Education Endowment Foundation

The impact of the Covid-19 pandemic on children's socio-emotional wellbeing and attainment during the Reception Year

Research report

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This publication includes analysis of the National Pupil Database (NPD).[1] The Department for Education is responsible for the collation and management of the NPD and is the Data Controller of NPD data. Any inferences or conclusions derived from the NPD in this publication are the responsibility of the University of York, the National Institute of Economic and Social Research, and the Education Policy Institute and not the Department for Education.

This work was produced using statistical data from the Office of National Statistics (ONS). The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets which may not exactly reproduce ONS aggregates. ONS agrees that the figures and descriptions of results in the attached document may be published. This does not imply ONS acceptance of the validity of the methods used to obtain these figures, or of any analysis of the results.

[1] https://www.gov.uk/government/collections/national-pupil-database

Executive summary

About the study

This study aimed to understand the relationship between reception children's experiences of the coronavirus pandemic (COVID-19) and their academic achievement and socio-emotional development during their first year at school in September 2020 to July 2021. This was an exploratory study combining parent and school surveys with children's assessments. All children in the study were in reception (YR) and therefore four to five years old. This cohort of children were three to four years old during the first lockdown (March to June 2020) with the second and third lockdowns (November 2020 and January to March 2021) taking place during their reception year. The study involved a total of 94 schools, 1,105 families, and Early Years Foundation Stage Profile (EYFSP) data for a total of 3,253 children. Recruitment took place in two phases, participation in surveys took place at three timepoints, and schools could opt to take part in all aspects of the project or provide only EYFSP data. Therefore, not all parents and schools contributed data at all points.

Parent and school surveys were distributed in the autumn, spring, and summer terms 2020/2021. This included bespoke questions as well as items from the Home Learning Environment (HLE) index and Personal Wellbeing Scale. Data was coded in Excel and analysed using thematic analysis to draw out the main themes in the data. School and parent/carer surveys were used to contextualise and explain child assessment data collected at the end of YR.

To measure children's language, numeracy, and socio-emotional development, the appropriate subscales from tablet-based assessment Early Years Toolbox (EYT) were used. Teacher-reported attainment data in the form of the Early Years Foundation Stage Profile (EYFSP) was also collected in the summer term 2021. For the EYFSP data, comparisons were made between the scores of pupils in the study sample and the EYFSP scores of the 2018/2019 national cohort of reception pupils to explore any differences in outcomes.

Findings

Table 1: Summary of study findings

Research questions	Finding
What is the relationship between YR children's experiences of the COVID-19 pandemic and their socio-emotional wellbeing, language, and numeracy skills?	Both parents and schools perceived that children had been disadvantaged in their socio-emotional wellbeing, language, and numeracy skills when entering reception classes in 2020 due to their experiences during the COVID-19 pandemic. Although both parents and schools felt some 'educational recovery' had been achieved by the end of the academic year (2020/2021) the EYFS attainment levels in these core areas were below what could have been expected based on the previous (pre-pandemic) YR cohort (2018/2019).
What were children's experiences prior to starting formal schooling and during YR?	The majority of children in our sample did not attend Early Childhood Education and Care (ECEC) during the first lockdown (priority was given to children of key workers and vulnerable children) and over half of them did not return to ECEC when restrictions lifted in June 2020. Parents were concerned about their children starting YR, particularly (63%) in terms of Personal, Social and Emotional Development (PSED). However, once children had started YR, the majority of parents thought children had settled in well and at the end of the school year most parents (80%) were happy with how their child was coping. Two thirds of parents felt confident home-schooling their children during the third national lockdown (January to March 2021) and just over half of parents said they enjoyed home-schooling their children. Overall, parents were largely happy with the school's engagement and communication and appreciated the structure and routine provided by online lessons. Average scores from the HLE Index were between 26 and 28 at each of the three timepoints, suggesting little change in the quality of the HLE during the study.

How are children's experiences prior to starting formal schooling and during YR 2020/2021 associated with their socio-emotional wellbeing, language, and numeracy skills by the end of YR? **To what extent do socio-emotional wellbeing and attainment vary according to school and individual-level socio-demographic circumstances, with a particular emphasis on disadvantage?**	Indicators capturing children's experience of the pandemic were not as strongly associated with children's outcomes as the pupil characteristics that have been demonstrated to be important in the past. This might be due to the sample size of this study being smaller than anticipated. Pupil characteristics that are typically associated with pupil educational outcomes were associated with the EYT numeracy and language scores in this study: • Children born in the summer term, children with Special Educational Needs and Disabilities (SEND), children with siblings, and children with a lower quality home learning environment were predicted to have lower EYT vocabulary scores. • Children born in the summer, children with SEND, and children with a parent educated at a level below higher education were predicted to have lower EYT numeracy scores. Experiences during lockdown did not seem to predict numeracy scores over and above these child-level variables. • While it was our intention to explore characteristics associated with EYT socio-emotional scores this was not possible due to non-normal distributions and limited variance in outcomes. It should be noted that these findings should be interpreted with caution given the small sample size (456–549 pupils), the representativeness of the sample, and missing data.
How do EYFSP outcomes of the 2020/2021 YR cohort in this study compare with average outcomes of the 2018/2019 cohort with similar demographics and socioeconomic characteristics?	The proportion of children in our sample who achieved a 'good level of development' (GLD) was 13% smaller than the proportion in the national data from 2018/2019, (58.7% reaching a GLD compared with 72% in 2018/2019). In an average-sized Reception class this could equate to three fewer pupils reaching a GLD as a consequence of the pandemic. These findings suggest a greater proportion of children, around 41% compared with 28% in 2019, could particularly benefit from an adjusted and responsive curriculum to support their learning and development. A smaller proportion of children in our sample achieved at least the 'expected' level in all five learning areas where the study collected EYFSP data, with literacy (9.2%) and maths (8.6%) seeing the largest percentage differences with 2018/2019 outcomes. A smaller proportion of children eligible for free school meals (FSM) achieved at least 'expected' in all learning areas compared to children not eligible for FSM. However, the percentage difference in outcomes between these groups in our sample and the 2018/2019 cohort was minimal. Therefore, FSM eligibility does not seem to explain differences in outcomes. Children learning EAL, however, do seem differentially affected. The proportion of EAL children achieving a GLD in our sample was 16 percentage points smaller than the proportion who achieved GLD in the 2018/2019 cohort. It should be noted that these findings should be interpreted with caution given the relatively small sample size (3,253 pupils) and unknown level of moderation completed to support the reliability and validity of teacher's assessments.
What have been the experiences of schools in supporting the academic skills and socio-emotional wellbeing of YR children during 2020/2021, and what influence has this had on their practice?	When children started school, 76% of schools reported that this cohort needed adjusted support compared to pre-pandemic cohorts and 56% of schools still reported that this cohort needed adjusted support at the end of the school year. Before children started school, the main learning areas of concern were PSED (97.9%), communication and language (97.8%), literacy (96.7%) and maths (90.1%). At the end of the year, overall concerns had reduced but schools still had concerns about children's literacy (73.6%), PSED (73.6%) and communication and language (63.9%). After the third national lockdown (January to March 2021), the overwhelming majority of schools reported that children who were able to attend during the lockdown were more advanced in their learning and development than children who could not attend, particularly in PSED (80.1%), literacy

	(73.8%), and communication and language (72.6%). At the end of the year, 50% of schools reported a similar advantage in attainment in these learning areas for those children who had attended school during the lockdown compared to those who had been unable to attend. At all timepoints, schools raised concerns about the practicalities of running schools during the pandemic relating to issues such as staff and pupil absences, increased staff workload, safety of staff and pupils, and staff wellbeing.

Limitations

The results of this study should be interpreted with some limitations in mind, which mainly derived from the unprecedented circumstances in which this study took place and the need to limit the burden on schools and families who were already stretched for time and resources during this difficult year.

The main limitations are a consequence of the fact that this study's data collection plan had to change as result of the disruption to schools in the 2020 autumn term and third lockdown which resulted in the termination of the national collection of the EYFSP. This resulted in only a small proportion of schools completing the first round of EYT assessments in autumn 2020, which meant that we were unable to track children's progress over their reception year. In addition, we needed to shift our approach to obtain EYFSP data directly from participating schools, which reduced the sample size.

Our school and pupil sample were self-selected. Our sample of schools had a similar proportion of children with SEND but a lower proportion of children learning EAL in comparison to both the 2020/2021 and 2018/2019 population of schools. In addition, our sample of schools had a similar proportion of children eligible for FSM as the 2020/2021 population but this was higher than in 2018/2019. Even with the full set of EYFSP data for the 2020/2021 cohort, there may have been cohort differences that would explain differences in outcomes above and beyond the COVID-19 pandemic. This means that the findings comparing our EYFSP sample data with the 2018/2019 cohort need to be interpreted with caution. In addition there was no externally mandated moderation of staff's EYFSP assessments. The unknown level of moderation implemented by schools limits the reliability and validity of the data. However, collecting the EYFSP data directly from schools was valuable in contributing to the overall findings and the researchers are unaware of this approach being adopted elsewhere on this scale.

Unfortunately, we had a large amount of missing data at different timepoints. Our relatively small sample size at different timepoints meant we could not carry out all the statistical analyses we had planned, specifically the logistic regressions for EYFSP. In addition, given a general lack of assessments that could be administered remotely to Early Years pupils with English norms, we used the Early Years Toolbox. We were therefore unable to compare our EYT results to a pre-pandemic, normed sample of reception-aged children. However, we were able to explore individual differences in performance on this measure.

Implications for policy and practice

Evidence from surveys indicates that parents and schools perceive children who started reception in autumn 2020 had their learning and development disrupted by the COVID-19 pandemic. Surveys suggest that some recovery was perceived to have taken place during the school year with staff concerns for this cohort dropping by 20% (to 56%) and the majority of parents (80%) satisfied with their child's progress at the end of reception.

However, findings from the EYFSP data suggest a greater proportion of children would benefit from adjusted curriculums to support their learning and development compared to the previous cohort, as a consequence of the pandemic (41% compared with 28% in 2018/2019).

The EYFSP data indicates literacy and maths as the learning areas with the largest percentage difference between the cohorts (9.2% and 8.6% respectively), and survey data from schools also highlights that concerns for children's PSED and communication and language were still high at the end of YR.

Additionally, the EYFSP data here signals that children learning EAL may have had their literacy and maths learning disproportionally disrupted by the COVID-19 pandemic. Although gaps in outcomes between those eligible for FSM and

those who were not eligible were still present within the 2020/2021 cohort's GLD data, the gap in outcomes for this group does not seem to have particularly widened when compared with data from 2018/2019 and remains at difference of around 17% to 18%.

Together, the data from this study supports that schools may want to choose to responsively adjust their curriculum offer to pay more attention to developing children's literacy, mathematics, PSED and language skills. EEF recommends a tiered approach to school planning with the largest focus of efforts on developing high quality teaching over a sustained period to drive meaningful change. Some children may require additional targeted support that is tailored to their needs or wider strategies to be implement that enable schools to remove non-academic barriers to learning and development.

Introduction

Background evidence

The development that happens in the early years of a child's life forms the foundation for future learning. As such, a child's early experiences can shape outcomes into adulthood. Importantly, research has shown that attending early education settings can have a positive impact on children's educational progress and socio-emotional wellbeing. Findings from the Effective Preschool, Primary and Secondary Education project (EPPSE), for example, show that children who attended high quality early years settings had better educational and social outcomes at the end of Key Stage 1 (KS1) (Sylva et al., 2004), KS2 (Sylva et al., 2008), and secondary school (Sylva et al., 2014). In addition, attending preschool predicted higher GCSE scores (Sammons et al., 2014) and positively predicted future lifetime earnings (Sylva et al., 2014). The concept of high quality provision in early years is usually explained through reference to elements of process quality (for example, child-staff relationship, a child-centred curriculum, routines, and activities) and of structural quality (for example, child to staff ratios, workforce qualifications, and classroom sizes). The EPPSE study in particular utilised internationally recognised measures of both. The Study of Early Education and Development (SEED) also found that attendance at early years settings was linked to better cognitive and socio-emotional development at three years of age (Melhuish, Gardner and Morris, 2017; revised 2021) and at four (Melhuish and Gardner, 2018; revised 2021) and better academic outcomes at the end of KS1 (Melhuish and Gardner, 2021). More recently, Green, Pearce, Parkes, Robertson and Katikireddi (2021) found that attendance at early years settings was linked to higher school readiness in three-year-olds. However, not all research shows benefits from attendance at early years settings. In the SEED study, at age three, a small group of children (3.25% of the sample) who attended settings over 35 hours per week showed conduct and emotional self-regulation problems (Melhuish, Gardner and Roberts, 2017; revised 2021). Moreover, at age five, attendance at group settings was linked to poorer socio-emotional outcomes (Melhuish and Gardner, 2020). Nonetheless, most research suggests that attending early years settings before starting mainstream school is beneficial to a child's learning and development and their readiness for school.

Unfortunately, COVID-19 brought a great deal of disruption to the early years sector and to children's lives. During the first national lockdown which began in March 2020, all early years settings were only open to children of key workers and vulnerable children (DfE, 2022). Prior to the pandemic, 92% of three-year-olds and 95% of four-year-olds received funded hours of early education (DfE, 2019a). During lockdown, only 7% of children between the age of two and four attended early years settings. Once lockdown eased in June 2020 this figure rose to only 17% (Pascal et al., 2020). Government statistics show that figures rose again in July but still only 25% of the expected number of children were attending early years settings (DfE, 2020a). This meant that the 630,000 children due to start school in September 2020 were doing so after a period of significant social instability, with many of them not having the benefit of high-quality early years input which provides them with the foundation for making the transition to mainstream school.

In addition to attendance at early years settings, research shows that a child's home learning environment (HLE) in their early years is fundamental to their language development (for example, Roulstone et al., 2011), cognitive development (for example, Melhuish et al., 2001), socio-emotional development (for example, Kelly et al., 2011), school readiness (for example, Hughes et al., 2015), and educational outcomes in the early stages of education (for example, Sylva et al., 2008) right through to adolescence (for example, Sammons et al., 2014). What happened in children's homes in the run-up to starting school in September 2020 could be vital to ensuring a smooth transition. Unfortunately, the pandemic has had a significant impact on family life. Many parents were working from home whilst juggling home schooling and childcare; some with limited access to digital resources like laptops and tablets (Andrew et al., 2020). Many children had no access to private gardens and therefore had limited access to green space during the lockdown and many were living in cramped conditions. Many others were burdened with financial concerns and uncertainty. A report from the Joseph Rowntree Foundation found that poverty levels were rising in the U.K. before the pandemic. However, COVID-19 drove those who were already struggling deeper into poverty as well as causing significant financial concerns for families who had previously not experienced hardship. Its report shows that in August 2020 the number of families in receipt of Universal Credit had increased by 90% compared to the beginning of the year. For couples with children this rise was 108%. This was particularly true in areas with high rates of furlough. The authors also found that a large number of families with children in receipt of Universal Credit were going without essentials and were struggling to pay household bills and rent payments (Joseph Rowntree Foundation, 2021). Moreover, parents reported increased anxiety and behavioural issues in their children (Waite et al., 2021) as well as increased parental mental health concerns (Shum et al., 2021ab). A report from the Children's Commissioner reported higher levels of domestic violence, parental substance abuse, and parental mental health issues and a reduction in contact with social and health services meaning a large

number of children and families in need may not have been identified and received the support they needed (Children's Commissioner, 2020).

It is too early to fully understand the long-term impact this will have on children's emotional and educational progress, however, reports are emerging that raise concerns about the wellbeing of this cohort. For example, a recent study showed that children who had attended early years settings during lockdown had better executive function and vocabulary skills than children who did not (Davies et al, 2021). KS1 teachers reported that approximately 46% of children were not school ready when they started school in September (Nicholls, Neale, Joyner and Sheikh, 2020). As such, it is vital that we explore in detail how this cohort of children has been impacted by the pandemic and what schools have been doing to mitigate this. By increasing our understanding of the impact of the pandemic on this cohort we can provide insight for policy and practice that could be vital in limiting any long-lasting negative consequences. These insights can also help inform policy and practice for future cohorts of school starters.

This is an exploratory study carried out over a single school year from September 2020 to July 2021. Our initial aim was to recruit schools, parents, and children in September 2020 and to collect questionnaire data in the autumn and summer terms and child-level language, numeracy and socio-emotional data in all terms over the academic year. We would then have been able to explore the trajectory of children's development in these areas over the course of the year as well as individual differences in the children's performance. We also planned to access Early Years Foundation Stage Profile (EYFSP) data from the National Pupil Database (NPD) so we could compare pre- and post-COVID-19 EYFSP data at a national level. Unfortunately, the continued disruption caused by COVID-19 meant that only a small amount of child-level data was collected before the Christmas holidays. A third national lockdown was then introduced in January 2021 meaning schools again closed to most pupils and that teachers could not collect the remaining child-level data on their return to school. Given the pressure schools were facing in the first half of 2021 we decided to drop the spring term child-level data collection. As such, the bulk of the child-level data was only collected in the last few weeks of the summer term. In addition, the reporting of EYFSP to the Department for Education was not mandatory in the academic year 2020/2021, unlike previous years, meaning the data would not be available via the NPD. Therefore, we asked schools if they would be happy to share EYFSP data with us if they were still carrying out the assessment themselves, both for the children in our sample and their classroom peers. We wanted to capture the experiences of the third national lockdown, so we included an additional parent and school survey when schools reopened in March 2021. We recruited 58 schools to the study in the autumn term. However, this was lower than our target number (80 schools) and as such we continued recruitment of schools and families until the end of the spring term, offering two levels of participation: schools could choose to sign up to the study in full, completing the school survey, sharing the parent survey, and collecting child-level data as well as sharing the EYFSP data ('full participation schools'). Alternatively, schools could choose to complete the school survey and share the EYFSP data only ('light participation schools').

Within this report, the term 'lockdown' is used to denote times when education settings experienced partial closures, rather than other national closures. As such, lockdown one refers to the time from March to June 2020 and lockdown three refers to January to March 2021. Lockdown two (November to December 2020) is not considered in this report as schools continued with in-school provision for all pupils during this time.

Abbreviations:

DfE = Department for Education

EAL = English as an Additional Language

ECEC = Early Childhood Education and Care

EYFS = Early Years Foundation Stage

EYFSP = Early Years Foundation Stage Profile

EYT = Early Years Toolbox

FP = Full Participation

GLD = Good Level of Development

HL = home learning

HLE = home learning environment

KS = Key Stage

LP = Light Participation

NPD = National Pupil Database

Parents = Parents and Carers

PSED = Personal Social Emotional Development

PPTs = Percentage Points

SEND = Special Educational Need and Disability

YR = reception year

Research objectives

Our primary research question is:

RQ1 What is the relationship between YR children's experiences of the COVID-19 pandemic and their socio-emotional wellbeing, language, and numeracy skills?

Secondary research questions are:

RQ2 What were children's experiences prior to starting formal schooling and during YR?

RQ3 How are children's experiences prior to starting formal schooling and during YR 2020/2021 associated with their socio-emotional wellbeing, language, and numeracy skills by the end of YR?

RQ4 To what extent do socio-emotional wellbeing and attainment vary according to school- and individual-level socio-demographic circumstances, with a particular emphasis on disadvantage?

RQ5 How do EYFSP outcomes of the 2020/2021 YR cohort in this study compare with average outcomes of the 2018/2019 cohort with similar demographics and socioeconomic characteristics?

RQ6 What have been the experiences of schools in supporting the academic skills and socio-emotional wellbeing of YR children during 2020/2021, and what influence has this had on their practice?

The Study Plan and an interim report can be found here and here respectively. Alternatively see the EEF website: The Impact of the COVID-19 Pandemic on Children's Socio-Emotional Wellbeing and Attainment During the Reception Year

Ethics

Ethical approval

Ethical approval was granted by the Department of Education Ethics Committee at the University of York on 16 March 2021.

Schools completed a Memorandum of Understanding as an agreement to take part in the study (see Appendix A). Parents gave informed consent for the participation of themselves and their child (see Further Appendices).

