% | 143 | 44% |
| Year 2 | 75 | 40% | 65 | 52% | 140 | 46% |
| Year 3 | 71 | 56% | 70 | 53% | 141 | 54% |
| Year 4 | 57 | 55% | 109 | 45% | 166 | 49% |
| Year 5 | 55 | 60% | 143 | 46% | 198 | 50% |
| Year 6 | 41 | 51% | 209 | 52% | 250 | 52% |
| Year 7 | 21 | 45% | 205 | 48% | 226 | 48% |
| Year 8 | 19 | 37% | 259 | 46% | 278 | 45% |
| Year 9 | 12 | 75% | 316 | 53% | 328 | 54% |
| Year 10 | <i>NA</i> | <i>NA</i> | 323 | 48% | 325 | 48% |
| Year 11 | <i>NA</i> | <i>NA</i> | 353 | 51% | 355 | 51% |
| Year 12 | <i>NA</i> | <i>NA</i> | 302 | 48% | 303 | 48% |
| Year 13 | - | - | 209 | 49% | 209 | 49% |
| Total | 595 | 51% | 2,635 | 49% | 3,230 | 49% |

Note: *NA* = Not available for low counts and to protect confidentiality.

represent secondary school and KS5 represents further education and sixth form college. Gender was equally distributed (49% female) across the total sample. The NS cohort had younger children on average ($N = 595$, M age = 8.02, $SD = 2.64$), compared to the BCS cohort who had older children on average ($N = 2,635$, M age = 13.78, $SD = 3.12$).

Measures

Participants completed a set of questions about each of their children.¹ Questions included; i) whether the child was enrolled in school, ii) the child's school year, iii) number of days the child attended school physically, iv) the type of school they attended (private school vs. state/grammar school), v) hours the child spent doing schoolwork at home during school closures, vi) hours of virtual lessons they received from teachers, vii) hours that they themselves spent helping the child with schoolwork, viii) hours their partner spent helping the child with schoolwork, ix) whether the child accessed any free or paid additional learning resources (e.g., online tutoring, educational apps), x) whether the child had access to a shared or personal computer, and xi) whether they felt that their child's academic progress had suffered during school closures.

The final question was a novel addition to the survey, and one which to the best of our knowledge has not been considered by other studies, which measured parent's perceptions of their child's academic progress. Parents reported that 1% of children improved a lot, 4% improved a little, 17% remained the

same, 52% suffered a little, and 26% suffered a lot. We created a binary variable for academic progress having suffered by combining those who suffered either a little or a lot, to create an outcome for the study.

Statistics

Analyses were conducted in Stata (version 16) at the child level, therefore we accounted for the interdependence of children from the same parent using multilevel random intercept modelling. We ran multilevel linear regression models using the *mixed* command and multilevel logistic regression models using the *xtmelogit* command.

Missing Data

The set of questions about home-schooling featured at the end of the survey and some items were incomplete. For example, of our two main outcomes, i) time parents spent helping children with schoolwork (1,681/3,230 completed), ii) perception of child's academic progress suffering (3,104/3,230 completed). Multiple imputation (MI) was employed to handle item non-response, invoking the missing at random (MAR) assumption, whereby missing data is assumed to be explained by observed values (Rubin, 1976). We followed a standard procedure for conducting MI, based on research using similar datasets (Mostafa et al., 2020; Silverwood et al., 2020). A separate imputation model was created for each of the regression analyses using variables from the substantive model and a range of auxiliary variables that were able to predict non-response and that were associated with the substantive outcome. Missing values were imputed 50 times using the method of chained equations. Analyses were then conducted using pooled estimates from each of the imputed datasets. In this manuscript we report results from the imputed models and refer to *Supplementary Analysis 1* for the complete case analyses.

RESULTS

School Attendance

Participants reported how many days their children attended school physically during the summer term. Results for school attendance by year group are presented in [Table 2](#). Only 3.2% of children attended for the whole term, reflecting either vulnerable children or those of keyworkers. These children did not experience home-schooling and were not included in the subsequent analyses. The majority of children (59.9%) showed no attendance across the summer term. Non-attendance was highest amongst Year 11 (85.8%) and Year 9 (83.7%) students. A proportion of children (25.0%) attended for 1–10 days,

TABLE 2. School attendance by year group during the summer term 2020.

| | Whole term | 11–30 days | 1–10 days | No attendance |
|--------------|------------|------------|-----------|---------------|
| Reception | 8.4% | 27.7% | 19.3% | 44.6% |
| Year 1 | 9.8% | 30.1% | 21.0% | 39.2% |
| Year 2 | 7.9% | 17.9% | 21.4% | 52.9% |
| Year 3 | 2.8% | 15.6% | 24.1% | 57.4% |
| Year 4 | 1.2% | 12.0% | 25.3% | 61.4% |
| Year 5 | 3.0% | 19.7% | 23.7% | 53.5% |
| Year 6 | 8.8% | 43.2% | 22.4% | 25.6% |
| Year 7 | 1.8% | 4.0% | 19.0% | 75.2% |
| Year 8 | 2.2% | 4.7% | 20.0% | 73.1% |
| Year 9 | 1.8% | 3.7% | 10.7% | 83.7% |
| Year 10 | 0.6% | 5.8% | 63.7% | 29.8% |
| Year 11 | 0.8% | 4.0% | 9.3% | 85.8% |
| Year 12 | 1.0% | 4.0% | 40.1% | 54.3% |
| Year 13 | 2.4% | 4.6% | 17.8% | 77.9% |
| Total | 3.2% | 12.0% | 25.0% | 59.9% |
| <i>N</i> | 102 | 388 | 802 | 1,927 |

Note: Reception, Year 1, Year 6, Year 10, and Year 12 were year groups permitted to return to school.

which were more likely to be those in year groups permitted by government to return at the end of June (Year 10 and 12). A minority of children (12.0%) attended for 11–30 days, which were more likely to be those in primary school year groups permitted to return at the beginning of June. For example, 43.2% of Year 6 students attended for 11–30 days, reflecting the highest attendance of all year groups.

Time in Virtual Lessons

The time children spent in virtual lessons per day varied considerably depending on whether they were enrolled in a private or state funded school (see Figure 1). On average, children in private secondary schools/colleges received 3.92 hours ($SD = 2.27$) of virtual lessons per day, in comparison to 1.13 hours ($SD = 1.53$) per day for state school children. Children in private primary schools received 2.76 hours ($SD = 2.04$) of virtual lessons per day, in comparison to 0.52 hours ($SD = 1.09$) for state school children.

Time Completing Schoolwork at Home

Participants were asked how much time their children spent doing schoolwork at home on average per day. As shown in Figure 2, older children tended to spend longer doing schoolwork than younger children. Children in primary school (Reception – Year 6) spent on average 2.93 hours ($SD = 1.67$) per day,

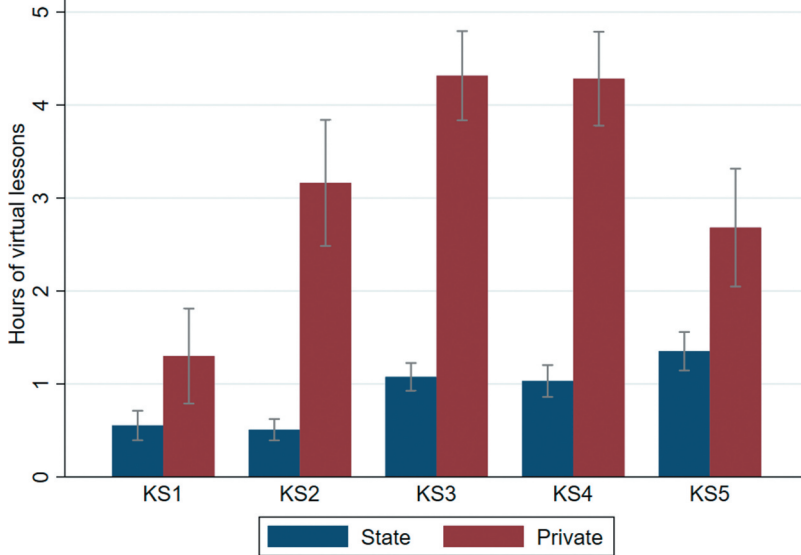


Figure 1. Time children spent in virtual lessons per day by key stage (KS) and school type

while children in secondary school/college (Years 7–13) spent on average 3.18 hours ($SD = 2.32$) per day. However, Year 11 (M hours = 1.68, $SD = 2.19$) and Year 13 (M hours = 1.71, $SD = 2.24$) spent significantly less time doing schoolwork each day, which influenced the mean total across year groups.