Data protection

Two project-specific privacy notices were made available to schools and parents explaining the data protection methods in place. The first was for the project in general, and the second for the purposes of accessing data from the National Pupil Database. Our legal basis for processing the data was public task. All family data and any other personal data used for the project was treated with the strictest confidence and used and stored in accordance with all applicable data

protection laws including the General Data Protection Regulation (EU) 2016/679 (the GDPR) Article 6 and the Data Protection Act 2018 (the Data Protection Legislation). A data sharing agreement was put in place between the University of York, the National Institute of Economic and Social Research (NIESR), the Education Policy Institute (EPI), and each school, which includes the details of the types of personal data being shared, the purpose and duration of that sharing, and the responsibilities each party has in relation to that information. The University of York and EPI are deemed as data controllers (as defined by the Data Protection Legislation) with regard to the personal data used for this project. Accordingly, the University of York and EPI, in the form of a privacy notice/participation sheet, provided information to individuals about the use of their personal data. Individual participants were also provided with the option of withdrawal from the research and details of the process to do so.

The University's privacy notice/information sheet is compliant with the requirements of the GDPR including a clear statement of the University of York's legal basis for processing personal data, which for this study was under Article 6 (1)(e) of the GDPR: processing was necessary for the performance of a task carried out in the public interest. Any special category data was processed under Article 9 (2)(j): processing is necessary for archiving purposes in the public interest or scientific and historical research purposes or statistical purposes. This is in line with the University's charter, which states learning and knowledge will be advanced through teaching and research.

For the purpose of the research, data from the Early Years Toolbox and parent questionnaires was linked. Data from the Early Years Toolbox was also linked to EYFSP data where the latter was provided by the school. Confidentiality was maintained and no one outside the Research Team had access to the study database. The identifiable database will be stored by the research team for up to one year after completion of the study. After the study has been completed the anonymised database will be shared with the EEF's archive manager. The central database held by the Research Team will then be deleted. NPD data was analysed by team members who currently have ONS Safe Researcher Approval.

The University of York is committed to the principle of data protection by design and default and will collect the minimum amount of data necessary for the project. In addition, we anonymised or pseudonymised data wherever possible. All results are anonymised so that no individual schools, families, or children will be identifiable in the report or dissemination of any results. Results may also be used in presentations and for teaching purposes. Once the project is completed, the data will be archived and once internal quality checks have been successfully completed by the archive manager, the EEF will become the data controller for the datasets.

Project team

- Dr Louise Tracey, University of York: Project Lead. Dr Tracey was responsible for the day to day management and coordination of the project.
- Dr Claudine Bowyer-Crane: Co-Investigator. Dr Bowyer-Crane took the lead on primary data analysis.
- Dr Sara Bonetti, Education Policy Institute: Co-Investigator. Dr Bonetti took the lead on analysis of NPD data.
- Dr Katrina D'Apice: Research Fellow. Dr D'Apice was responsible for the day to day running of the project until February 2021.
- Dr Dea Nielsen: Research Fellow. Dr Nielsen was responsible for the day to day running of the project from February 2021.
- Sarah Compton: Project Co-ordinator. Sarah Compton supported the Research Fellow with school recruitment, school liaison, data collection, and data analysis.

All members of the team contributed to dissemination activities and reporting on the findings.

Methods

Study design

This was an exploratory study looking at the relationship between the COVID-19 pandemic and children's socio-emotional wellbeing and attainment on starting school, and the longer-term impact during YR. The study involved both primary data collection and analysis and secondary data analysis. The study design involved three data collection timepoints: T1 (autumn 2020), T2 (after the third national lockdown, March to April 2021), and T3 (summer 2021), with two rounds of recruitment. This allowed for data collected from school and parent/carer surveys (including demographic details and children's preschool, home, and school experiences) at T1, T2, and T3 to be used to understand and explain outcome data collected at T3 (the end of YR). As a result of the disruption to schools in the autumn term and the third national lockdown from January to March 2021, the original study design had to be adjusted. See the study plan on the EEF website for details of the original study design.

Table 2: Study design

Design		Exploratory study
Unit of analysis		Pupils, families, schools
Outcome	Variable	Language skills
	Measure (instrument, scale, source)	Expressive Vocabulary, 0–55, Early Years Toolbox (Howard and Melhuish, 2017)
Outcome	Variable(s)	Early Numeracy Skills
	Measure(s) (instrument, scale, source)	Early Numeracy, 0–85, Early Years Toolbox (Howard and Melhuish, 2017)
Outcome	Variable	Socio-emotional wellbeing
	Measure (instrument, scale, source)	Self-regulation and social development, 1–5, Early Years Toolbox (Howard and Melhuish, 2017)
Outcome	Variable	School adjustment to COVID-19 in YR classes
	Measure (instrument, scale, source)	Bespoke survey of headteachers, Early Years phase leaders, or YR teacher
Outcome	Variable	Children's experiences prior to starting school and over the course of the school year

	Measure (instrument, scale, source)	Bespoke survey of parents
Outcome	Variable	Quality of Home Learning Environment
	Measure (instrument, scale, source)	Home Learning Environment Index, 0–56, (Melhuish, 2010)
Outcome	Variable	Early Years Foundation Stage Profile Scores
	Measure (instrument, scale, source)	EYFSP area scores for communication and language, physical development, personal social emotional development, literacy, and numeracy. 1: emerging; 2: expected; 3: exceeding (including all underlying learning goal scores). Target group: submitted by schools (2020/2021 cohort) Comparator group: NPD (2018/2019 cohort)

Participants

Original

sample

Original recruitment focused on five regions identified by the EEF as areas where no current existing EEF trials were taking place in early years settings or primary schools. These areas were East Midlands, West Midlands, South East, South West, and East of England. We intended to recruit 10 to 15 schools per area but this was not possible so we expanded to other areas (North West and Yorkshire). The following exclusion criteria were applied to all potential participating schools:

- schools with fewer than 15 YR pupils;[2]
- schools currently involved in an EEF trial taking place in the early years and, possibly, if taking part in a trial in the later primary years (depending on burden); and
- schools that were early adopters of the new Early Years Foundation Stage.[3]

The project was advertised on social media, through the Research Schools Network, and through the researchers' own networks. We also identified schools that met our inclusion criteria using the Schools, Pupils and their Characteristics statistical release from the Department for Education (DfE, 2020b) and large multi-academy trusts. Where possible scoping emails were sent directly to an identified member of the central leadership team. In addition, early years teams and/or primary school advisors within local authorities were also identified where possible within our key areas and contacted via email.

[2] We excluded schools with fewer than 15 children in YR to avoid a situation where nearly all of the children in the class would be participating.
[3] We excluded schools that were early adopters of the new Early Years Foundation Stage so that we could compare EYFSP outcomes to national data from 2018/2019.

Interested schools were sent a comprehensive information package providing all relevant details about the study (see Appendix 1). Schools that agreed to participate were asked to complete a Memorandum of Understanding (MoU) and a school survey (see Appendix 2). Schools were considered recruited once the MoU was received and the survey completed. They were then sent a link to send to all parents of their YR cohort. The link took the parents to an information sheet, consent form, and parent survey (see Appendix 3).

It was originally intended that 10 to 12 parents/carers would be recruited per school, with a target sample size of 200 children per region (N = 1,000 children). As an exploratory study this was deemed appropriate within the constraints of the budget and team capacity. However, assuming an attrition rate of no more than 20%, we calculated this would enable us to have over 80% power to detect an effect size of 0.34 (see Sample Size section below). All children and parents/carers with children in YR of participating schools were eligible to participate and received a link to the parent survey. Responses from each school were monitored and the survey was closed after 20 parents had responded. While originally the plan was to select 10 to 12 children from the 20 responding families to take part in the rest of the study, under-recruitment meant that those schools with more than ten responses were invited to collect outcome data for all children with responses to the parent survey. For schools that did not feel they had capacity to do this, 10 to 12 children were randomly selected for inclusion in outcome data collection.

Supplementary sample

Disruption to schools led to under-recruitment in our original sample and the third national lockdown meant that we had to change the scope of the project. As such, we launched a second round of recruitment in February 2021 with the aim to recruit a further 40 to 45 schools; approximately 24 would be offered full participation and a further 20 ‘light participation’. This was to maximise the number of schools able to participate in the study, including those for which full participation would be overly burdensome and was a pragmatic decision based on evaluation funding and capacity. Full participation (FP) schools contributed data along the same timeline as the original sample with the exception of data collection in the autumn of 2020. Light participation (LP) schools only completed one school survey and provided anonymised Early Years Foundation Stage Profile data for the whole YR cohort. The LP schools were added to mitigate against the loss of EYFSP data from the NPD for this cohort as the government announced this assessment was not statutory in the year 2020/2021, without the increased cost of including these additional schools in the full study (see Incentives section below). Eligibility criteria remained the same for full and light participation with the exception that schools with YR cohorts too small for full participation could be recruited as a light participation school.

Incentives

Incentives were provided to participating schools depending on level of participation. Schools that were collecting the Early Years Toolbox data received an Apple iPad or a £350 payment if they did not require an iPad, including the Early Years Toolbox apps. These remain the property of the school in perpetuity. Schools that were only providing the Early Years Foundation Stage Profile data, received a £50 voucher for use in school. In addition, parents received a £10 Love to Shop voucher for each survey they completed (one voucher per timepoint).

Measures

Child outcome measures

We measured children’s language, numeracy and socio-emotional wellbeing using the Early Years Toolbox (EYT; Howard and Melhuish, 2017). This is a set of eight app-based tasks delivered by teachers or teaching assistants in schools. We asked schools to use three of these tasks: Early Numeracy, Expressive Vocabulary, and Child Self-Regulation and Behaviour. Both the numeracy and vocabulary apps are administered directly to the child and each task takes approximately 10 to 15 minutes. The tasks are designed to be engaging and game-like rather than assessment type tasks. The Child Self-Regulation and Behaviour Questionnaire is a questionnaire completed by the teacher or teaching assistant about the child and takes approximately five to ten minutes to complete. Due to the absence of U.K. norms, only the raw scores for these measures were used and reported.

Expressive Vocabulary

To complete the Expressive Vocabulary measure the child is presented with a series of pictures and is asked to name them. The teacher records whether the child made a correct response, provided an alternative word, or did not respond. The test stops when the child reached the critical number of errors for their age group (see Howard and Melhuish, 2017 for further details on the measure). Raw scores are calculated based on the number of correct responses, one point awarded for each correct answer with a maximum score of 55. Previously reported reliability of the vocabulary measure is Cronbach's α = 0.92 (Howard and Melhuish, 2017).

Early Numeracy

To complete the Early Numeracy measure the child is presented with a series of number tasks to complete ranging from counting and matching digits to fractions. The teacher records whether the child made a correct response, provided an alternative answer, or did not respond. The test stops when the child has reached the critical number of errors for their age group (Howard and Melhuish, 2017). Raw scores are calculated based on the number of correct responses, one point awarded for each correct answer with a maximum possible score of 85. Unfortunately, this was a new version of the numbers task and no reliability data was available.

Child Self-Regulation and Behaviour Questionnaire

To complete the Child Self-Regulation and Behaviour Questionnaire (CSBQ) the teacher or teaching assistant is presented with a series of statements about the target child's self-regulation and social behaviours and have to respond if the statement is 'not true', 'somewhat true', or 'certainly true' about that child. The app provides scores for a child's behavioural, cognitive, and emotional regulation, sociability, externalising, internalising, and prosocial behaviour with scores ranging from one to five. Previously reported reliability ranged from Cronbach's α = 0.74 to 0.89 (Howard and Melhuish, 2017).

Early Years Foundation Stage Profile

In our initial study plan we intended to access the Early Years Foundation Stage Profile (EYFSP) data from the NPD to carry out analysis at the national level as well as linking to our primary data. Unfortunately, the EYFSP was not mandatory in 2020/2021 due to the pandemic and as such no data was submitted to the NPD. However, during our communication with the schools in the study sample we were told that they were all still completing the EYFSP for internal use and would be willing to share the data with the research team. We were thus able to collect the EYFSP data directly from schools. We provided schools with a template to complete and return (see Appendix 4) with non-anonymised data for our target sample and anonymised data for the rest of the class where possible. Schools were asked to record a child's gender, free school meal status, English as an additional language status, and whether they had a special educational need. We collected data on the prime areas of learning—communication and language, physical development, and personal, social, and emotional development—and on specific areas of learning—literacy and maths—as well as on the underlying learning goals associated with each area, if possible (Table 3). Schools were asked to provide a number for each child indicating whether they were currently working at the emerging level (1), expected level (2), or exceeding level (3) on each learning goal and the subsequent learning area.

When the templates were returned, we found that schools had not completed them consistently. In addition, we know that in a typical year schools would not have calculated the total learning area score: this is done by the local authority. In light of this, in consultation with the EEF and in order to ensure consistency across the sample and with how scores are calculated in a typical year, each pupil's learning area score was recalculated based on the learning goal data that the school provided. In order to be considered working at the expected (2) level in a learning area, a child needed to have received a score of 'expected' (2) in all the underlying learning goals. Similarly, to be considered to be working at 'exceeding' (3) level, a child needed to have received a score of 'exceeding' (3) on all the underlying learning goals. However, for 3% of named EYFSP data and 9% to 10% (depending on learning area) of the anonymous EYFSP data, schools provided only the learning area score without the underlying learning goals. In these instances, the learning area score allocated by the school was used.

We carried out the same calculation to establish the learning area scores for all children in the NPD 2018/2019 cohort. However, the results from these analyses did not reflect the publicly available data so, in discussion with the EFF, the decision was made to use the publicly available data as the comparator as this was deemed the most useful.

Table 3: EYFSP learning areas and underpinning learning goals

	Learning Areas				
	Communication and Language	Physical Development	Personal Social and Emotional Development	Literacy	Maths
Learning Goals	Listening and Attention	Moving and Handling	Self-Confidence and Self-Awareness	Reading	Numbers
	Understanding	Health and Self-Care	Managing Feelings and Behaviour	Writing	Shapes, Space and Measures
	Speaking	-	Making Relationships	-	-

Additional measures

School surveys

School surveys aimed to gather information on the following topics:

- general information about the schools, such as school and YR class size, location, and type of school (LA versus MAT);
- the practices schools adopted throughout the year to conform to lockdowns or social distancing rules;
- areas of concern with regard to children's socio-emotional development and academic attainment;
- issues around staff shortages (for example due to the need to self-isolate) and wellbeing; and
- extra support provided to children and staff to cope with the consequences of the pandemic, and where the resources and funding to cover for such support came from.

The specific contents of the surveys varied depending on the timepoint to reflect the most relevant topics at that time. The T1 survey focused on collecting demographic data about the schools, what their normal or pre-pandemic processes looked like, and their experiences of lockdown one. The T2 survey focused on schools' experiences of lockdown three and home learning, and what learning they had taken from these experiences. The T3 survey focused on how practices had changed and ongoing learning from lockdown three. Concerns about pupil development as well as overarching concerns were considered at all time points to provide an understanding of how this changed over the academic year. The school surveys were created using the online survey platform Qualtrics and were distributed via email at all three points in time. They could be answered by headteachers, heads of phase, or YR teachers.

For the supplementary sample recruited at T2, the T2 survey included a short additional section to collect demographic information that we had already obtained for those participants recruited at T1. Otherwise the T2 survey and the T3 survey did not differ as a function of when participants were recruited.

Parent surveys

Parent surveys aimed to gather data relating to:

- the demographic characteristics and employment status of participants, including whether they were key workers;
- the use of out of home childcare before and during the pandemic to capture changes in patterns of attendance to pre-YR early education settings;
- parents/carers concerns with regard to their child(ren) starting YR and to specific areas of child development (as mapped to EYFSP areas); and
- experiences of the third lockdown, such as engagement level with the school, the type of activities provided by the school/teachers, and the type of support received.

As with the school survey, the specific contents of the parent survey varied by timepoint to reflect the most relevant topics at the time. The T1 survey focused on demographic details of the family, the child's attendance at ECEC prior to starting school, and their experiences of starting school. The T2 survey focused on families' experiences of lockdown

three and home learning. The T3 survey focused on families' experiences of the school year, their relationship with their school, and any ongoing concerns. The home learning environment, parental wellbeing, and concerns about children's development were all assessed at all time points. The parent survey was also created using Qualtrics and was distributed by schools to parents at all three points via email.

As with the school survey, for the supplementary parent sample recruited at T2, the T2 survey included a short additional section to collect demographic information that we had already obtained for those participants recruited at T1. Otherwise the T2 and T3 surveys were identical and administered at the same time for all participants.

Parent wellbeing

Throughout all three surveys, parents' own wellbeing was assessed using a four-item questionnaire (Benson et al., 2019). Parents were given the option to skip this question if they did not want to complete it. In line with Benson et al. (2019) we recorded item data as it is and only calculated a summary score when we had all four item scores. As per their suggestion (personal communication), we did not proceed to imputing data when missing. Likert scale options were presented as 'strongly agree', 'agree', 'neither agree nor disagree', 'disagree'. These are presented differently to the original paper ('disagree', 'neither agree nor disagree', 'agree', 'strongly agree') but were changed as a result of feedback from the pilot. The final item was presented as 'I felt anxious yesterday' but should have been 'I did not feel anxious yesterday' due to an error in the original paper. Before analysis we recoded the scale to reflect the original paper and assigned scores of 0 (disagree), 1 (neither agree disagree), 2 (agree), 3 (strongly agree) with the exception of the last item which was scored 3 (disagree), 2 (neither agree disagree), 1 (agree), 0 (strongly agree). A total score is calculated by summing the four items together with a range from 0 to 12. This is then converted to a 0 to 100 scale by multiplying the total score by 100 and dividing by 12. A higher score implies better personal wellbeing. Internal reliability reported by Benson et al. (2019) is Cronbachs $\alpha = 0.90$.

Home Learning Environment Index

Parents of participating children completed the Home Learning Environment Index (Melhuish, 2010) at T1, T2, and T3 (parents recruited after T1 completed this at T2 and T3 only). The HLE questionnaire was administered to the original sample at T1 to contextualise children's experiences prior to starting school. It was then administered at T2 and T3 with the data from T2 included as a predictor variable in the analyses. The version of the questionnaire used in this study included seven of the eight original items on this questionnaire. The item 'Does anyone at home ever take *child's name* to the library?' was removed from the questionnaire prior to data collection because this item was not relevant during national lockdowns when libraries were closed. Responses on the seven items were summed to generate a score between 0 and 49, where higher scores indicate a more enriched home learning environment. As we aimed to use only the total Index score, incomplete answers—cases where the respondent had answered only a subset of the seven items—were treated as missing variables. The reliability for the original measure was Cronbach's $\alpha = 0.68$ (Melhuish, 2010).

It is important to note that for all surveys none of the questions were forced choice. School respondents and parents could skip questions they did not want to complete. This was done to reduce the burden on respondents but does mean that we have variable response rates for some questions.

Sample size

Because of the exploratory nature of this study and the short lead time into recruitment and data collection, the sample size was not determined to make sure the analysis achieved a certain power but rather depended on what the team deemed feasible given the timescale and the budget of the project. In addition, to minimise the burden on schools during such a difficult time, we decided to randomly select only 10 to 12 pupils per classroom to be assessed.

However, given the utility of a sample size calculation for estimating the strength of evidence and the confidence with which results can be interpreted, we conducted a sample size calculation based on our target sample, as described below. Our original target sample size for recruitment for primary data collection was 1,000 children/families across 80 schools and five regions, with an assumed 80% retention rate over the year of the study for a final sample of 800 children. For the 2018/2019 NPD data, we requested and received the full sample for England, which amounted to approximately 640,000 children. A key aim of the analysis was to establish if, and what, differences emerged depending on children's characteristics with a particular focus on FSM children. In 2019, the gap in the average EYFSP point score

between FSM pupils and non-FSM pupils was 3.6 points (DfE, 2019b). Under the assumptions of a sample size of 800 children, an average of 10 to 12 children per school, an attrition rate of no more than 20% at follow-up, an intracluster correlation (ICC) of 0.16, and between 50% to 60% of the population non-FSM, we estimated that our analysis would have over 80% power to detect a similar difference in average score (assuming a standard deviation of 10.5; equivalent to an effect size of 0.34) between the FSM and non-FSM groups. As mentioned above, this is an exploratory study and as such expectations and possibilities in terms of effect sizes are quite different from usual studies carried out by the Education Endowment Foundation in the form of randomised controlled trials. Power calculations were carried out using Stata v15.