Parental Time Home-schooling

Parents spent less time home-schooling as children got older. As shown in Figure 3, time spent home-schooling decreased with each key stage. Parent gender differences were observed, with mothers spending longer home-schooling compared to fathers. This gender effect seemed to be particularly marked in the primary school years when children generally require more support from parents. We explored this further by running two regression models to examine factors predicting parents' time spent home-schooling, for primary and secondary school children respectively.

Primary School

Table 3 displays results of a multilevel linear regression model for how much time parents spent home-schooling primary school children. Cohort was included as a binary variable to control for parent's age, but it was not statistically significant.

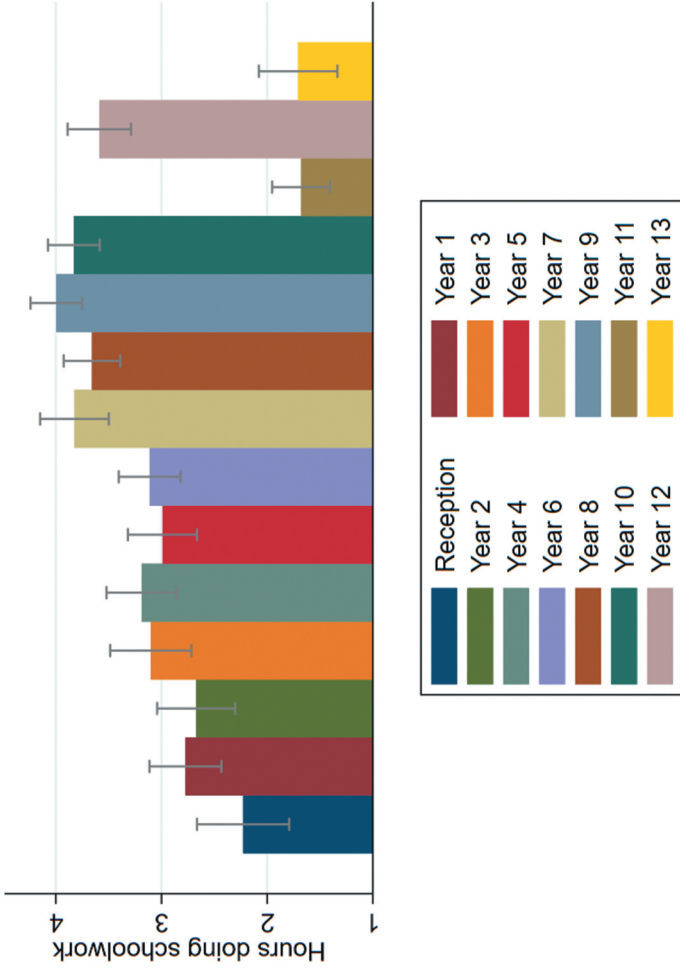


Figure 2. Time children spent doing schoolwork at home each day across year groups

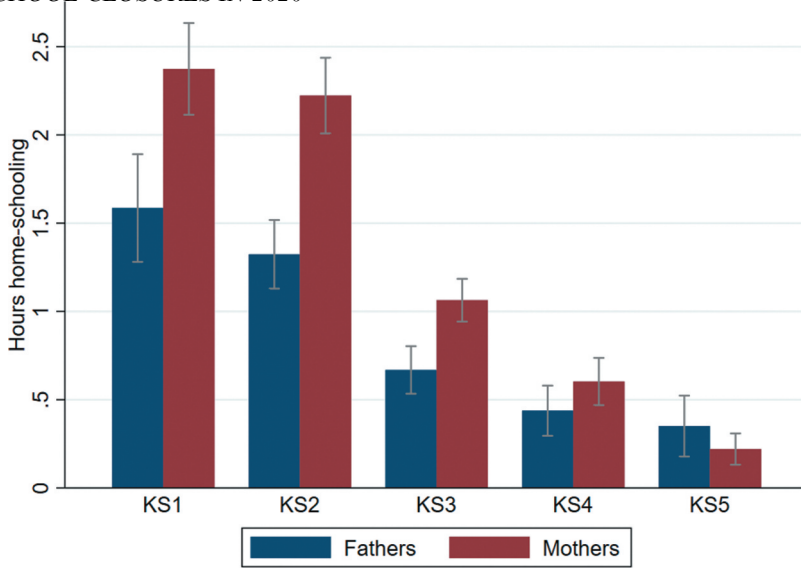


Figure 3. Time parents spent home-schooling children by key stage (KS) and parent gender

TABLE 3. Multilevel regression for daily hours parents spent home-schooling (primary school children)

| | <i>B</i> | <i>S.E.</i> | 95% CI |
|---------------------------------|----------|-------------|------------|
| Constant | 1.81** | .26 | 1.29, 2.32 |
| Cohort (ref: BCS) | .19 | .17 | -.15, .53 |
| Mothers (ref: Fathers) | .58** | .15 | .29, .88 |
| Higher education (ref: Lower) | -.09 | .15 | -.39, .22 |
| Single parent (ref: Cohabiting) | .22 | .18 | -.14, .58 |
| Working hours | -.01** | .00 | -.02, -.01 |
| KS2 (ref: KS1/Reception) | -.03 | .16 | -.35, .29 |
| Private school (ref: State) | .08 | .24 | -.39, .56 |
| Female child (ref: Male) | .08 | .13 | -.18, .34 |

Note: Observations = 1,133, Groups = 884, ** $p < .001$

On average, once other factors were taken into account, parents of primary school children spent almost 2 hours per day home-schooling. Parental working hours were significant, as increasing working hours predicted less time home-schooling ($B = -.01$, 95% CI = $-.02, -.01$). Parent gender was also significant ($B = .58$, 95% CI = $.29, .88$), as mothers spent approximately 30 minutes longer home-schooling each day, compared to fathers. We found no significant effect of parent’s level of

education, single parenthood, key stage, school type, or child gender on parental time spent home-schooling.

Secondary School

Table 4 displays results of a multilevel linear regression model for how much time parents spent home-schooling secondary school/college children. The NS cohort were excluded for low counts. On average, parents spent approximately 1-hour per day home-schooling. Children's stage of the education cycle was the only significant factor, as parents spent longer home-schooling younger children in KS3, in comparison to those in KS4 ($B = -.38$, 95% CI = $-.52, -.24$) and KS5 ($B = -.64$, 95% CI = $-.78, -.50$). In this model, we found no significant effect of parent gender, parent's level of education, single parenthood, parent working hours, school type, or child gender.

Parental Perception of Academic Progress

A multilevel logistic regression analysis was conducted to explore factors predicting a higher chance of children's academic progress suffering (Table 5). Cohort was included in the model, but it was not statistically significant. Mothers were less likely to report that their child's progress had suffered compared to fathers (OR = $.64$, 95% CI = $.43, .94$). Parents of children enrolled in private schools were less likely to report that their academic progress had suffered compared to those enrolled in state schools (OR = $.51$, 95% CI = $.30, .85$). School year group was also an important factor, as parents tended to report that older children's academic progress suffered more than younger children (Reception class was used as a comparative year group). However, the exception was for Year 11 and Year 13, whose academic progress was not reported to suffer any more than children in Reception. Year 10 showed the worst odds out

TABLE 4. Multilevel regression for daily hours parents spent home-schooling (secondary school children)

| | <i>B</i> | <i>S.E.</i> | 95% CI |
|----------------------------------|----------|-------------|------------|
| Constant | 1.03** | .10 | .83, 1.23 |
| Mothers (ref: Fathers) | .11 | .07 | -.22, .04 |
| Higher education (ref: Lower) | -.09 | .06 | -.22, .04 |
| Single parent (ref: Co-habiting) | .10 | .10 | -.10, .31 |
| Working hours | -.00 | .00 | -.01, .00 |
| KS4 (ref: KS3) | -.38** | .07 | -.52, -.24 |
| KS5 (ref: KS3) | -.64** | .07 | -.78, -.50 |
| Private school (ref: State) | -.15 | .07 | -.29, .00 |
| Female child (ref: Male) | -.03 | .06 | -.15, .08 |