Although we exceeded our target sample size overall, not all participants contributed to all outcome measures. As such, final sample sizes vary by outcome and this should be taken into account when interpreting the results.

Statistical analysis

Analysis of the data collected through the project was largely exploratory given the nature of the study. The novelty of the current situation and the lack of evidence on the impact of the COVID-19 pandemic on children, particularly in this age range, made it difficult to develop theoretically sound hypotheses to test with these analyses. In the first instance, we pre-specified the key variables we planned to include in the analysis on the basis of what the wider literature on the topic considered as key determinants of pupils' wellbeing and educational achievement. This literature informed our data collection, particularly the school and parent survey; the full list of variables can be found in the statistical analysis plan available here. Once the data collection was completed, the research team also deemed it important to take a data-led approach, using an in-depth understanding of the data from the information gathered through the surveys to consider how best to approach the data analytically. Therefore, descriptive statistics were run for all the possible explanatory variables to assess sample size, distribution and skewedness of the variables, the extent of missing variable cases, and whether there was a need to transform variables before using them for inferential analysis (for example, whether categorical variables needed to be recoded as dummy variables).

The data on child and family background helped us contextualise data on children's outcomes in terms of the home learning environment, family demographics, and experiences during lockdown(s). Likewise, the data on school characteristics, and on practices adopted during lockdown and throughout the year, helped us contextualise children's outcomes in terms of activities and support provided during lockdown and any changes to practice as a result of the pandemic. Child data from the Early Years Toolbox was used to assess children's educational attainment at the end of the school year (YR; four to five years of age). The scores cannot be directly compared to the Early Years Toolbox norms as the latter are based on an Australian population. However, we were able to gain insight into whether outcomes aligned with what are generally considered age-appropriate outcomes from a similar context. In addition, regression analyses exploring the impact of individual and school-level predictors on children's outcomes at T3 were conducted.

We ran a similar analysis using EYFSP data as a measure of children's outcomes. EYFSP data allowed us to understand how many and what proportions of the YR pupils in our sample achieved at an 'emerging', 'expected', or 'exceeding' level, and whether these proportions were different from the pre-pandemic (2018/2019) YR class.

Our overarching research question was:

> RQ1. What is the relationship between YR children's experiences of the COVID-19 pandemic and their socio-emotional wellbeing, language and numeracy skills?

The analysis detailed below was carried out in line with RQ2 to RQ6. In the initial stage of our analysis, we explored the key variables identified in the study plan and described in Table 4.

Table 4: Description of key variables

Predictors	Source	Type of variable
Child level		
Age	Parent survey/EYFSP spreadsheet/EYT data	Continuous
FSM	EYFSP spreadsheet	Binary
EAL	EYFSP spreadsheet	Binary
SEND	EYFSP spreadsheet	Binary
Gender	EYFSP spreadsheet	Binary

Family level		
Parent/carer education level	Parent survey	Categorical
Key worker status	Parent survey	Binary
Siblings	Parent survey	Binary and categorical
Parental wellbeing	Parent survey*	Ordinal
Home learning environment	Parent survey*	Continuous
School level		
School size	School survey	Ordinal
School type	School survey	Categorical
Geography (region)	School survey	Categorical
% FSM / PP	School survey	Continuous
% EAL	School survey	Continuous
% SEND	School survey	Continuous
Lockdown experiences		
Homeschooling vs school attendance	Parent survey	Binary
Parental support for home learning	Parent survey	Categorical
Home learning conditions	Parent survey	Categorical
Parent availability	Parent survey	Categorical

Note. Parental wellbeing and home learning environment scores were collected at all time points. In the predictive models, only the T2 data was included.

RQ2 afforded us the possibility of understanding the final dataset available for the analyses and assessing which variables had good response rates.

Crosstabulation and frequency tables were used to explore the extent of missing data in our dataset. Given the changes made to the study design described above, there was a large amount of missing data for many predictor and outcome variables at different timepoints. However, imputation was not appropriate. For example, it is not appropriate to impute demographic and employment data (for example, number of siblings or parental education). For the established measures that were included, imputation was either deemed unsuitable by the measure authors (parental wellbeing), or considered inappropriate due to changes to the original measure for this study (home learning environment, see details in Measures section). Therefore, data was coded as missing and SPSS was allowed to exclude the data listwise in our analyses. In addition, decisions were made about which variables to exclude or transform based on correlational analyses and theoretical considerations of the relationships between variables. Based on this, we made the following changes.

- Key worker status was eliminated from the statistical analysis because it was strongly related to parental employment, which was included in the models instead.
- Geography (region) was excluded from the statistical analysis because of too few schools in some regions (Table 10).
- Home schooling versus school attendance was recoded as a categorical variable that captured whether the child was home-schooled, attended school for some of the time, or attended school all the time during the third lockdown.
- Parental support for home learning was excluded from the statistical analysis because it was strongly related to parental employment during lockdown, which was included in the models instead.
- Home learning conditions were coded as categorical variables to capture whether families had experienced problems in the areas of technology, environment, or caring responsibilities during lockdown three.
- Parent availability was recoded as a categorical variable that captured whether the respondent (parent/carer) was not in employment, employed and working from home, or employed outside the home (see below for more information).

In addition, the variable 'age' was transformed into a categorical variable that captured whether the child was born in the autumn, spring, or summer term, which is common practice in educational research given the evidence on summer-born pupils being at risk of underperforming compared to autumn- and spring-born pupils.

Analysis of survey data

School survey data was analysed using Excel. Quantitative data consists mainly of descriptive data in terms of number or percentages of schools responding to different items. This data is used to provide a description of our sample and to explore the themes mentioned below, with surveys at each point in time taking a specific focus on certain topics depending on the pandemic-related circumstances at the time it was distributed.

Schools survey at T1

Data from the schools survey at T1 was used to understand:

- what key areas of concern schools had in terms of children's outcomes at the beginning of the academic year;
- typical practices for transition to YR and how these differed as a result of the pandemic;
- whether school staff thought this YR cohort needed extra support;
- how they planned to provide such support and their priorities in terms of the curriculum; and
- what concerns school leaders had for their staff.

Schools survey at T2

Data from the T2 survey was used to understand:

- the impact of, and adjustments to, the third lockdown, such as the number of children attending school versus receiving home learning;
- the type of support and activities offered to children and their families, both in school and at home;
- how schools perceived children's and parents' engagement with such home learning activities;
- differences in children's attainment based on school attendance during lockdown;
- challenges faced during the lockdown; and
- changes made to learning activities over time.

Schools survey at T3

Data from the schools survey at T3 was used to shed light on:

- how schools operated during the last term of the academic year;
- what the key areas of concern for children moving on to Y1 were; and
- what type of transition activities schools organised—or were planning to organise—both for YR pupils moving into Y1 and for the incoming YR cohort.

The T3 survey also looked at schools' plans for 'catch-up' and use of the Pupil Premium.

Some questions were asked at more than one point in time, either in two out of three surveys or in all three surveys. This allowed us to examine them longitudinally. These questions related to:

- whether schools had concerns about children's development in the different areas of the EYFSP;
- whether they were prioritising time in school differently as compared to pre-pandemic;
- how they planned to support children who they felt required additional support; and
- what types of support they had in place for teachers and school staff.

Full details of all surveys are available in the further appendices.

Qualitative data (free text answers) was also coded in Excel. A qualitative analysis was conducted of the answers to all open-ended questions to explore concepts such as:

- how schools would usually transition children into YR and how that differed during this school year;
- what schools felt were their main concerns and plans for support for pupils and staff;
- what learning they took from the first and third lockdowns;
- whether any new practices would remain in place going forward; and
- what worked or did not work in their communications with parents.

The qualitative analysis of open-ended questions gave a more subjective and nuanced perspective of the overall context based on the experiences of staff—a perspective that helped to contextualise the quantitative data.

As with the school surveys, parent survey data was analysed using Excel. Quantitative data consisted mainly of descriptive data in terms of number or percentages of parents responding to different items. This data was used to provide a description of our sample and to explore a variety of themes, with each survey taking a specific focus on certain topics depending on the pandemic-related circumstances at the time it is distributed.

Parents survey at T1

Data from the parents survey at T1 was used to:

- obtain average demographic characteristics of our sample of parents, along with their employment status and status as key workers;
- understand parents' experience of the first national lockdown—in particular, child attendance at early education settings before YR, for example, type of setting, dosage, pattern of attendance prior to lockdown, attendance during lockdown, forms of support settings offered during lockdown, and any change in patterns of attendance post-lockdown;
- identify parents' concerns with respect to their child(ren)'s development before the start of YR and during the first term; and
- ascertain whether their concerns were related to the pandemic or went beyond that.

Parent survey at T2

In addition to collecting data on the HLE, the survey at T2 captured data on parents/carers' and children's experiences of the third lockdown, for example:

- whether children attended school or received home learning;
- parental availability to provide home learning, the types and frequency of learning activities, and support received from the school/teacher;
- how easy parents felt it was to access these resources;
- feedback and communication with schools during lockdown;
- parental and child engagement with learning; and
- parental perspectives of the strengths and weaknesses of the their school's approach during lockdown.

Parent survey at T3

Data from the parent survey at T3 was used to capture parents/carers' experiences during the last term of the school year focusing on:

- concerns for their child's development;
- how they had communicated with schools;

- how they felt their child had coped in the final term;
- any concerns they had about the next academic year; and
- any absences during the term.

We also asked parents to ask children three questions to find out how they felt about being at school.

As in the case of the school survey, some questions were asked at more than one point in time; this allowed us to understand if some important elements in the home changed during the year (see Study Plan). These questions are all related to the home learning environment and parent wellbeing (see below).

Qualitative data from the free text questions was coded using an inductive content analysis following principles outlined by Bengtsson (2016) and was completed in Excel. For each survey question with qualitative data, all responses were first read and preliminary codes were generated (decontextualisation stage). This involved numerous rounds of reading through responses and identifying similarities and recurring content. Codes were then generated inductively from the data and a final code list was identified. This code list was then reapplied to all the data (recontextualisation stage) to ensure that the final and complete understanding of the code was applied to all data units (that is, responses). Once all data units had been assigned code values (responses could receive multiple codes if the content dictated it), these were then reduced into overarching themes and categories where appropriate to ensure homogeneity within categories and heterogeneity between categories (categorisation stage). Finally, a frequency count was carried out and the frequency of the code was divided by the number of respondents to give a percentage of respondents who identified each code in their responses.

Two members of the research team carried out all coding. During the decontextualisation phase, if the leading researcher had any questions about the data units or codes, these were discussed to support the lead researcher's understanding of the data. For each survey question, once the data had reached the categorisation stage by the lead researcher, the second researcher read through the generated categories and independently applied these to 10% of the data units (responses for that question). Any discrepancies were discussed and the lead researcher then returned to the recontextualisation stage using the newest understanding of the codes and ensured that the full dataset reflected the mutually agreed codes.

The only change to this method was for questions that were included at multiple timepoints. For these questions, the codes were generated inductively for the first timepoint and then applied deductively for all the subsequent timepoints to ensure comparability across time.

Understanding EYT outcomes

In addition to living through the first national lockdown in the year before starting YR, the children and families in our study experienced quite a different first year in school settings compared to previous cohorts. Many schools had to adjust their usual ways of welcoming new pupils into the school community and of providing settling in time in the autumn term 2020. In addition, teachers' absences were higher due to COVID-19 infection, there were disruptions to classroom activities, and further school closures (to all children but those of vulnerable families and key workers) between January and March 2021.

For the children who were part of the full participation sample, we first considered the moderators of children's language and numeracy skills and of children's socio-emotional development. Our dependent variables were the scores for the EYT assessments on vocabulary, numeracy, and socio-emotional skills development.

The predictor variables were drawn from our final dataset linking EYT data with survey data. Continuous variables, such as the Home Learning Environment Index score, were entered in the format they were collected. Categorical variables were transformed into dummy variables to be used in the inferential analysis for EYT data with the exception of parent education level, which was kept as categorial with four different categories. In addition, we reduced the range on the Personal Wellbeing Scale by collapsing 'strongly agree' and 'agree' responses and 'neither agree nor disagree' and 'disagree' responses. This reduced the range on this scale from a range of 0 to 12 to a range of 0 to 9. This was done to consolidate categories in order to aid interpretation in the statistical models, and this approach has previously been used by the authors of the measure (personal correspondence).

Given the clustered nature of our dataset, which contained variables at child level (level 1) and at school level (level 2), we used two-level multilevel models to investigate the impact of these variables on EYT scores. The steps involved in our analysis follow a general 'build-up' strategy for model testing in multilevel and multivariate modelling (Heck et al., 2014 and Tabachnick and Fidell, 2013). For each outcome variable we ran three models: (a) a random-intercept model, (b) a model in which we added level 1 predictors to establish their statistical significance, and (c) a model including level two predictors. The details of this approach were not specified in the Study Analysis Plan and are included here for clarity.

Model 1: random intercept model

The random intercept model allows the intercepts to randomly vary between schools. Because no predictors are included in the model at level one, the intercepts are equal to the school means for the level one outcome variable (that is, vocabulary scores, numeracy scores, CSBQ scores). The total number of parameters estimated in the model is three: (a) the fixed effect of the intercept, (b) the variance of the residuals, and (c) the variance of the intercepts. We used estimates of covariance parameters to calculate the Intraclass Correlation Coefficient (ICC). The ICC is the expected correlation between any two randomly chosen individuals in the same group (school) and is computed as the proportion of variation in the level one outcome explained by the grouping structure. ICC values greater than 0.05 are considered an indicator of a non-trivial amount of non-independence and justify the use of a multilevel model to investigate the moderators of the outcome variable.

Model 2: random intercept model and addition of level one predictors

In the second model we tested the statistical significance of the following level one variables:

- child's term of birth (autumn, spring, summer);
- gender of the child;
- FSM status;
- EAL status;
- SEND status;
- parent/carer education level;
- whether the child has siblings or is an only child;
- parental wellbeing; and
- the quality of the home learning environment.

We also included a series of variables created from data collected through the surveys with the aim of capturing the experiences of the pandemic and the different lockdowns/school closures. These variables are:

- school attendance—whether the child had been home from school during lockdown two, attended school some of the time, or attended all the time;
- challenges incurred during lockdown two—grouped from the original eight options into three categories: (1) challenges related to technology (a lack of available IT, a lack of a printer, poor internet connectivity), (2) challenges related to home environment (a lack of appropriate space, too much noise), and (3) challenges related to caring responsibilities (multiple children needing home learning support/and or home care at the same time, work commitments and conflicts, and other caring responsibilities); and
- parent employment status (respondent only)—grouped from the original eight options into three categories: (1) not working (full time parent/carer, furloughed, unemployed, made unemployed as a result of the pandemic, shielding for medical reasons), (2) working from home, and (3) working outside the home (full time employed outside the home, part time employed outside the home).

Model 3: Random intercept, level one predictors and level two predictors

In the third model, we added level two predictors, which are represented by the following variables:

- school type—whether an academy, a local authority school, or another type of school;
- proportion of pupils with FSM status in the school;
- proportion of pupils with EAL status in the school; and
- proportion of pupils with SEND.

Calculating effect sizes

While reporting effect sizes is considered key to highlight the significance of quantitative research findings, there are no clear guidelines on how best to do so in the case of multilevel models. One of the reasons is that in the case of multilevel models there are several effect size measures that can be used, such as the ICC mentioned above, standardised regression coefficient, the f^2 for fixed effects, the Cohen's *d,* or the Hedge's G. The usefulness and appropriateness of these measures depend on the data available in a specific study. At the beginning of this project, the research team had planned to collect child assessment data at two points in time (at the beginning and the end of YR). This would have allowed us to have a longitudinal view of progress along the school year.

Changes to the research design meant that we could not compare two groups anymore and had to consider alternative measures that were appropriate given our final dataset. Most of our explanatory variables were categorical variables. The topic of how best to calculate and report effect sizes in the case of multilevel modelling has been widely addressed in the literature (Lorah, 2018; Hox, Moerbeek, and van de Schoot, 2018; Snijders and Bosker, 2011). The key issue at play is that, in the case of multilevel models, the intercept and slope coefficients depend on the scale of the independent variable and so comparing among multiple variables within a study is not possible. Lorah (2018) discusses the merits of different approaches and measures, for example the fact that the Cohen's d measure would not be an appropriate effect size measure in our case because it represents the relationship between two variables without controlling for level two variables and other covariates, which instead were important in our models. Therefore, we reached the conclusion that in the case of this study dataset, the most appropriate suggestion is to use standardised coefficients because that facilitates the interpretation when one wants to compare the effects of different variables within one sample. There are two ways to obtain standardised coefficients: by standardising all variables before putting them into the multilevel analysis or by standardising each regression coefficient using the following formula:

$$\text{standardised coefficient} = \frac{\text{unstandardised coefficient} * \text{standard deviation of explanatory variable}}{\text{standard deviation of outcome variable}}$$

Through this formula, the effect size can be interpreted in the same way as in the case of standardising variables before running the model, that is, as the proportion of the standard deviation of the dependent variable. Hox (2010) discusses the merits of each approach and in particular the fact that standardising all variables before running the analysis would in general also change the estimates of the variance components. Given that most of our variables were dummy coded, we tested both approaches and obtained very similar effect sizes, with differences simply due to rounding errors. In the end we took the decision of opting for the second approach, that is, we standardised each regression coefficient individually.

A note on sample sizes

Multilevel modelling procedures require a minimum sample size to achieve accurate estimates of the regression coefficients and their standard errors as well as of the variance components and their standard errors (Raudenbush and Bryk, 2001). Typically, the minimum sample size refers to the highest level in the data hierarchy (for analysing students nested in schools, the number of available schools is the primary sample size consideration). We estimated model parameters using maximum likelihood (ML) estimation. According to Heck et al. (2014), using ML estimation with a small number of clusters can underestimate the variance components, in which case a restricted maximum likelihood estimation (REML) is advisable. Guidelines for sample-size requirements and their implications for model complexity, the regression coefficients, variance components, and their standard errors are given in various studies and texts. For example, models with fewer than 20–25 groups may not provide accurate estimates of the regression coefficients and their standard errors, or of the variance components and their standard errors. Citing a study by Bell et al. (2014), Pituch and Stevens (2016) stated that tests of fixed and random effects 'were generally accurate' when the number of clusters was as low as ten. Given that we have more than 90 schools (clusters) in our sample, ML estimation should not pose any problems. We tested our models using both ML and REML estimation and found no significant differences and below we provide the results from the ML estimation only.

Nevertheless, the number of individuals within groups may also have an effect on the model estimates (Hox and Maas, 2002) and can affect the complexity of the models that can be formulated. Given the variable number of pupils within each school for whom we have data available, we should interpret the results provided below with caution.

Predicting EYFSP outcomes

In consultation with schools, and to reduce the burden of data collection on schools during an already difficult year, the research team decided to collect EYFSP data in terms of whether a child was reaching emerging, exceeding, or expected levels in the various areas of learning. This meant we had ordinal outcome variables rather than continuous variables and therefore opted to use ordinal logistic regression to analyse the impact of our independent variables on children's outcomes. We also calculated whether children had achieved a good level of development (GLD) by identifying children who had achieved at least 'expected' in all five areas of learning. This was coded as a binary variable, for example, a child either achieved GLD or did not achieve GLD and therefore would be analysed using binary logistic regression. These regression models would be run on the target sample only for which we had additional school-level, child-level, and lockdown-specific data. Data from the larger sample of peers would be looked at descriptively and compared to previous national cohorts where possible.