Note: Observations = 1,939, Groups = 1,413; ** $p < .001$

TABLE 5. Multilevel logistic regression for whether parents perceived their child's academic progress to have suffered

| | OR | S.E. | 95% CI |
|--------------------------------------|--------|------|-------------|
| Constant | 7.91** | 3.68 | 3.18, 19.68 |
| Cohort (ref: BCS) | .92 | .29 | .49, 1.72 |
| Mothers (ref: Fathers) | .64* | .13 | .43, .94 |
| Higher education (ref: Lower) | .87 | .17 | .59, 1.29 |
| Year 1 | 1.73 | .82 | .68, 4.39 |
| Years 2–5 | 2.79* | 1.08 | 1.30, 5.97 |
| Year 6 | 3.51* | 1.66 | 1.38, 8.90 |
| Years 7–9 | 4.79** | 2.02 | 2.09, 10.97 |
| Year 10 | 6.68** | 3.18 | 2.63, 16.99 |
| Year 11 | 1.94 | .88 | .80, 4.71 |
| Year 12 | 3.68* | 1.74 | 1.46, 9.28 |
| Year 13 | 1.11 | .55 | .42, 2.92 |
| Private school (ref: State) | .51* | .13 | .30, .85 |
| Female child (ref: Male) | .89 | .14 | .66, 1.19 |
| Computer access (ref: no access) | .77 | .17 | .49, 1.20 |
| Extra learning resources (ref: none) | .89 | .19 | .58, 1.36 |

Note: Observations = 3,230, Groups = 2,122; * $p < .05$, ** $p < .001$.

of all year groups (OR = 6.68, 95% CI = 2.63, 16.99), followed by children in Years 7–9 (OR = 4.79, 95% CI = 2.09, 10.97), and Year 12 (OR = 3.68, 95% CI = 1.46, 9.28).² Factors that were non-significant in the model included parent's level of education, child's gender, child's access to a computer and access to extra learning resources.

DISCUSSION

In this study, we investigated children's levels of learning loss and experiences of home-schooling during the summer term of 2020, from the perspective of parents who largely supported their children's learning during this period of Covid-19 school closures. Our findings are discussed considering the existing literature and suggestions for policy and future research are made.

We found that school attendance was extremely low during the summer term of 2020. Two-thirds of children spent no time physically at school and were expected to study entirely at home. Non-attendance was highest amongst Year 9 (84%) and Year 11 (86%). Some year groups were permitted to return to school from June onwards if schools could adhere to social distancing regulations. Primary schools were the first to trial this, by inviting Reception, Year 1, and Year 6 back to school from early June. Our data show that Year 6 pupils benefitted from the highest proportion of school attendance (43% spent 11–30 days at school), compared to other year groups. Secondary schools later

invited Year 10 and Year 12 pupils back to school, although our data show that, of those that did return, they only spent approximately 1–10 days at school, which equates to less than 15% of the summer term.

Children experienced significant learning losses during this period of school closures, as it was not possible for schools to provide the same level of education to students at home. Although, children enrolled in private schools were provided with a significantly greater amount of virtual lessons compared to children from state schools. Our parental report estimates suggest that private secondary school students received almost 4 hours of virtual lessons per day, compared to just 1 hour for state school students. Children enrolled in private primary schools received almost 3 hours of virtual lessons per day, compared to just 30 minutes for those from state schools. Parents were also more likely to report that their children's academic progress had suffered if they were enrolled in a state school. This raises concerns about increasing education inequalities, which are likely to have widened during the Covid-19 pandemic.

Children kept up with learning by studying at home either on their own or with help from their parents. However, learning time did not reach the same levels as they would if they had attended school. Our parental report estimates suggest that children in primary school spent just under 3 hours per day doing schoolwork, while children in secondary school spent just over 3 hours per day. These estimates were similar to those reported from the UKHLS study, although our estimates were slightly higher (Pensiero *et al.*, 2020).

A unique feature of our study was the potential to conduct analyses by year group, which showed that Year 11 and Year 13 students spent significantly less time doing schoolwork each day (1.5–2 hours). Using information from age and key stage, Eivers *et al.* (2020) inferred that Year 11 and Year 13 students received very little or no schoolwork from their teachers, which was attributed to the cancellation of summer exams. This raises concerns for these children's future, as they may struggle to keep up with academic work in higher education and may fall behind in the labour market. Research suggests that 16–24 year olds have already suffered greatly in terms of labour market outcomes due to Covid-19 (Major *et al.*, 2020). It is important for future research to monitor young people's economic outcomes, in relation to their education experiences during the Covid-19 pandemic, as students from specific year groups may fare out unequally.

Despite this, parents were less concerned about children's academic progress if they were in Year 11 or Year 13, compared to other year groups. Our survey data was collected in September 2020, which crucially, was shortly after students had received their final exam results, which had been awarded based on teacher-predicted grades, after the government's controversial grading algorithm had been dropped.³ This suggests that parents were, on the whole, satisfied with their children's achieved grades. However, this may be short-sighted, as the loss of learning and lack of experience conducting exams

could have implications for these student's future education and economic outcomes. Parents were more likely to be concerned for their children's academic progress if they were in a year group antecedent to an exam year, such as Year 10 students who would still have been expected to sit their GCSE exams the following year. We now know that exams scheduled for summer 2021 have once again been cancelled, which may impact parental assessments of children's academic progress, which is an area for future research.

To the best of our knowledge, this is the first study to assess parental perceptions of academic progress during the Covid-19 pandemic. Our findings suggest that parents were less concerned about primary school children's academic progress compared to secondary school, which is at odds with some of the academic literature based on actual assessments, which suggest that younger children suffered more from school closures (DfE, 2021; Fuchs-Schündeln *et al.*, 2020). Therefore, parents may not be in the best position to identify those that are falling behind, in which case it is important for schools to monitor children's academic progress, in order to identify and provide children with extra support.

Our results show that, as expected, primary school children received more help with schoolwork from their parents compared to secondary school children. Parents spent approximately 2 hours per day home-schooling children in primary school and approximately 1 hour per day home-schooling children in secondary school. Working parents spent less time home-schooling children. In line with previous research, we found that mothers spent more time home-schooling children compared to fathers, even when controlling for working hours, suggesting that mothers took on more childcare responsibilities during the Covid-19 pandemic. However, this gender effect was only significant for primary school children, who require additional support from their parents. Previous studies found that women with school-aged children have shown the greatest decline in mental health during the pandemic, which raises concern about whether the additional burden of home-schooling is a contributing factor (Tani *et al.*, 2020; Zamarro and Prados, 2021).

This study adds further evidence to highlight the fact that children have been unequally affected by Covid-19 school closures, which has important policy implications. A recent report from UNICEF has set out key policy recommendations, which include: i) identifying and reaching out to the most vulnerable children, ii) offering support to mitigate learning loss to all children upon their return to school, iii) leveraging existing initiatives to support schools, and iv) continuing to monitor and publish evidence for effectiveness of such initiatives to improve practice (Nugroho *et al.*, 2020). In light of our findings, this suggests that children in secondary school, especially those nearing final exams, could benefit greatly from additional support and catch-up programmes. Learning loss mitigation should be targeted and focused on those who missed out the most,

such as those in state schools. Schools could also consider implementing assessments to measure learning loss, in order to identify those most at risk and in greatest need of additional support.

In conclusion, we found that parents are concerned about their children's academic progress, due to Covid-19 school closures in 2020. Although some year groups could return to school from early to late-June, which could have mitigated learning loss, this did not seem to mitigate parent's concerns about their children's academic progress. Parents were most concerned for secondary school children, in particular Year 10, who were one of the year groups permitted to return, probably because they were due to sit GCSE exams the following year. Parents were less concerned for children in Year 11 and Year 13 who had recently received their final exam results. Parents were also slightly less concerned for younger primary school children, despite some academic literature suggesting that younger children lose more from school closures. We were also able to replicate previous research showing that mothers spent more time home-schooling, which could have implications for their mental health and wellbeing.

ACKNOWLEDGEMENTS

This work was supported by the Economic and Social Research Council (ESRC) under the Research Grant [ES/V012789/1] awarded to Professor Alissa Goodman. We would like to thank all cohort members for their on-going engagement and contributions.

DISCLOSURE STATEMENT

The authors declare no conflict of interest associated with this research.

FUNDING

This work was supported by the Economic and Social Research Council [ES/V012789/1].

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NOTES

- ¹ The full questionnaire is available through this website.
- ² Year groups 2–5 and 7–9 were collapsed, because they showed very similar results.
- ³ After the cancellation of national examinations, the government designed a standardisation algorithm to moderate teacher-predicted grades, however they were forced to abandon its use, after receiving criticism that the algorithm was biased and discriminated against economically disadvantaged students.

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