The predictor variables were drawn from the survey data and the EYFSP template. Continuous variables and binary variables were entered in the format they were collected. We collapsed the raw data for variables with more than two categories to reduce the number of categories when entering these variables into our models with the exception of parent education level. Specifically, we created binary variables to indicate whether families had experienced problems in the areas of technology, environment, or caring responsibilities during lockdown by aggregating the associated raw data presented in Table 4. We created the variable relating to parent's employment status during lockdown by aggregating the associated raw data in Table 4. The Personal Wellbeing Scale was entered as in the multilevel models previously described.

In all cases, we ran tests of collinearity and then crosstabulations to assess associations between predictor and outcome variables. Associations between categorical variables and the outcome variables were assessed by Cramer's V. Variables with Cramer's V less than 0.1 were dropped from further analysis. For association between continuous variables and the outcome variable, Eta was used. Variables with Eta less than 0.1 were dropped from further analysis. We then ran crosstabulations to assess the level of missing data in the cells for the remaining variables. The variables we included in this initial examination were as follows.

Dependent variables:

- communication and language development;
- physical development;
- personal social and emotional development;
- literacy;
- maths; and
- good level of development.

Independent variables:

Child level:

- term of birth (autumn, spring or summer);
- gender;
- FSM status;
- EAL status;
- SEND status;
- parent/carer education level; and
- whether the child has siblings or is an only child.

Lockdown experiences:

- parents employment status during lockdown (working outside the home, working at home, not working);
- parents wellbeing score;
- Home Learning Environment Index;
- technological challenges during lockdown (yes or no);
- environmental challenges during lockdown (yes or no); and
- caring challenges during lockdown (yes or no).

School level:

- school type—academy, local authority school, or another type of school;
- proportion of FSM pupils;
- proportion of EAL pupils;
- proportion of pupils with SEND.

This initial analysis identified problems of multicollinearity with the parent education variable; we therefore dropped this variable from further analysis. We then ran crosstabulations to look at associations between the predictor and outcome variables using Cramer's V and Eta. Having identified the variables that would be entered in each model on the basis of this initial analysis, we ran a second set of crosstabulations to assess the level of missing data in each cell. For each outcome variable—communication and language, physical development, PSED, literacy, and maths—analysis of crosstabulation data revealed that a large number of cells had very small frequencies in the 'emerging' and 'exceeding' categories of the outcome variable. The majority of cases fell in the 'expected' category. This reflects the data presented in the histograms (see Results Chapter 2). Looking closely at the cell counts in the crosstabulation data it was clear that the cell counts in the emerging and exceeding categories for all variables were small. In addition, we looked closely at the variables that would be entered into the models for each outcome variable—communication and language, physical development, PSED, literacy, maths, and GLD—based on the measures of association (Eta and Cramer's V). In all cases, between 9 and 12 predictor variables were identified as being associated with the outcome variable and at least five of those variables had over 20% of cells with counts less than five, which is outside acceptable parameters (Field, 2018). In addition, any inferences made from such models would be unreliable as predicting the membership of a category based on very small numbers is likely to overestimate the odds ratios, particularly with a large number of predictor variables as is the case in our dataset (Nemes, Jonasson and Genell, 2009). It was therefore not feasible to run the logistic regression models as planned.

Analysis of children's outcomes was carried out using SPSS v25 and v28.

Comparing EYFSP outcomes to the national level data

For our full participation schools, in addition to sharing non-anonymised EYFSP data on our target sample, we also asked schools to share anonymised EYFSP data for the other children in YR. In our 'light participation' schools, we asked for anonymised EYFSP data for the entire YR cohort. Using this data, we compared the percentage of children achieving emerging, expected, and exceeding across the five learning areas: communication and language, physical development, personal, social and emotional development, literacy, and maths. We also disaggregated the data by gender, EAL, FSM, and term of birth. The data in Table 10 shows how representative our sample of schools was compared to the national population in 2020/2021 using publicly available data. Ideally, we would have carried out propensity score matching or weighting to ensure the data from the 2018/2019 sample was comparable. Unfortunately, we were unable to use the NPD data, relying instead on publicly available data meaning that this was not possible (see above).

Subgroup analyses

In the Study Analysis Plan we had stated that the feasibility of obtaining meaningful results with further disaggregation (for example, SEND and EAL) would be assessed once the sample was finalised. After conducting an overview analysis of the final dataset, we concluded that disaggregation based on SEND or EAL status would not lead to robust results. Therefore, we only carried out subgroup analysis by FSM status.

Timeline

Table 5 shows the timeline for this study.

Table 5: Timeline

Dates	Activity
October–December 2020	Recruitment of original sample.
December 2020–January 2021	Collection of timepoint one school and parent surveys, and Early Years Toolbox data.
March 2021	Recruitment of supplementary sample.
March–April 2021	Collection of timepoint two school and parent surveys.
March 2021	Produce interim briefing.
June–July 2021	Collection of timepoint three school and parent surveys, Early Years Toolbox data, and Early Years Foundation Stage Profile.
September 2021	Submission of NPD data request.
December 2021	NPD data request approved and project available on the ONS Secure Research Service (SRS).
August–December 2021 • amended to August 2021–February 2022	Data analysis.
January–March 2022 • amended to February 2022–May 2022	Produce publicly available report.

Research findings

Participant flow and attrition

Figures 1 and 2 show participant flow and attrition for schools and parents/children. Parents were recruited from within participating schools.

Figure 1: Participant (school) flow and attrition

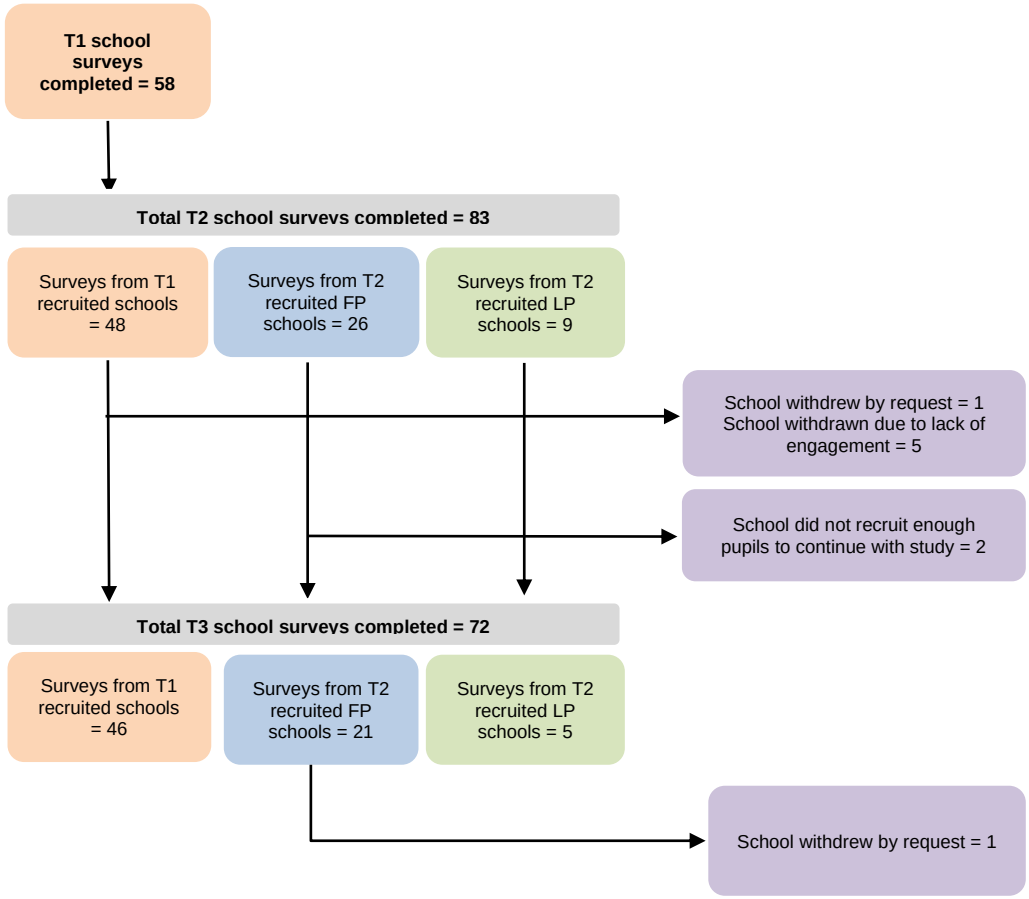
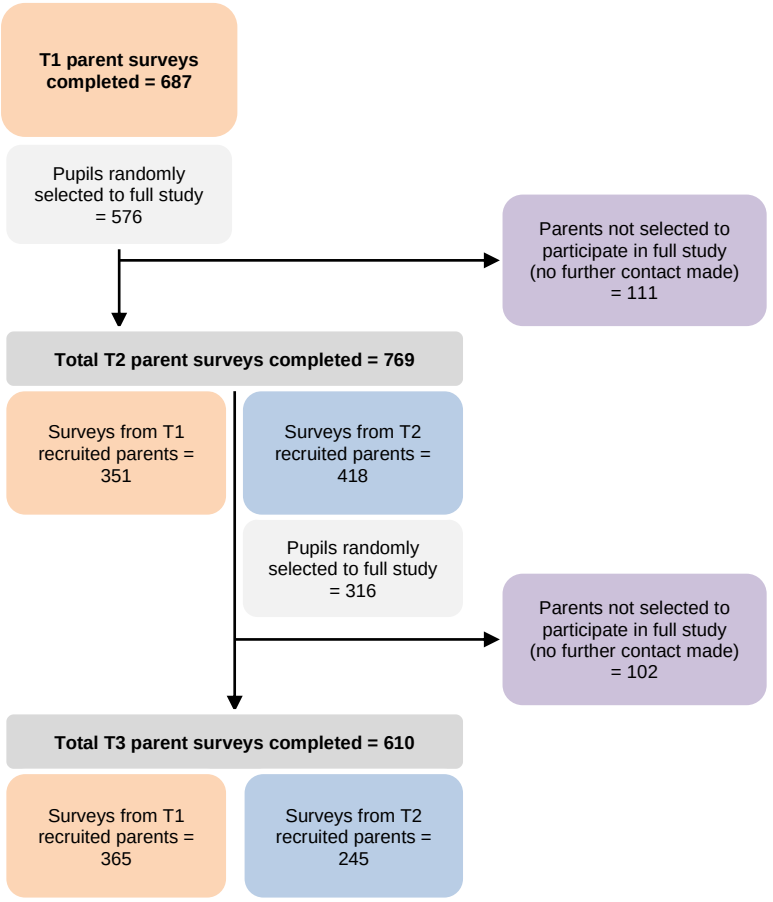


Figure 2: Participant (parent/child) flow and attrition



Note. This diagram only shows active attrition (i.e. schools/parents who withdrew or were withdrawn from the study). Both school and parent participants could contribute to the T3 surveys despite not contributing at T2 (if they had not actively withdrawn) and as such the numbers of participants withdrawn will not necessarily explain the discrepancy between total Ns at each timepoint. See Table 8 for figures outlining the number of schools/parents contributing to each combination of surveys.

Table 6: Completion rates for the parent survey at all timepoints by when the sample was recruited

	T1 survey (N=687)		T2 survey (N=769)		T3 survey (N=610)	
	N	%	N	%	N	%
Sample recruited at T1	687	100	351	45.6	365	59.8
Sample recruited at T2	-	-	418	54.4	245	40.2

Table 7: Completion rates for the school survey at all timepoints by when the sample was recruited

	T1 survey (N=58)		T2 survey (N=83)		T3 survey (N=72)	
	N	%	N	%	N	%
Sample recruited at T1	58	100	48	57.8	46	63.9
Sample recruited at T2 (FP)	-	-	26	31.3	21	29.2
Sample recruited at T2 (LP)	-	-	9	10.8	5	6.9

Table 8: Overview of response rates for the parent and school survey by which timepoints participants completed

	Parents (N=1105)		Schools (N=94)	
	N	%	N	%
Completed T1 only	237	21.5	6	6.4
Completed T2 only	173	15.7	11	11.7
Completed T1 and T2 survey	84	7.6	6	6.4
Completed T2 and T3 survey	244	22.1	25	26.6
Completed T1 and T3 survey	98	8.9	4	4.3
Completed T1, T2, and T3 survey	268	24.3	42	44.7

Table 9: Number of children and schools with outcome data (EYFSP and EYT measures) at T3 used in the analyses

	Children	Schools
	N	N
EYFSP, identifiable data	799	70
EYFSP, anonymous data	2,454	67
EYT Vocabulary	493	46
EYT Numbers 2	456	47
EYT CSBQ	549	51

School and pupil characteristics

The characteristics of the total sample of schools recruited that contributed data to the school survey at any timepoint (T1, T2, T3) are shown in Table 10 with a total of 94 different settings. In terms of school type, urban/rural setting, number of YR classes, proportion of student population in the school categorised as FSM, EAL, and SEND, the percentages of schools within each subcategory were similar across T1 and T2. However, at T2 the sample consisted of larger proportions of schools from the North West and Yorkshire and the Humber as compared to the sample at T1. Nevertheless, the samples were considered demographically similar enough to justify collapsing them for use in all analyses; for this reason only the characteristics on the total sample will be discussed.

We have compared our sample of schools to the current national average and to the national average in 2018/2019 from which our EYFSP comparison data is drawn. The difference between these cohorts is minimal with the exception of FSM percentage, which has risen from 15.8% to 21.6%. The average percentage of FSM pupils in the total sample of schools was 22.1, which is very similar to the current national average in state funded primary schools (DfE, 2019c; DfE, 2021a) although this is much higher than the 2018/2019 national average. The percentage of EAL pupils was 13.6%, which is lower than the current national average and 2018/2019 national average in primary schools (DfE, 2019b; DfE, 2021a); 12.8% of the sample were classed as SEND, which is very similar to the national average state funded primary schools in the current year and in 2018/2019 (DfE, 2019d; DfE, 2021b).

The overall sample included 48.9% (46) academy schools broken down into 20.2% (19) academy converter schools and 28.7% (27) sponsor led academies. This represents a slightly lower proportion of academy converter schools and a higher proportion of sponsor led academies than the national average both in 2020/2021 and 2018/2019. The remaining schools were predominantly community schools (39.4%, 37 schools) and this proportion was slightly higher than the national average both in 2020/2021 and 2018/2019. The final 11.7% (11) of schools were classified as other types of school, which is lower than the national average, suggesting a more homogenous sample in this study. Schools were located in all nine regions of England, with 20.2% (19) from the South East and London, 20.2% (19) in the North West and North East, 17.0% (16) in Yorkshire and the Humber, 14.9% (14) in the East of England, 8.5% (8) in the East Midlands, and 6.4% (6) in the South West. Urban schools made up 81.7% (76) of the sample while the remaining 18.3% (17) were in rural settings. This distribution represents under recruitment from the North East, North West, London, South East, South West, and slight over recruitment from the other areas. This sample included more urban schools (81.7%) than the national average (71.0) and fewer rural schools. In terms of number of YR classes, 47.3% (44) of schools had two, 37.6% (35) had one, and 15.1% (14) had three or more classes.

Table 10: Characteristics of schools' survey respondents compared to the 2018/2019 and 2020/2021 national sample of primary schools

	2018/2019 national sample[a] (primary schools)		2020/2021 national sample[a] (primary schools)		2020/2021 study sample (primary schools)	
	N (children)	%	N (children)	%	N (children)	%
% FSM	745,453	15.8	1,008,164	21.6	7,850	22.1
% EAL	1,002,292	21.2	975,238	20.9	5,861	13.6
% SEND	587,635	13.0	586,926	12.6	4,208	12.8
	N (schools)		N (schools)	%	N (schools)	%
Type						
Academy converter	3,739	22.3	4,357	25.9	19	20.2
Academy sponsor led	1,441	8.6	1,598	9.5	27	28.7
Community school	6,274	37.4	5,827	34.7	37	39.4
Other	5,315	32.1	5,009	29.8	11	11.7
Total	16,769	100	16,791	100	94	100
Region						
East Midlands	1,636	9.8	1,644	9.8	8	8.5
East of England	1,993	11.9	1,992	11.9	14	14.9
North East and West	3,305	19.7	3,309	19.7	19	20.2
South East and London	4,413	26.3	4,412	26.3	19	20.2
South West	1,875	11.2	1,886	11.2	6	6.4
West Midlands	1,771	10.6	1,771	10.5	12	12.8
Yorkshire and the Humber	1,776	10.6	1,777	10.6	16	17.0
Total	16,769	100	16,791	100	94	100
Urban/Rural						
Rural	4,865	29.0	4,867	29.0	17	18.3

Urban	11,902	71.0	11,924	71.0	76	81.7
Unknown	2	0.0	0	0.0	0	0.0
Total	16,769	100	16,791	100	93	100

[a] Data obtained from the DfE statistical releases 'Schools, Pupils and Their Characteristics' and 'Special Educational Needs in England' from the appropriate academic year (DfE 2019c, 2019d, 2021a, 2021b).

In Table 11 we present the characteristics of the pupil sample for the main outcome measures. For all outcome measures, our sample over represents the proportion of FSM and SEND pupils and underrepresents the proportion of EAL pupils; this is discussed in our interpretation of the results.

Table 11: Characteristics of the sample of children who contributed to GLD, EYT Vocabulary, and EYT Numeracy analyses compared to the national average for the 2018/2019 YR cohort

		2018/2019 YR cohort		GLD (N=3253)		EYT Vocabulary (N=493)		EYT Numeracy (N=456)	
Variable	Level	N	%	N (missing)	%	N (missing)	%	N (missing)	%
FSM		89,691	14.4	568 (310)	19.3	65 (45)	14.5	73 (39)	17.5
EAL		123,688	19.8	497 (601)	18.7	43 (109)	11.2	44 (97)	12.3
SEND		60,886	9.6	313 (408)	11.0	51 (50)	11.5	51 (53)	12.7
Variable	Level	N	%	N	%	N	%	N	%
Academy status	Academy	214,616	34.1	1,184	36.4	141	28.6	139	30.5
	Non-academy	415,634	65.9	2,069	63.6	352	71.4	317	69.5
Region	North West and North East	115,075	18.1	508	15.6	93	18.9	70	15.4
	Yorkshire and the Humber	63,514	10.0	609	18.7	120	24.3	96	21.1
	East Midlands	54,391	8.5	282	8.7	62	12.6	62	13.6
	West Midlands	71,122	11.2	443	13.6	33	6.7	26	5.7
	South East and London	202,805	31.8	543	16.7	75	15.2	75	16.4
	South West	58,719	9.2	207	6.4	45	9.1	33	7.2
	East of England	71,442	11.2	661	20.3	65	13.2	94	20.6

Note: missing data refers to the number of children for whom the demographic data is unavailable.

Results

The results are presented in four chapters corresponding to the project's research questions. The chapters are:

Chapter 1: What were children's experiences prior to starting formal schooling and during YR (RQ2)?

Chapter 2: How are children's experiences prior to starting formal schooling and during YR 2020/2021 associated with their socio-emotional wellbeing, language, and numeracy skills by the end of YR (RQ3) and to what extent do socio-emotional wellbeing and attainment vary according to school- and individual-level socio-demographic circumstances, with a particular emphasis on disadvantage (RQ4)?

Chapter 3: How do EYFSP outcomes of the 2020/2021 YR cohort in this study compare with average outcomes of the 2018/2019 cohort with similar demographics and socioeconomic characteristics (RQ5)?

Chapter 4: What have been the experiences of schools in supporting the academic skills and socio-emotional wellbeing of YR children during 2020/2021, and what influence has this had on their practice (RQ6)?

Chapter 1: Children's preschool experiences

What were children's experiences prior to starting formal schooling and during YR?

Summary

- Before the pandemic, 95% of the children in our sample attended ECEC. Only 17% of these were able to attend during the first national lockdown (March to June 2020) and less than half went back to ECEC after the lockdown.
- Over half of parents (56%) were concerned about their children starting school from September 2020 but once children actually started the majority (93%) felt that their children had settled in well and by the end of YR most parents had no concerns about their children coping in school.
- For those parents who had concerns, these were largely about their children's socio-emotional wellbeing, although by the end of the year attainment was becoming a concern.
- During the third lockdown, 26% of children attended school all of the time, 20% attended school some of the time, and 54% were exclusively home-schooled.
- During lockdown three, approximately two thirds of parents/carers were confident in delivering home learning although only just over half reported enjoying the task.
- Parents reported a decline in engagement with home learning for themselves and particularly their children over the course of the third lockdown.
- Schools were praised by parents for their online learning offer, communication and engagement, and for the content and consistent structure they provided in their home learning activities.
- In terms of EYFSP curriculum areas, PSED and literacy skills were primary concerns for parents when their children started school but these concerns decreased by the end of the school year.

Characteristics of the parent respondent sample

The demographic characteristics of the sample of parents recruited at T1, those recruited at T2, and the total sample of parents who contributed data to the parent survey at any timepoint (T1, T2, T3) are shown in Table 12, with a total of 1,105 different respondents. The characteristics of the samples recruited at T1 and T2 are very similar overall and as such combining the samples was defensible. Therefore, only the total sample will be discussed going forward. The vast majority of respondents were mothers (92.4%) and the majority of target children (the subjects of the questionnaire) had at least one sibling (81.7%). It was also the case that most respondents lived in homes with at least one other adult (81.7%) and in most instances this other adult was the target child's father (86.7%). Levels of education of the respondents ranged from no education (3%), GCSE level (18.2%), further education (32.8%), higher education (31.4%), to postgraduate education (14.6%). Respondents also represented a variety of occupations, with the largest proportion (29.7%) working in professional roles. The majority of parents reported English as their first language (90.2%) and an even greater proportion considered that their child's first language was English (95.8%).

Table 12: Demographic characteristics of the parent survey respondents recruited at T1, T2, and in total

	T1		T2		Total sample	
	N	%	N	%	N	%
Respondent relationship to child						
Mother	632	92	387	93.3	1019	92.5
Father	52	7.6	26	6.3	78	7.1
Guardian/Carer	3	0.4	2	0.5	5	0.5
Total (Missing)	687	100	415 (3)	100	1,102 (3)	100
Siblings						
Yes	560	81.5	341	82.2	901	81.8
No	127	18.5	74	17.8	201	18.2
Total	687	100	415 (3)	100	1,102 (3)	100
Additional adults in the home						
Yes	576	83.8	319	76.9	895	81.2
No	111	16.2	96	23.1	207	18.8
Total	687	100	415 (3)	100	1102 (3)	100
Other adult relationship to child						
Mother	47	8.2	21	7.4	68	7.9
Father	496	86.1	250	87.7	746	86.6
Step-parent	17	3	7	2.5	24	2.8
Other	16	2.8	7	2.5	23	2.7
Total	576	100	285 (34)	100	861 (34)	100
Respondent education level						
GCSE	125	18.2	76	18.4	201	18.3
Further Education	228	33.2	131	31.6	359	32.6
Higher Education	218	31.7	128	30.9	346	31.4
Postgraduate Education (e.g. PhD/Masters)	94	13.7	68	16.4	162	14.7
No Education	22	3.2	11	2.7	33	3.0
Total	687	100	414 (4)	100	1,101 (4)	100
Respondent occupation						
None	108	15.7	74	17.8	182	16.5
Professional	203	29.5	124	29.9	327	29.7
Management	79	11.5	40	9.6	119	10.8
Administrative	48	7	37	8.9	85	7.7
Skilled trade	24	3.5	13	3.1	37	3.4
Caring, leisure or service	68	9.9	36	8.7	104	9.4
Sales and Customer service	48	7	26	6.3	74	6.7
Other	109	15.9	65	15.7	174	15.8
Total	687	100	415 (3)	100	1,102 (3)	100
Respondent English as first language						
Yes	629	91.6	364	87.7	993	90.1
No	58	8.4	51	12.3	109	9.9
Total	687	100	415 (3)	100	1,102 (3)	100
Child English as first language						
Yes	666	96.9	390	94.0	1,056	95.8
No	21	3.1	25	6.0	46	4.2
Total	687	100	415 (3)	100	1,102 (3)	100

Parental survey results across all timepoints

Children's attendance at Early Childhood Education and Care prior to lockdown one

Parents were asked about their child's attendance at ECEC prior to the start of the first national lockdown in March 2020 (Table 13). In line with national figures (DfE, 2019a), 95.1% of children were attending ECEC settings before lockdown one, most typically private nurseries (35.5%) or nurseries attached to schools (35.6%). The remainder attended nurseries run by the local education authority (5.7%), preschools or playgroups (21.1%), or multiple settings (21%). It was most common for children to attend five days a week (44%) followed by three days (32.3%), four days (13.0%), and then two days (10.2%), and the vast majority attended for the full day (70.5%).

Table 13: Children's attendance at Early Childhood Education and Care (ECEC) prior to lockdown one

	Total	
	N	%
Child attendance at nursery/childcare		
Yes	1,054	95.1
No	54	4.9
Total	1,108	100
Type of setting		
Private nursery	374	35.5
Nursery attached to a school	375	35.6
Local education authority nursery	60	5.7
Preschool/playgroup	222	21.1
More than one setting	22	2.1
Total	1,053	100
Attendance, number of days a week		
2	108	10.2
3	340	32.3
4	137	13.0
5	469	44.5
Total	1,054	100
Attendance, whole/half day		
Whole day	743	70.5
Half day	311	29.5
Total	1,054	100

Families' experiences of lockdown one (March to June 2020)

Parental employment during lockdown one

During lockdown one, the largest proportion of respondents were working outside of the home, either full time or part time (28.5%); the next largest percentage of parents were working from home (24.2%, see Table 14). Full time parents/carers represented 18.7% of the sample, while 14.9% of the sample were furloughed, 8.4% were unemployed, 2.1% were made unemployed by the pandemic, and finally 3.2% were shielding for medical reasons. During the same time period, for those families with another adult in the home (897 or 81.1%) the pattern of employment for the other adult in the home was similar to that of the respondent, although a larger proportion was in work. The majority were working outside of the home (32.9%) followed by working from home (23.7%) while a small percentage were considered full time parents/carers (3.0%). Additionally, 13.4% were furloughed, 4.1% were unemployed, 2.0% were made unemployed by the pandemic, and 2.1% were shielding for medical reasons.

Table 14: Employment status of survey respondents during lockdown one

	Respondent		Other adult	
	N	%	N	%
Full time employed outside the home	161	14.5	322	29.1
Part time employed outside the home	155	14.0	42	3.8
Full time parent/carer (not working)	207	18.7	33	3.0
Working from home	268	24.2	262	23.7
Shielding for medical reasons*	36	3.2	23	2.1
Furloughed	165	14.9	148	13.4
Unemployed	93	8.4	45	4.1
Made unemployed as a result of the pandemic	23	2.1	22	2.0
Not applicable	-	-	209	18.9
Total	1,108	100	1,106	100

* We appreciate that some parents could have been shielding for medical reasons and working from home but the survey only allowed one response to this question.

ECEC attendance during lockdown one

Settings were closed to most children during lockdown one. Only 17.6% (195) of children in the total sample attended a setting during this period; 82.4% of children were at home with their families during this time. Respondents recruited at T1 were asked if they received any form of support from their child's setting during lockdown one and responses can be seen in Table 15.

Table 15: Attendance at ECEC during and after lockdown one

	Total	
	N	%
Attendance at nursery during lockdown one		
Yes	195	17.6
No	913	82.4
Total	1,108	100
Return to nursery once lockdown one ended		
Yes	501	45.3

No	461	41.7
Yes, but reduced hours	131	11.8
Yes, for more hours than usual	13	1.2
Total	1,106	100

Of those 387 parents (56% of the total sample at T1) who responded, 54.3% received some form of support from their ECEC during lockdown one (Table 16). The most commonly reported support or contact was through online platforms (such as Tapestry), which 22% (85) of parents reported using. Additionally, 10.3% (40) parents said nurseries provided them with recommendations for resources and 10.1% (39) of parents received resource packs for home activities. Only 5.2% (20) of parents reported receiving regular phone calls from the nursery and 6.7% (26) of parents reported that nurseries provided other forms of support.

Table 16: Forms of support nurseries provided to families during lockdown one—respondents at T1 only, N = 387

	N	%
Regular phone contact	20	5.2
Resource packs for home activities	39	10.1
Recommendations for resources	40	10.3
Support through online platforms	85	22.0
No support received	177	45.7
Other (please give brief details)	26	6.7

Once lockdown one ended and settings were allowed to reopen to all children, 45.3% (501) of the total sample reported that their child returned to ECEC and 11.8% (131) said their child returned but on reduced hours; a very small number (1.2% or 13 respondents) said their child had returned on increased hours. For those children who did not return to ECEC (41.7% or 461 respondents), parents were asked why (Table 17). The survey provided pre-specified options including concern about the risk of infection (24.4% or 98 respondents), the respondent was not working so they kept the child home (19.2% or 77 responses), or the difficulty of maintaining social distancing in the setting (19.2% or 21 respondents). However, the majority of respondents (51.2% or 206) reported that they had an alternative reason for keeping their child home and these reasons are outlined in Table 18 (199 of the 206 respondents provided specific information in the available text box).

Table 17: Reasons children did not return to ECEC once lockdown one lifted—pre-specified responses, N = 402

	N	%
Difficulty maintaining social distancing	21	5.2
Not working, so kept child home	77	19.2
Concern about risk of infection	98	24.4
Other (please explain)	206	51.2

Table 18: Reasons children did not return to ECEC once lockdown one had lifted—open-ended responses, N = 199

	N	%
Setting reduced its numbers or hours	50	25.1
Setting remained closed	40	20.1
A desire to limit disruption for the child	29	14.6
Child/family member was considered vulnerable	23	11.6

Other siblings were home anyway	18	9.0
Change in parental work led to different childcare needs	14	7.0
Parents were working from home, kept child home	17	8.5
Other	27	13.6

A large minority of respondents said that the reason their child did not return to their ECEC setting was because it was only offering reduced hours that either did not work for them or that places were not offered (22.9% or 50 respondents), or that it did not reopen altogether (18.3% or 40). Other reasons parents stated for keeping their child home was that they wanted to limit the disruption of settling into the setting again right before the move to starting school (13.3% or 29 responses), they were concerned about vulnerable family members and wanted to limit the risk of infection (10.6% or 23 responses), they were home anyway with other siblings (8.3% or 18 responses), or because they were working from home (7.8%) so kept the target child home. Lastly, some parents experienced changes to their employment situation that changed their childcare needs (6.4% or 14 responses) or they cited other (individual and specific) reasons outside of these categories (12.4% or 27 responses).

Children's experience of starting school

As part of the T1 survey, parents were asked to reflect on the experiences of their child just before and when they began school in the autumn of 2020. Of the 683 respondents, 91.9% (628) said their child was looking forward to starting school, 4.1% (28) said no, and 4.0% (27) were unsure about how their child felt about the new start. Additionally, only 37.6% (257) felt that the lockdown had an impact on how ready their child was to start school, with a greater proportion (46.7%, 319) stating they did not feel the lockdown had negatively impacted on readiness for school, and the remaining 15.7% (107) stated they were unsure. Although 43.8% (299) of parents did not have concerns about their child starting school, 37% (253) had some concerns and 19.2% (131) stated that they did have concerns about the start of school for their child. However, when asked how they felt now that their child had started school, 85.6% (582) said they had no concerns about how their child was coping with only 12.2% (83) stating they had some concerns and 2.2% (15) of parents noted that they were concerned about their child. Additionally, parents recruited at both T1 and T2 were asked whether they felt their child had settled in well at school: of the 1,101 respondents, 93.4% (1028) said 'yes', they felt their child has settled well, with only 3.0% (33) stating that they disagreed with this statement, and 3.6% (40) stating they were unsure.

Of those parents at T1 who stated they had some concerns or were concerned about how their child was coping in school (N = 98), 94 provided specific information about their worries. The biggest concerns, reported by 62.8% (59) of respondents, were about children's personal, social, and emotional development. Particularly, parents noted concerns about children's emotional regulation and behaviour, their social skills and their relationships with their peers, and worried that children were developmentally not ready to go to school. For example, parents stated:

> *'She is suffering separation anxiety and going to school has really changed her home life … She does calm down in school and the teachers have been amazing with her and make her feel extremely comfortable.'*

> *'He has tantrums after school and not quite sure if it's driven by something happening at school. He loves being at home with us very much.'*

Adjustment to the new school environment was also a key area of concern with 29.8% (28) of responses mentioning concerns that children were struggling with areas such as the school routines or feeling that children did not enjoy school or did not want to attend. Some parents mentioned academic attainment as an issue with 11.7% (11) of responses stating either general worry that children were not meeting age expectations for the curriculum more broadly, or particularly for literacy and maths. Finally, much smaller proportions of the cohort were worried about children's language and communication development (6.4%, 6), the border impact of COVID-19 (4.3%, 4), or children with SEND (5.3%, 5).

At T3, parents were asked again about whether they had any concerns about how their child was coping in school. The vast majority of respondents, reported no concerns about their child. A further 14.8% (90) had some concerns, while

2.8% (17) were concerned about their child's coping. In contrast to T1, attainment was now the area of greatest concern for parents, with 48.6% (51) of the 105 respondents referring to children's academic development and attainment. PSED concerns comprised 42.9% (45) of the noted worries, and many parents were particularly worried about children's social skills and relationships. For example:

> *'We worry if she is behind with being off school so long and if she is as advanced as some of the children who are practically a year older than her.'*

> *'She talks about struggles with interacting and maintaining friendships with her peers. We are also pretty unsure on how she is doing at school and worry we will be told at the end of year parents meeting that she is struggling/behind in areas which if known we could have worked on.'*

Concerns about how children were adjusting to school now comprised only 9.5% (10) of the responses; 10.5% (11) of concerns were about the lasting effects of COVID-19. Lastly, language development (8.6%, 9) and SEND (4.8%, 5) were similar to T1 and an additional 3.8% (4) of respondents noted 'other' concerns.

Families' experience of lockdown three (January to March 2021)

Parental employment during lockdown three

During lockdown three, 36.0% of respondents were working outside of the home (either full or part time) and a further 25.1% were working from home. Full time parents/carers made up 18.0% of the sample, 9.2% were still furloughed, 7.7% were unemployed with 1.4% made unemployed by the pandemic, and 2.5% were shielding for medical reasons. Of the 80.8% of families with another adult in the home, 44% were working outside of the home, 22.9% were working in the home, and only 3.1% were full time parents/carers. Additionally, 4.1% were still furloughed, 4.3% were unemployed with a further 1.0% made unemployed by the pandemic, and 1.3% were shielding for medical reasons. Overall, compared to lockdown one, there was a shift towards greater employment in both groups, and a particular increase in parents/carers working outside of the home (Table 19).

Table 19: Employment status of survey respondents during lockdown three

	Respondent		Other adult	
	N	%	N	%
Full time employed outside the home	130	16.9	297	38.9
Part time employed outside the home	147	19.1	39	5.1
Full time parent/carer (not working)	138	18.0	24	3.1
Working from home	193	25.1	175	22.9
Shielding for medical reasons	19	2.5	10	1.3
Furloughed	71	9.2	31	4.1
Unemployed	59	7.7	33	4.3
Made unemployed as a result of the pandemic	11	1.4	8	1
Not applicable			147	19.2
Total	768	100	764	100

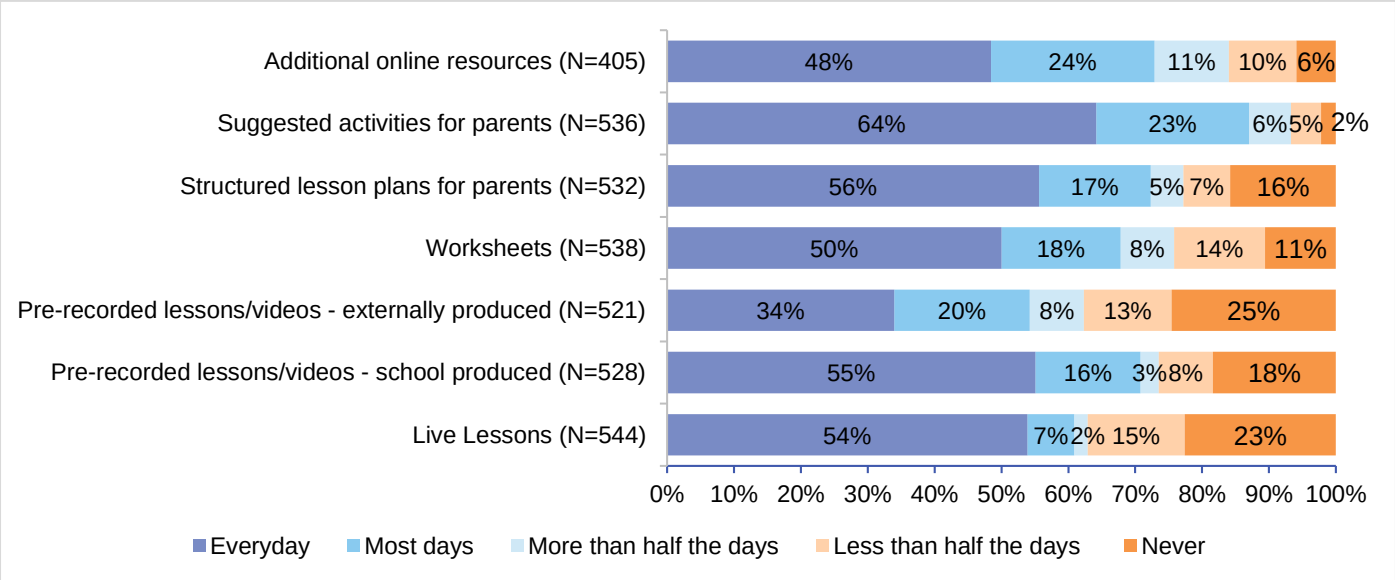
Children attending school or receiving home learning during lockdown three

At T2, parents reported whether their child attended school or was engaging with home learning during lockdown three. Of the 768 respondents, 26.2% (201) of children attended school all of the time, 20.2% (155) attended school some of the time, and 53.6% (412) were exclusively home-schooled. Overwhelmingly, 96.3% of children who attended school either some or all of the time (352) were reported to be happy to attend while only 3.7% (13) of respondents reported that their child was unhappy or they were unsure about how their child felt about attending school. It was also the case that 86.4% (304) of children had their usual classroom teacher while attending school during lockdown three.

Home learning activities offered to families by schools—lockdown three

It was important to understand the home learning offer from schools from the perspective of the parents and so respondents were asked at T2 how often their school provided each of the following home learning activities: live lessons, school-produced pre-recorded lessons or videos, externally-produced pre-recorded lessons or videos, worksheets, structured lesson plans for parents, suggested activities for parents, additional online resources, and any other activities (Figure 3). When considering the frequency with which the majority of parents reported receiving each type of home learning activity, live lessons were provided to 60.9% of parents on either a daily basis or most days, and pre-recorded lessons produced by the schools themselves were received by 70.8% of parents either daily or most days. Pre-recorded lessons produced by other organisations were offered to 54.3% parents either daily or most days while worksheets were provided to 67.8% of parents daily or most days. Structured lesson plans were also used by many schools and delivered to 72.3% of parents daily or most days, but the most frequently received home learning activities were suggestions for activities parents could do with children: 87.0% of parents received this type of guidance from schools daily or most days. In addition, 72.8% of parents said they received additional online resources as part of the home learning offer either daily or most days. Finally, although 53.8% of parents said they never received any other forms of home learning activities from schools, other parents report other types of home learning activities outside of these categories.

Figure 3: Parents report of the forms of home learning activities provided by their school during lockdown three



Parental access to, and delivery of, home learning activities—lockdown three

In addition to understanding what schools offered parents, it was useful to consider how parents felt about their ability to access and deliver the lessons and activities received from the school during lockdown three (measured at T2). Of the 555 respondents, 91.2% (506) reported that they found it 'very' or 'somewhat' easy to access resources; only 4.0% (22) found it 'somewhat' or 'very' *difficult* to access them. However, only 66.5% (368) agreed or somewhat agreed that they felt confident delivering home learning activities and 24% (133) disagreed or somewhat disagreed; the rest responded that they did not know. Only 55.2% of parents agreed or somewhat agreed that they enjoyed delivering home learning to their child while 35.7% (194) disagreed or somewhat disagreed with this statement; the rest did not know. Overall, while parents could generally access the resources provided by schools, levels of confidence and enjoyment in delivering the home learning activities were considerably lower.

Parental and child engagement with home learning—lockdown three

The T2 survey asked parents to consider both their own and their child's engagement with home learning in February 2021, approximately halfway through lockdown three. This point was chosen as it was considered to be the point at which families had likely had sufficient experience with home learning activities to make an accurate assessment of the experience but before the reopening of schools was very imminent. Parents were asked to rate their own and their child's engagement on a ten-point scale from not at all engaged (0) to a great deal of engagement (10). As shown in Table 20, levels of engagement were generally rated as medium to high, with 49.4% (271) of parents rating their own engagement between 6–8 and a further 29.0% (159) rating it at 9–10. Only 21.7% (119) of parents rated their own engagement at 5 or below. However, parents' estimations of their child's engagement with home learning were slightly lower, with 39.9% (213) of children's engagement rated as 5 or below, 40.8% (221) as 6-8, and 19.9% (108) rated at 9–10.

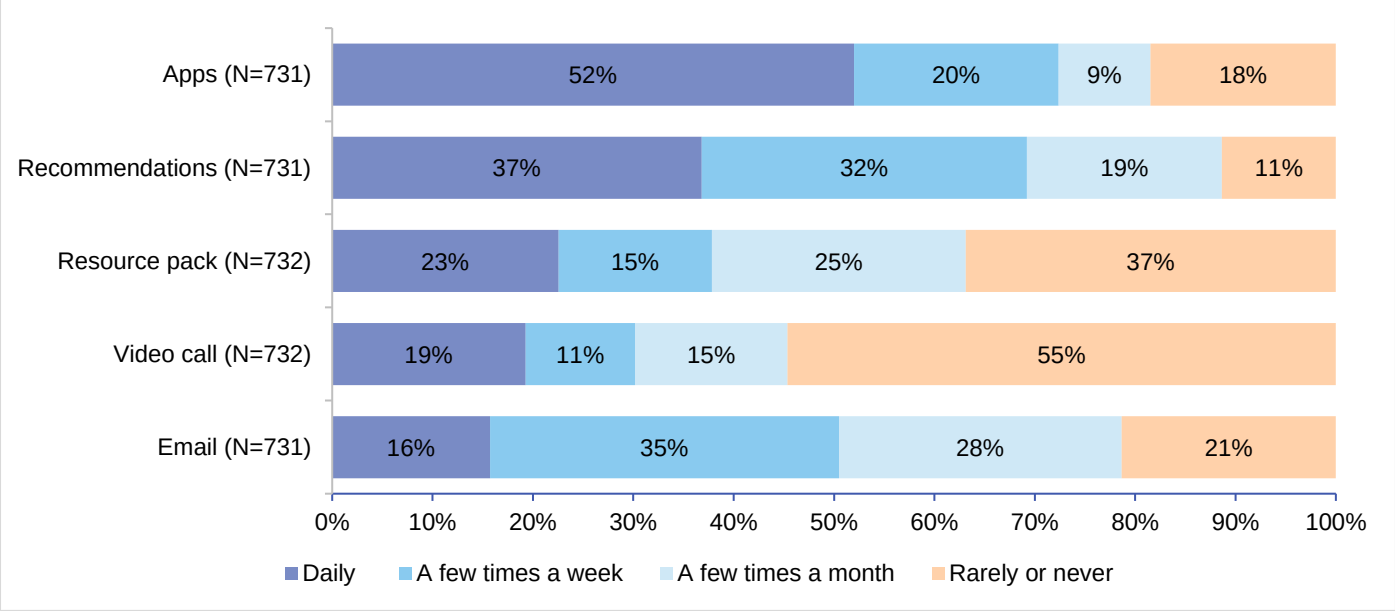
In addition to static levels of engagement midway through lockdown three, parents were asked whether they felt their own or their child's engagement had changed over the course of the partial school closure. Overwhelmingly, parents felt that engagement had changed with 80.9% (448) stating 'yes' and only 19.1% (106) stating 'no'. Table 20 also shows the direction of change of engagement. The majority of parents (56.3% or 246 respondents) felt their own engagement had declined, 23.1% (101) felt their engagement had not changed, and 20.6% (90) felt it had increased. An even greater proportion felt their child's engagement had decreased, at 74.6% (323) of respondents. Only 6.0% felt it had not changed and 19.6% (84) felt it had increased. As such, while overall parents felt that both their own and their child's engagement with home learning had declined during lockdown three, parents considered this effect to be stronger for their children.

Table 20: Parental ratings of parent and child engagement with home learning and the direction of change over the course of lockdown three

	Parent		Child	
	N	%	N	%
Engagement with home learning in middle of lockdown (February 2021)				
Scale 0–2	18	3.3	51	9.4
Scale 3–5	101	18.4	162	29.9
Scale 6–8	271	49.4	221	40.8
Scale 9–10	159	29.0	108	19.9
Total	549	100	542	100
Direction of change in home learning engagement				
Engagement decreased	246	56.3	323	74.6
No change	101	23.1	26	6.0
Engagement increased	90	20.6	84	19.4
Total	437	100	433	100

Schools took different approaches to communicating home learning activities and advice, as well as providing general support to families, during the pandemic (Figure 4). The most common form of contact was through online platforms and apps, such as Microsoft Teams, Tapestry, Google Classroom, and others. In total, 52.0% (380) of parents reported that they received correspondence or support from schools via these services daily, and an additional 20.4% (149) reported that this was used a few times a week. Only 27.7% of the sample reported using these platforms and apps a few times a month or rarely or never. Parents also frequently received recommendations for services or supports outside of what the school was providing, and 36.8% (269) of parents said they received home learning resource recommendations daily, 32.4% (237) received them a few times a week, 19.4% (142) received them a few times a month, and only 11.4% (83) rarely or never received these types of recommendations. While only 15.7% (115) of parents received daily emails from school, 34.7% (254) were in email contact with schools a few times a week.

Figure 4: Types of communication and support provided by schools to families during lockdown three



Parents generally reported that children were asked to submit work during lockdown three (85%, or 469 of 552 responses), and 96.8% (454) of those asked to provide children's work said they were able to submit it to the school. Additionally, 96% of respondents (433 of 451) said they received feedback on the work from their child's school demonstrating that, overall, parents and schools found ways to correspond about children's work during partial school closures.

Challenges to home learning during lockdown three

Parents also reported a number of challenges to home learning (Table 21). The most commonly reported issue was that they had multiple children who needed home learning support or care at the same time, with 62.6% (350 of 559 responses) noting this as a key challenge for them during lockdown three. Work commitments and conflicts were a challenge for 42.8% (239) of respondents, and 31.3% (175) of families struggled with too much noise in the home to concentrate. Additionally, 29.7% (166) of the sample found their lack of a printer in the home to be an issue, while a further 19.0% (106) had issues with a lack of available IT equipment and 16.1% (90) had poor internet connectivity. Other caring responsibilities were a challenge for 22.7% (127) of respondents, 15.2% (85) had a lack of appropriate space to do activities, and 13.4% (75) reported other, otherwise unlisted issues.

Table 21: Types and frequencies of challenges to home learning reported by parents (N = 559)

	N	%
A lack of available IT (computer, laptops, etc.)	106	19.0
A lack of a printer	166	29.7
A lack of appropriate space to do the activities	85	15.2
Too much noise in the home to concentrate	175	31.3
Multiple children needing home learning support or home care at the same time	350	62.6
Poor internet connectivity	90	16.1
Work commitments and conflicts	239	42.8
Other caring responsibilities	127	22.7
Other	75	13.4

Given the importance of adult involvement with HL for young children, respondents were asked about their availability to support children with HL activities during lockdown three. There were 555 responses to this question: 80.9% (449) of

parents reported that they were available to support home learning either most or all of the time while 17.5% (97) were available either some of the time; only 1.6% (9) were available none of the time.

Parental opinion of best practice by schools during lockdown three

Lockdown three presented many challenges for both schools and parents and it was considered important to understand how parents felt about their school's provision during the partial school closure. Parents were asked what they felt their child's school had done well and 679 parents responded to this with open-ended responses. The most frequently noted success was schools' online learning provision: 35.1% (238) of parents praised schools online learning offers through a range of different platforms (Table 22). Particularly, 34.5% (82) of the codes related to online provision specifically identified live lessons as a key success, often suggesting they were valuable in supporting children's learning or their connection to their teacher and class. Other parents mentioned their appreciation of the pre-recorded videos schools offered with 21.0% (50) of codes related specifically to this area. Engagement through online provision, such as Zoom or Microsoft Teams calls, was also considered very valuable and represented 14.3% (34) of the responses within the overall 'online provision' category. For example:

> *'Google classroom live lessons were a massive hit in our house for our reception age child, the teacher providing the lessons kept them engaged by changing the lesson plan/activities daily.'*
>
> *'Being able to connect with the school. For example like Google Meet, getting the school teacher and children to come online and just play games like treasure hunt and talk about their day. It helped my child to connect with her teacher and feel that there was still a school environment there even though we were still isolating. The constant feedback when we handed an activity in helped and motivated parents to keep continuing with the work.'*

In general, schools were praised for their engagement and communication with 33.6% (228) of respondents identifying how schools provided open communication, how they were available and accessible, and how they managed to keep children feeling engaged during the partial school closure. Examples of comments included:

> *'Supporting the children and parents through uncertain times, being visible at all times via the school app, messages from teachers etc., planning and sending info out with plenty of time.'*
>
> *'Contact with parents was great, encouraged a focus on wellbeing.'*

Table 22: Codes of what parents reported they considered schools had done well during lockdown three

	N	%
Online provision	238	35.1
Engagement/communication	228	33.6
Learning support	206	30.3
School practical management	57	8.4
In school provision	46	6.8
Physical resources	35	5.2
All/everything	11	1.6
Other	13	1.9

Parents also praised the learning support and activities provided by schools: 30.3% (206) of respondents focused on this specifically. Particularly, parents appreciated a consistent structure or routine to their days and having a wide variety of learning tasks available that allowed families flexibility in what they did with their days. Specifically, parents said:

> *'Achievable, relevant, well tailored learning tasks.'*

> *'They kept the routine of lessons the same throughout so once you had mastered the routine it was easy to follow each week. The videos [...] were always enthusiastic and engaging. Activities were varied in places and included cooking, going outside and crafts.'*

> '*Providing appropriate activities and loads of resources [...] They empathised with how difficult the situation was and encouraged parents to focus on maths and literacy and then only do as much as was possible with the other activities.'*

Some parents (8.4%, 57 respondents) noted that schools managed the practical challenges of providing an education during lockdown three well, with specific praise for aspects such as balancing the needs of children attending in-school provision with those accessing the home learning offer as well as ensuring that children were safe and a sense of normality was preserved as much as possible. Additionally, some parents noted their appreciation of the physical resources schools provided such as learning packs or IT equipment (5.2%, 35 respondents), the availability of in school provision for their child (6.8%, 46 respondents), everything the school did (1.6%, 11 codes), as well as a few other unique items (1.9%, 13 respondents).

Additional forms of support parents wanted during lockdown three

Parents were also asked what additional support they would have liked to receive from their child's school during lockdown three and 612 responded to this question (Table 23). Overall, 43.0% (263) said that they were happy with the support they received and could not identify anything additional they would have wanted during lockdown three.

However, other parents did suggest areas of improvement and often these mirrored the strengths that parents noted in the previous question. Communication and engagement were mentioned by 22.9% (140) and many noted that they would have liked more video or phone calls with school. Also, many parents wanted additional feedback about their child's work and how teachers felt they were progressing more generally. For example:

> *'More contact to check everything was working OK for you as a family; as a full-time working single mum it was sometimes hard to juggle but I also didn't want to let my child down by her not completing all activities.'*

> *'A phone call once a week or something as we did struggle with other issues which could of been helped or just a general chat about how it was going with well being etc.'*

> *'We had one Zoom call with his teacher and that was it. I know they were ridiculously busy but if one of the teachers or headteacher had called [child] would have found that really uplifting!'*

For some parents there was a felt lack of understanding for just how challenging lockdown three was for them and they would have appreciated a greater sense of understanding and support:

> *'Just a bit less pressure to get everything done, which was incredibly difficult when both myself and my husband work full time + have another child in Year 2.'*

Online provision was also an area some parents felt could have been improved: 16.0% (98) of respondents mentioned this topic. Within this, the vast majority of comments (74.5%, 73 responses) related to live lessons and live interaction: parents wanted more live teaching and more opportunities for their children to interact with their teacher and their peers. For example:

'More live lessons as my child would eagerly wait to speak to the teachers.'

'The opportunity for [child] to see his school friends via Zoom, for example.'

Table 23: Codes of what parents felt their school could have done better during lockdown three

	N	%
Nothing/unsure	263	43.0
Engagement/communication	140	22.9
Online provision	98	16.0
Provision of physical resources	75	12.3
Learning support	41	6.7
Other	12	2.0

For some parents, the online provision could have been supported with more physical resources, as mentioned by 12.3% (75) of respondents. Parents mentioned they would have liked paper-based activity packs or worksheets to have been provided to homes, often due to a lack of printing facilities or as a way to have an alternative to computer-based learning. Others would have liked the opportunity to have reading books to share with their child.

'Resource packs … struggled to print and put together resources needed for some activities.'

'Access to real age-appropriate reading books. Online books were always provided but this served to increase screen time and set-up time.'

A smaller proportion of codes dealt with learning support (6.7%, 41) and the often-mentioned parents' desire for a more predictable structure or timetable for home learning as well as either more—or less—work for children to complete. Other respondents mentioned a desire for additional support in how to teach their children the content of lessons, often with a particular focus on literacy. For example:

'I would have liked to receive more personalised support/activities, more in the same way as they are delivered in school.'

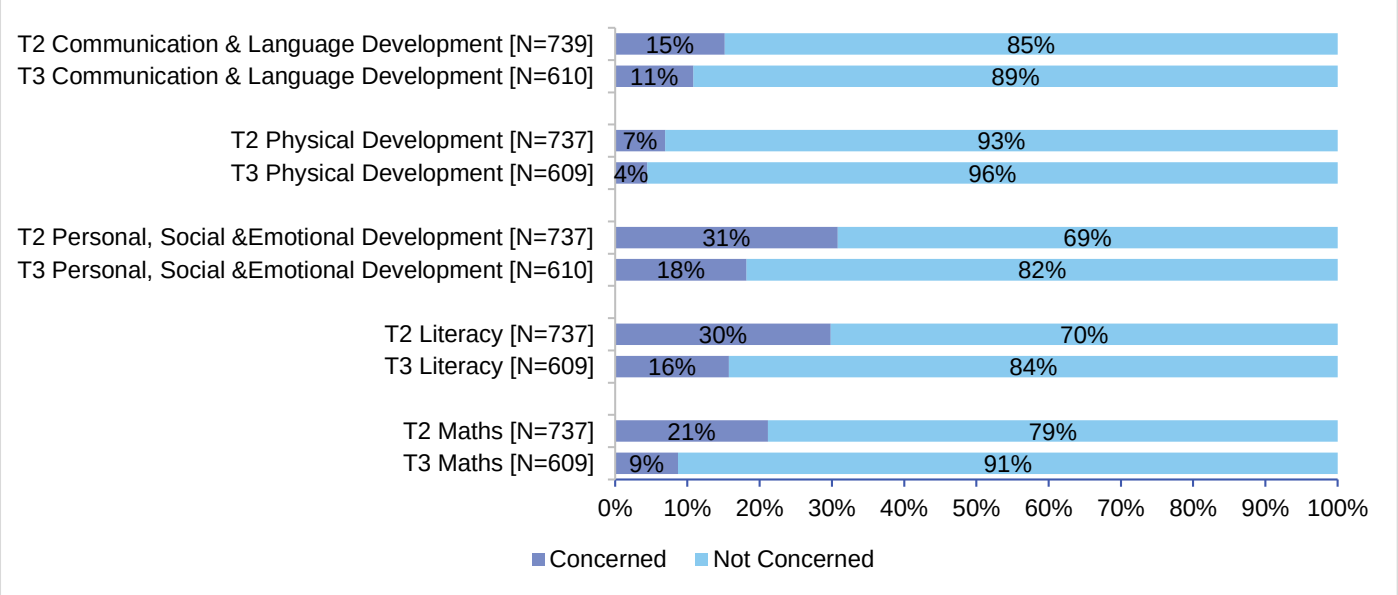
'More on phonics so I knew how to support on that part.'

Finally, 1.9% (12) of codes related to other concerns, including a desire for their child to have been allowed to attend school in person.

Parental concerns about children's development

With most families delivering home learning over lockdown three, parents were asked to reflect on how well they felt their child was meeting the EYFS curriculum (Figure 5). While many parents did not believe their child to be struggling, families still highlighted key areas of concern. In total, 30.8% (227) of respondents were quite concerned or very concerned that their child was struggling with PSED, and 29.8% (220) expressed some level of concern over literacy. In terms of maths (used instead of numeracy to make the heading clearer to parents) and 'understanding the world', 21.2% (156) and 19.3% (142) of parents respectively stated they were 'quite' or 'very' concerned that their child was struggling in these areas. On the other hand, only 15.2% (112) of families held concerns over their child's communication and language. Fewer parents were worried that their child was struggling in expressive art and design and physical development with 10.1% (74) and 6.9% (51) expressing concerns in these areas respectively.

Figure 5: Parents' concerns for their child's development in the areas of the EYFS curriculum at T2 and T3

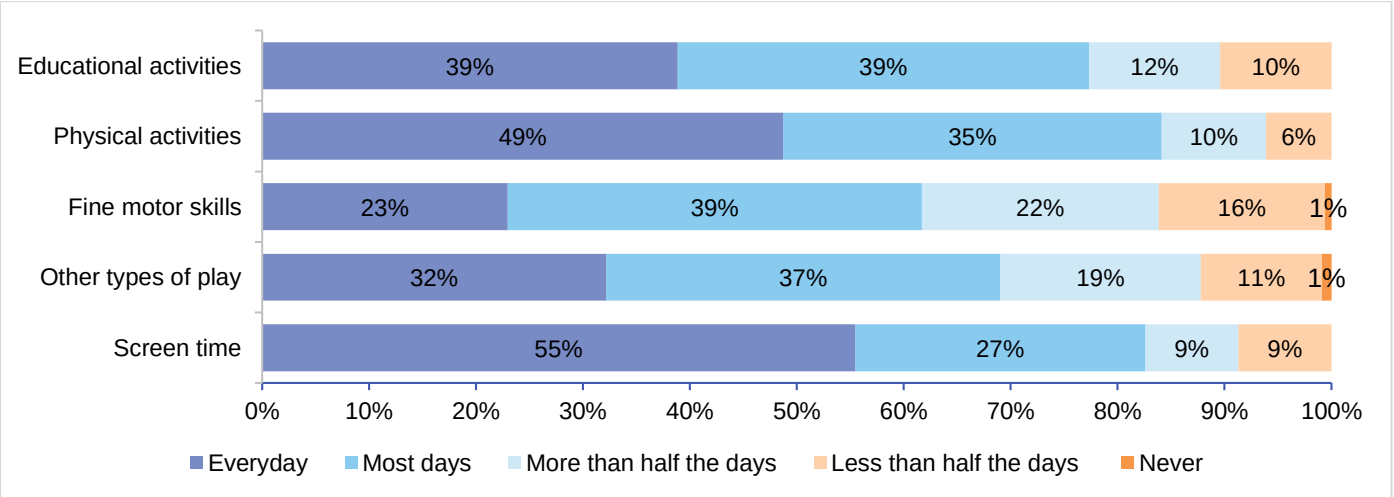


By T3 the proportion of parents who expressed concerns over whether their child was struggling with the EYFS curriculum had decreased. Concerns over PSED had approximately halved with 18.2% (111) stating they were very concerned or quite concerned. For literacy, this dropped by more than half with 15.8% (96) indicating concerns. There was a further reduction in those expressing concerns in maths and understanding the world at 8.7% (53) and 8.5% (52) respectively. For communication and language, the fall in concern was less pronounced but still low with 10.8% of parents stating concerns. Finally, concerns over physical development and expressive arts and design were also reduced with 4.4% (27) and 4.6% (28) claiming they were 'quite' or 'very' concerned respectively.

Home learning environment and parental wellbeing

At T1, parents were asked to reflect on how they engaged with their child during lockdown and consider how often they took part in different types of activities (Figure 6). Physical activity (for example, outside play, dancing, bike rides, or gardening) was the most popular activity with 83.6% (578) of parents saying they did this with their child every day or most days; this was followed by screen time, stated by 82.5% (566) of respondents as an everyday or most days activity, and 77.3% (529) of respondents did educational activities (for example, reading, numbers and counting, or nursery rhymes) everyday or most days . Other types of play, such as imaginative play and games and fine motor skills activities (for example, arts and crafts, messy play, baking,or Lego) were slightly less popular with 69.5% (474) and 61.5% (424) of parents, respectively, engaging in these activities with their child on all or most of the days.

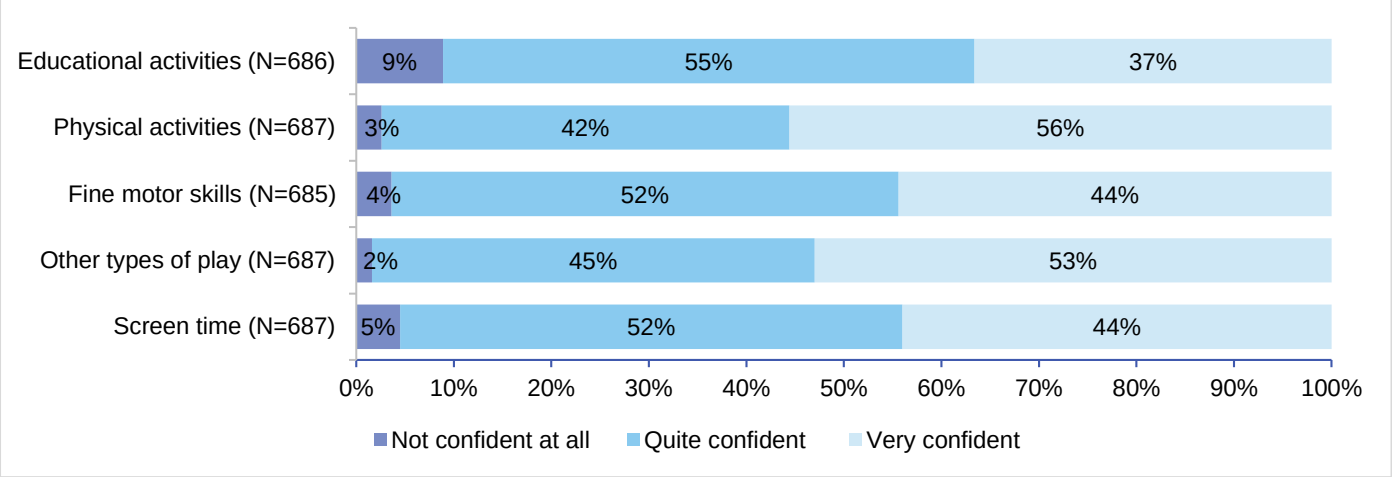
Figure 6: Parent reports of activities in the home at T1 (N = 687)



Parents indicated a high level of confidence in engaging in activities with their children at home (Figure 7). Indeed, 98.4% (676) of respondents claimed they were 'very' or 'quite' confident in other types of play with similarly high numbers

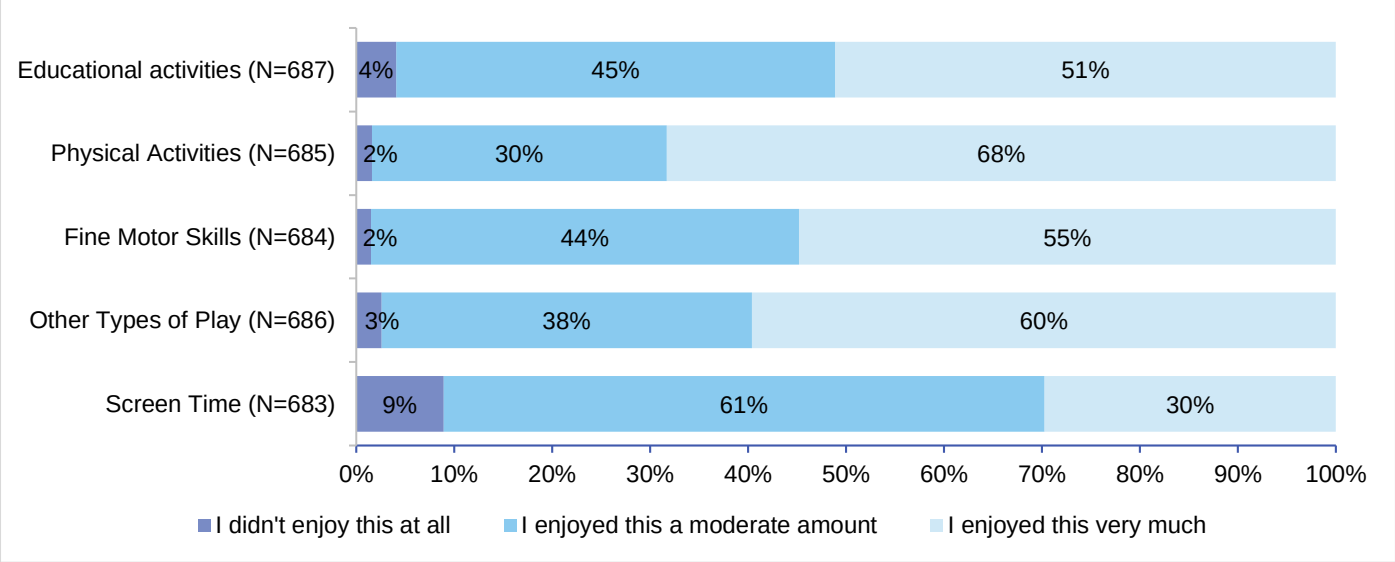
expressing confidence in physical activities (97.4%, 669), fine motor activities (96.4%, 660), and providing screen time (95.5%, 656). Parents were slightly less confident in engaging with their children in educational activities, yet parents also had high levels of confidence in this area: 91.1% (625) of parents said that they felt very confident or quite confident in taking part in these activities.

Figure 7: Parental confidence with activities in the home at T1



Parents also enjoyed taking part in these types of activities with their child (Figure 8). Physical activities were the most popular with 68.3% (468) of respondents stating that they enjoyed doing them with their child very much and 30.1% (206) saying that they enjoyed them moderately. Other types of play were also enjoyable to parents: 59.6% (409) of parents enjoyed them very much and 37.8% (287) enjoyed them a moderate amount. Similarly, 54.8% (375) of respondents claimed that they enjoyed fine motor activities very much and 43.7% (299) moderately. Educational activities were enjoyed very much by 51.1% (351) of parents and enjoyed a moderate amount by 44.8% (308). Screen time was least enjoyable: only 29.7% (203) of respondents said they enjoyed this very much while 61.3% (419) indicated that they enjoyed it a moderate amount.

Figure 8: Parental enjoyment of activities in the home at T1



In addition to these bespoke measures of the home learning environment (HLE), the HLE questionnaire was assessed at all timepoints to provide an assessment of the amounts of learning opportunities regularly offered in the home (Table 24). These figures indicate the overall scores on the HLE for the whole sample at each timepoint and although a subset of the sample was longitudinal and contributed to multiple or all surveys, it is not a pure longitudinal sample (Table 8). As such, it is not appropriate to suggest that differences between timepoints represent change over time; instead, it is noteworthy that the HLE score was similar across all three timepoints. Due to the change in this measure (the removal of the question relating to the frequency of visiting libraries, which remained closed during parts of this academic year), it is not possible to make comparisons to other samples. However, this measure was used as a predictor in the statistical analyses (see Results Chapter 2).

Table 24: Total scores on the home learning environment and parental wellbeing questionnaires at T1, T2, and T3

	M	SD	Range
Home learning environment			
T1 (N=672)	28.2	9.1	2–49
T2 (N=735)	25.9	9.2	2–49
T3 (N=605)	25.7	9.9	3–49
Parental wellbeing			
T1 (N=661)	70.4	19.3	0–100
T2 (N=709)	69.5	21.8	0–100
T3 (N=591)	71.9	21.6	0–100

Parental wellbeing was also assessed at all timepoints, although once again only a subset of the sample was longitudinal and contributed to all timepoints (Table 6). The mean score at all timepoints is slightly higher than the mean score of the population in the original validation paper, which was 60.4 (Benson et al., 2018; no standard deviation was published), suggesting that levels of wellbeing within this sample were fairly good. However, given that the population in the validation study consisted of GP patients with a range of needs, this is understandable. This variable was also used as a predictor in the statistical analyses (see Results Chapter 2).

Chapter 2: Preschool experiences, socio-demographic circumstances, and child development

How are children's experiences prior to starting formal schooling and during YR 2020/2021 associated with their socio-emotional wellbeing, language, and numeracy skills by the end of YR?

To what extent do socio-emotional wellbeing and attainment vary according to school- and individual-level socio-demographic circumstances, with a particular emphasis on disadvantage?

Summary

- The average vocabulary score in our sample was 37.7 (SD = 8). Statistically significant predictors at child level were: being born in the summer term, which had a negative impact on vocabulary scores of 0.5 of a standard deviation, having SEND, which had a negative impact of 0.8 of a standard deviation, and being an only child, which had a positive impact of 0.61 of a standard deviation. The variable related to the pandemic that was statistically significant was the quality of the home learning environment, which had a positive association with vocabulary scores. However, the calculated effect size was practically nil.
- The school-level characteristic that had a statistically significant association with vocabulary scores was the proportion of pupils that are learning English as Additional Language in the school, which had a negative association with vocabulary scores. However, in this case too the calculated effect size was practically nil.
- The average numeracy score in our sample was 60.1 (SD = 14.1). Statistically significant predictors at child level were: being born in the summer term, which had a negative impact on numeracy scores of 0.45 of a standard deviation, having SEND, which had a negative impact on the numeracy scores of 2.36 of a standard deviation, and parent/carer education below higher education level, which had a negative effect size of 0.39 of a standard deviation.
- In the case of numeracy scores, none of the variables related to experiences of the second lockdown and interactions with FSM status were statistically significant and, therefore, were not used in the full model.
- Socio-emotional development scores were not normally distributed and had very little variability. Therefore, CSBQ scores could not be reliably and significantly explained through a multilevel regression model.
- For all outcomes, the lockdown indicators did not seem to work as well at explaining children's outcomes compared to pupil characteristics that have been demonstrated to be important in the past. This might be due to the sample size of this study being smaller than anticipated.
- We were unable to carry out the planned regression model analyses for EYFSP outcomes and so were unable to look at relationships between lockdown variables and performance on this assessment.

Descriptive data for our Early Years Toolbox and EYFSP outcome variables can be seen in Tables 25 to 26 with distributions shown in Figures 9 to 22.

For the EYT, data is presented in raw form only. No U.K. norms exist for this measure and so no comparison to norms can be made.

Table 25: Mean scores, standard distributions, and ranges for the Early Years Toolbox subscales

	N	Mean	SD	Range
EYT Vocabulary	493	37.7	8.0	10–55
EYT Numeracy	456	60.1	14.1	1–84
EYT CSBQ Sociability	546	4.1	0.7	1.3–5
EYT CSBQ External	545	1.5	0.7	1–5
EYT CSBQ Internal	545	1.5	0.6	1–3.8
EYT CSBQ Prosoc	545	4.2	0.8	1–5
EYT CSBQ BehavSR	545	4.1	0.8	1.2–5
EYT CSBQ CogSR	545	3.8	0.9	1.2–5
EYT CSBQ EmoSR	545	4.1	0.8	1–5

Figure 9: Histogram of EYT Vocabulary

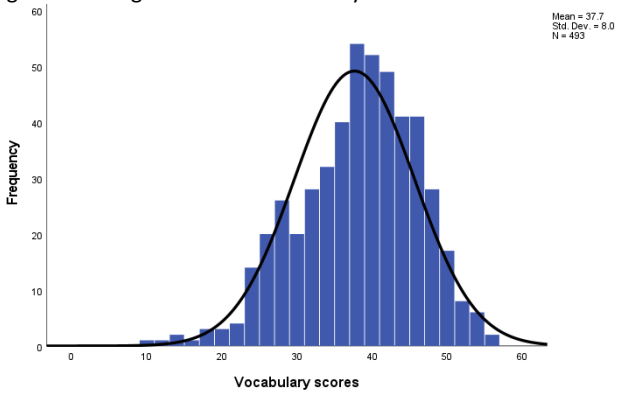


Figure 10: Histogram of EYT Numeracy

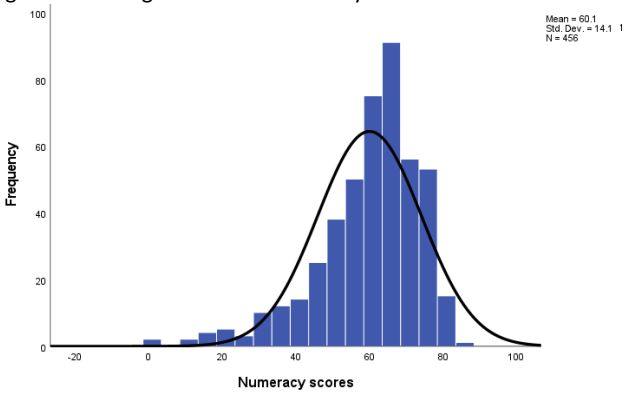


Figure 11: Histogram of CSBQ Sociability

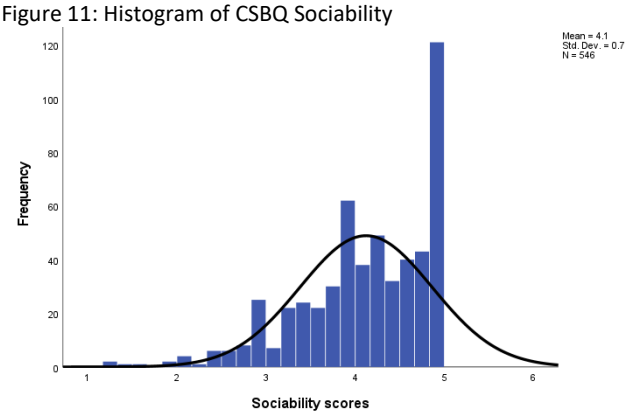


Figure 12: Histogram of CSBQ External

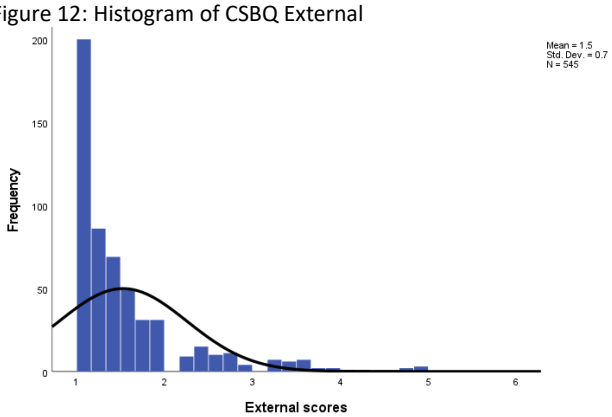


Figure 13: Histogram of CSBQ Internal

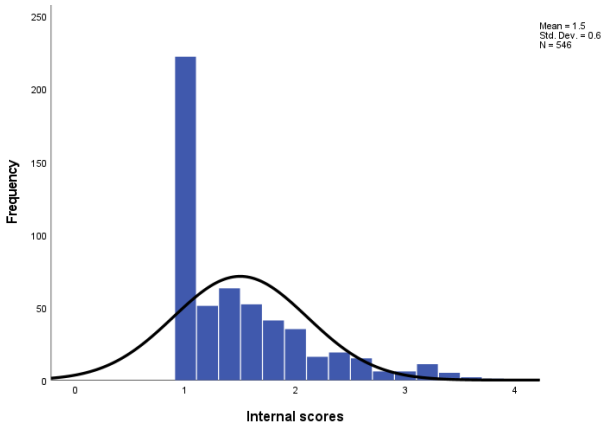


Figure 14: Histogram of CSBQ Prosocial

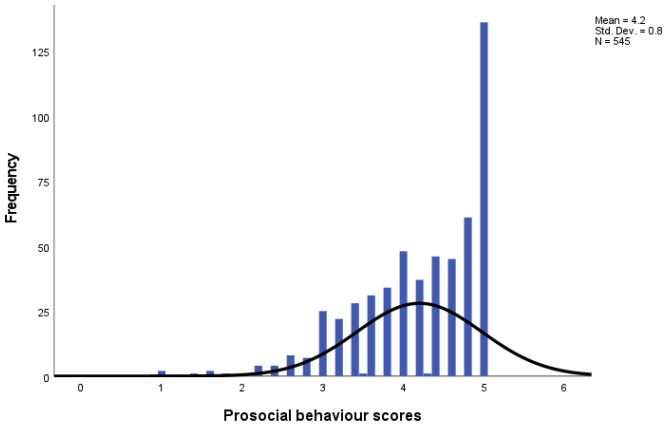


Figure 15: Histogram of CSBQ BehavSR

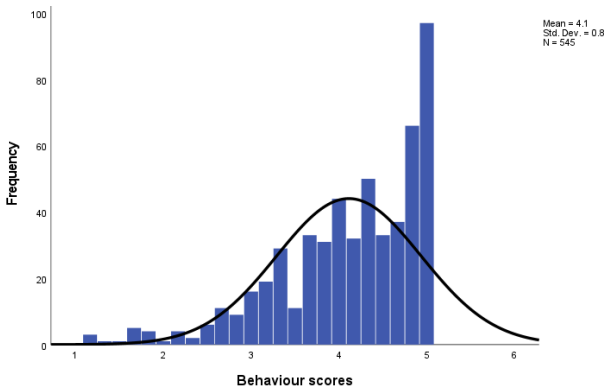


Figure 16: Histogram of CSBQ CogSR

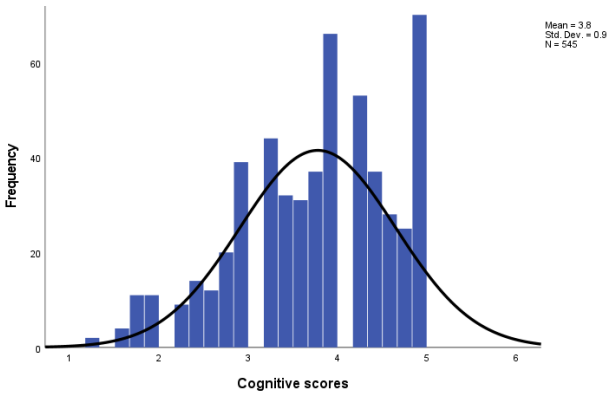
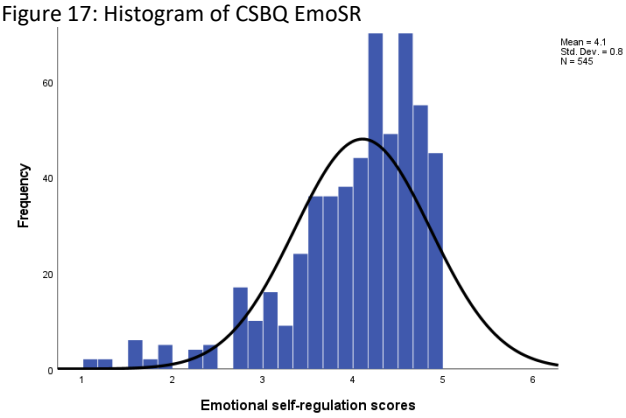


Figure 17: Histogram of CSBQ EmoSR



For the EYFSP learning areas, Table 26 and Figures 18 to 22 show a leptokurtic distribution with the majority of cases falling into the ‘expected’ category and far fewer cases in the ‘emerging’ or ‘exceeding’ category. This data is for the sample of non-anonymised children we recruited to the original study. Data for the larger group including these children and their anonymised classmates is provided in Chapter 3.

Table 26: The number and proportion of the current sample reaching emerging, expected, and exceeding levels in the CL, PD, PSED, literacy, and maths areas of the EYFSP

	1: Emerging		2: Expected		3: Exceeding	
	N	%	N	%	N	%
Communication and Language (N=788)	156	19.8	573	72.7	59	7.5
Physical Development (N=788)	102	12.9	650	82.5	36	4.6
Personal, Social, and Emotional Development (N=788)	129	16.4	625	79.3	34	4.3
Literacy (N=788)	234	29.7	479	60.8	75	9.5
Maths (N=787)	177	22.5	517	65.7	93	11.8

Figure 18: Histogram of Communication and Language scores

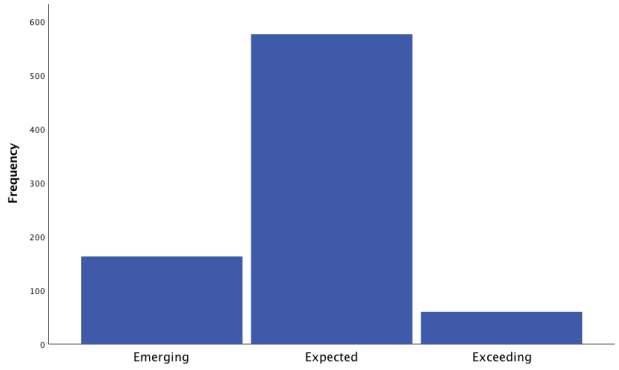


Figure 19: Histogram of Physical Development scores

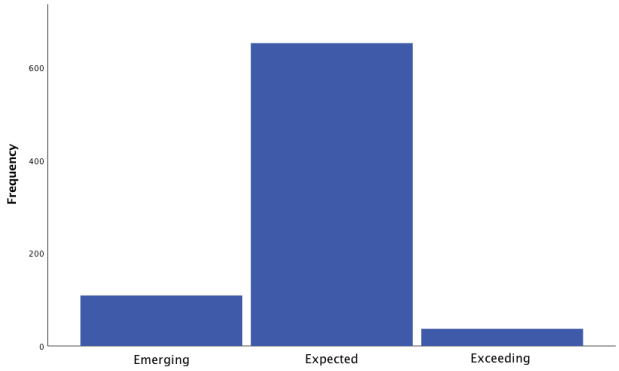


Figure 20: Histogram of PSED scores

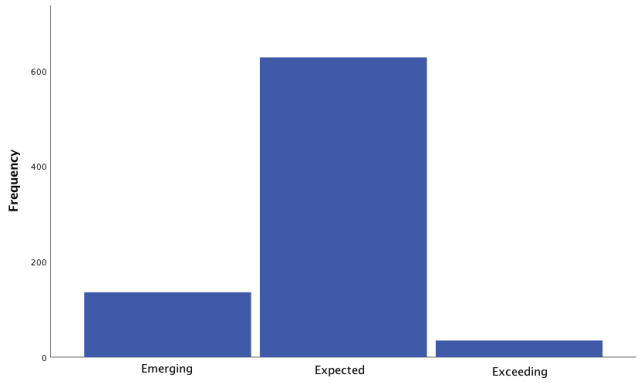


Figure 21: Histogram of Literacy scores

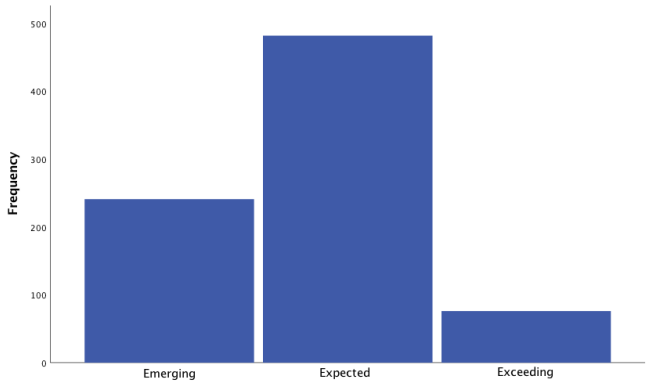
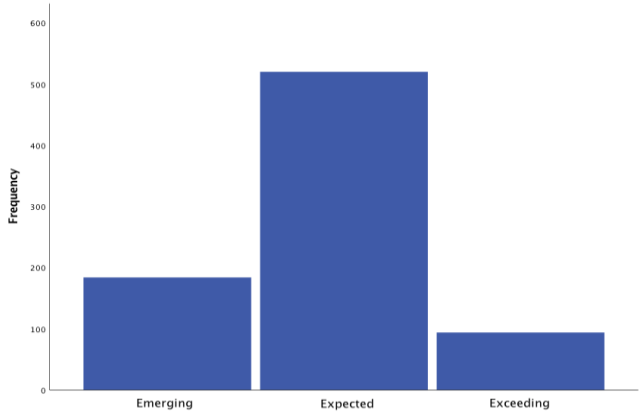


Figure 22: Histogram of Numeracy scores



Analysis of Early Years Toolbox scores

Multilevel model analysis was carried out to investigate the relationship between school-level variables, child-level variables, and variables specific to lockdown and children's outcomes assessed through the Early Years Toolbox. The statistical analysis section of this report provides the details for these models and the data transformation we carried out on the variables used to build the models and the methodology used to calculate effect sizes. As explained in the statistical analysis section, some variables used in the analysis had missing values and the sample of children who undertook these assessments is much smaller than the sample for whom we had EYFSP results. Therefore, any inferences from such models must be treated with caution.

Vocabulary scores

The random intercept model allows the intercepts to randomly vary between schools. Because no predictors are included in the model at level one, the intercepts estimated through these models are equal to the school means for the level one outcome variable, in this case for vocabulary scores, which in our sample is 37.35 (SD = 8). Estimates of covariance parameters show that both are statistically significant and produce an ICC of 0.18. Therefore, in the case of the vocabulary score, 18.1% of the variability in the children's vocabulary scores is due to school-to-school differences and 81.9% to student-to-student differences within schools. This justifies the use of a multilevel model to investigate the moderators of these scores.

The second model tested the significance levels of child-level predictors. We found that in the case of vocabulary scores the following factors and covariates were statistically significant: summer born, FSM status, EAL status, SEND status, and whether the child has siblings. Other factors related to the experiences of the third lockdown were also statistically significant, namely whether the parent/carer was working, the quality of the home learning environment, and two of the lockdown challenges—the home environment and parent/carer caring responsibilities.

More importantly, interaction terms between the FSM status of the child and a) lockdown challenges related to the home environment, b) caring responsibilities and c) the working status of the parent were statistically significant and were therefore included in the two-level model.

In the final model, we kept the level one predictors that were statistically significant and added in level two predictors. Table 27 shows the key results for the two-level model, including the effect sizes in the last column.

Table 27: Key results of the two-level model for vocabulary scores

Parameter	Estimate	Std. error	df	p-value	95% Confidence interval Lower bound	95% Confidence interval Upper bound	Standardised coefficient
Intercept	36.77	3.20	85.95	0.00	30.41	43.12	
Summer born	**-4.06**	**0.94**	**205.16**	**0.00**	-5.90	-2.22	**-0.49**
FSM	-3.26	2.58	206.95	0.21	-8.35	1.83	-0.65
EAL	-1.47	1.68	204.78	0.38	-4.77	1.84	-0.24
SEND	**-5.41**	**1.40**	**213.32**	**0.00**	-8.17	-2.64	**-0.80**
No siblings	**4.11**	**1.41**	**210.84**	**0.00**	1.33	6.90	**0.61**
Environmental challenges in lockdown	-1.13	1.02	206.95	0.27	-3.13	0.87	-0.14
Caring challenges in lockdown	1.44	1.28	208.46	0.26	-1.10	3.97	0.20
Parent/carer working	-0.57	0.97	201.54	0.55	-2.48	1.33	-0.07
Home Learning Environment	**0.12**	**0.05**	**203.16**	**0.01**	0.03	0.21	**0.00**
FSM*Environmental challenges in lockdown	**4.97**	**2.39**	**211.41**	**0.04**	0.25	9.69	**0.96**
FSM*Caring challenges in lockdown	-3.26	2.60	204.68	0.21	-8.39	1.87	-0.66
FSM*Parent/carer working	0.32	2.52	199.44	0.90	-4.65	5.30	0.06
School type: Academy	-2.20	2.24	46.20	0.33	-6.72	2.31	-0.41

School type: Community	0.41	1.96	41.49	0.83	-3.54	4.37	0.07
School Size	0.00	0.00	29.14	0.92	-0.01	0.01	0.00
Proportion of EAL pupils in school	**-0.09**	**0.04**	**54.02**	**0.02**	-0.16	-0.02	**0.00**
Proportion of SEND pupils in school	0.20	0.11	40.44	0.09	-0.03	0.43	0.01
Proportion of FSM pupils in school	-0.10	0.05	36.40	0.07	-0.21	0.01	0.00

Note: for this model N = 493. This number is smaller than the totals shown in the flow diagram as some children were removed due to missing/inaccurate DOB meaning that term of birth could not be calculated.

Based on tests of the variance components, the two-level model successfully explained differences in vocabulary scores. The ICC associated with this model was 0.078, which represents a significant decrease from the original value of 0.181.

Altogether, the results suggest that the only school level characteristic that had a statistically significant impact on the vocabulary score is the proportion of EAL pupils in the school. In contrast, FSM and SEND composition at the school level were not significant predictors of the vocabulary score, nor was the type and size of the school the pupil attended. In terms of child-level characteristics, being born in the summer term, having SEND, and being an only child were all statistically significant predictors of vocabulary outcomes. In terms of lockdown specific variables, the home learning environment was a significant predictor of vocabulary outcomes. Finally, a significant interaction with FSM status was found for the presence of environmental challenges during lockdown, but this result must be interpreted with caution given the small number of children that were both FSM and had environmental challenges at home in our sample (N = 31).

In line with the approach described in the Statistical Analysis section, we calculated the standardised coefficient for the two-level model, keeping in mind that for our sample the standard deviation for the vocabulary scores is 8. The standardised coefficients provide a more easily interpretable effect size in terms of the standard deviation of the output when working with multilevel models. In the case of vocabulary scores, and for those predictors that were statistically significant predictors, we can see that being born in the summer term has a negative impact on vocabulary scores of 0.5 of a standard deviation, having SEND has a negative association of 0.8 of a standard deviation, and being an only child has a positive association of 0.61 of a standard deviation. The effect size of an increase in the quality of the home learning environment and an increased proportion of EAL pupils in a school are practically nil (the effect size being equal to zero in the table is due to rounding).

Numeracy scores

The analysis of numeracy scores followed a similar structure. The random intercept model confirmed that the school mean for numeracy scores for our sample is 59.86. Estimates of covariance parameters show that both are statistically significant, and we obtain an ICC of 0.20. Again, we have evidence of substantial clustering, where 19.5% of the variation in achievement occurs between schools. Therefore, the use of a multilevel model is justified. The testing of the level one predictors showed that the following child-level variables were statistically significant: summer born, FSM status, EAL status, SEND status, and the parent/carer's education being at higher education or postgraduate level. The variables related to the experiences of the second lockdown that were statistically significant were (a) the home challenges related to the environment and to other caring responsibilities and (b) the quality of the home learning environment. On the other hand, none of the variables related to experiences of the second lockdown and interacted with FSM status were statistically significant and, therefore, were not used in the last model.

In the final model, we kept the level one predictors that were statistically significant and added in level two predictors. Table 28 shows the key results for the two-level model.

Table 28: Key results of the two-level model for numeracy scores

Parameter	Estimate	Std. error	df	p-value	95% Confidence interval Lower bound	Upper bound	Standardised coefficient
Intercept	67.84	7.33	80.06	0.00	53.27	82.42	
Summer born	**-4.70**	**1.82**	**186.29**	**0.01**	-8.29	-1.10	**-0.45**
FSM	1.53	2.35	194.71	0.51	-3.09	6.16	0.17
EAL	-5.00	3.14	187.49	0.11	-11.20	1.21	-0.63
SEND	**-20.42**	**2.65**	**200.48**	**0.00**	-25.65	-15.19	**-2.36**
Education level below higher education or at post-graduate level	**-3.94**	**1.98**	**195.38**	**0.05**	-7.85	-0.03	**-0.39**
Education level below post-graduate	-1.83	2.82	198.39	0.52	-7.39	3.74	-0.22
Environmental challenges in lockdown	-0.57	1.78	183.95	0.75	-4.08	2.94	-0.05
Caring challenges in lockdown	-0.33	2.01	189.62	0.87	-4.29	3.63	-0.03
Home Learning Environment	0.18	0.09	192.85	0.06	-0.01	0.37	0.00
School type: Academy	-8.93	5.39	41.71	0.11	-19.81	1.95	-1.47
School type: Community	-2.88	5.14	40.99	0.58	-13.26	7.49	-0.46
School Size	0.00	0.01	25.86	0.75	-0.02	0.01	0.00
Proportion of EAL pupils in school	-0.07	0.07	41.19	0.32	-0.20	0.07	0.00
Proportion of SEND pupils in school	**0.49**	**0.23**	**39.30**	**0.04**	0.03	0.95	**0.02**
Proportion of FSM pupils in school	-0.14	0.10	30.84	0.16	-0.34	0.06	0.00

Note. for this model N = 456. This number is smaller than the totals shown in the flow diagram as some children were removed due to missing/inaccurate DOB meaning that term of birth could not be calculated.

In the case of the numeracy scores, the ICC and the test of the variance component for the first model (the random intercept model) once again suggested substantial clustering in the data, supporting the use of multilevel models to analyse the data. In the model with both level one and level two predictors included, the only variables that remained statistically significant were being born in the summer term, having SEND, and the proportion of SEND pupils in the school. The variables related to parent/carer level of education being below higher education level were not statistically significant once level two variables were included, with the one representing education level below higher education or at post-graduate level being on the cusp of statistically significance level.

Nevertheless, the two-level model was useful in explaining a good part of the variance. In fact, the ICC value decreased from 0.20 in the case of the intercept only model to 0.093. Looking at the standardised coefficient for the effect sizes, we can observe that the biggest effect size is related to having SEND, which has a negative association with the numeracy scores of 2.36 of a standard deviation. Being born in the summer term has negative effect size of 0.45 of a standard deviation, while parent/carer education level below higher education level or at post-graduate level has a negative effect size of 0.39 of a standard deviation. On the other hand, the effect size of an increase in the proportion of children with SEND in the school appears to be very small (0.02 of a standard deviation) and positive. This might be due to the fact that the school variables available in our dataset are not reliable measures to capture between-school variability.

Child Self-Regulation and Behaviour Questionnaire

At the beginning of this chapter, we provided some descriptive statistics about each of the EYT scores. We noted that the Child Self-Regulation and Behaviour Questionnaire (CSBQ) scores were not normally distributed. Running multilevel models for these outcome variables produced no significant results. In some cases, the ICC value provided by the intercept-only model was lower than 0.05. In other cases, the ICC was higher, but the full model did not provide any improvement from the point of view of the fit of the model or the ICC. We concluded that the CSBQ scores could not be reliably and significantly explained through a multilevel regression model.

EYFSP scores

As explained in the Statistical Analysis section, we identified problems of multicollinearity with the parent education variable so we dropped this from further analysis. We then ran crosstabulations to look at associations between the predictor and outcome variables using Cramer's V and Eta. Having identified the variables that would be entered in each model on the basis of this initial analysis, we ran a second set of crosstabulations to assess the level of missing data in each cell. For each outcome variable—communication and language, physical development, PSED, literacy, and maths—analysis of crosstabulation data revealed that a large number of cells had very small frequencies in the 'emerging' and 'exceeding' categories of the outcome variable. The majority of cases fell in the 'expected' category. This reflects the data presented in the histograms above. Looking closely at the cell counts in the crosstabulation data it was clear that the cell counts in the emerging and exceeding categories for all variables were small. In addition, we looked closely at the variables that would be entered into the models for each outcome variable—communication and language, physical development, PSED, literacy, maths, and GLD—based on the measures of association (that is, Eta and Cramer's V). In all cases, between 9 and 12 predictor variables were identified as being associated with the outcome variable and at least five of those variables had over 20% of cells with counts less than five, which is outside acceptable parameters (Field, 2018). In addition, any inferences made from such models would be unreliable as predicting the membership of a category based on very small numbers are likely to overestimate the odds ratios, particularly with a large number of predictor variables as is the case in our dataset (Nemes, Jonasson and Genell, 2009). It was therefore not feasible to run the logistic regression models as planned.

Chapter 3: The impact of COVID-19 on EYFSP outcomes

How do EYFSP outcomes of the 2020/2021 YR cohort in this study compare with average outcomes of the 2018/2019 cohort with similar demographics and socioeconomic characteristics?

Summary

- The proportion of children achieving GLD overall was smaller than the 2018/2019 cohort (58.7% compared to 72%).
- The proportion of children from our sample achieving at least 'expected' in the learning areas that contribute to 'good level of development' is smaller than the national sample from 2018/2019 with percentage points difference ranging from 5.3 to 9.2.
- Gender was an important factor in literacy and maths outcomes: the proportion of girls and boys who achieved at least 'expected' in literacy and maths in our sample was respectively ten and seven percentage points smaller than the proportion for the 2018/2019 national sample.
- EAL children learning EAL were also differentially affected: a higher proportion of children who spoke English as a first language achieved at least 'expected' in all areas of the EYFSP compared to EAL children.
- The proportion of EAL children achieving a good level of development in our sample was 16 percentage points smaller than the proportion in the 2018/2019 cohort.
- A smaller percentage of FSM-eligible children achieved at least 'expected' in all learning areas compared to children not eligible for FSM.
- The percentage points difference in the proportion of children achieving at least 'expected' in communication and language, literacy, and maths was the same for FSM children as for non-FSM children when compared to the 2018/2019 national cohort.
- The difference between the percentage of FSM children achieving GLD and those ineligible has changed by less than one percentage point compared to the 2018/2019 cohort.
- Only 54% of children born in the summer term in our sample achieved at least 'expected' in literacy.

Early Years Foundation Stage Profile

In addition to collecting data for the Early Years Foundation Stage Profile (EYFSP) for our target sample, we also asked schools for EYFSP data from all the children in YR classes. Tables 29 to 36 summarise the EYFSP data collected from participating schools for both the children taking part in the study and their classroom peers (N = 3,253) compared to the national 2018/2019 cohort (N = 640,000). Descriptive statistics were calculated for the prime areas of learning and two specific areas of learning (literacy and maths). Data is presented for the whole sample and disaggregated by gender, free school meals, and term of birth. Table 36 shows the percentage of children who achieved a GLD overall and disaggregated by gender, FSM, term of birth, SEND, and region, with national comparison data from 2018/2019. Data is presented in percentages but absolute numbers are included to provide context to the data. Numbers varied depending on the level of information schools provided. It is important to note that our sample of schools had a similar proportion of SEND and a lower proportion of EAL children as both the 2020/2021 and 2018/2019 population of schools. In addition, our sample of schools had a similar proportion of children eligible for FSM as the 2020/2021 population but this was higher than in 2018/2019. These differences should be taken into account when considering the findings as any differences found may be related to differences between schools or cohorts rather than the pandemic.

Table 29 shows that the percentage of children achieving at least expected in the three prime areas of learning (communication and language, physical development, and PSED) is lower than the 2018/2019 national average. In addition, a smaller proportion of children in our sample achieved at least expected in the specific areas of literacy and maths compared to the 2018/2019 national average.

Table 29: Percentage of children 'emerging', 'expected', and 'exceeding' in the prime learning areas literacy and maths and comparison to 2018/2019 national data

Learning Area	EYFSP level achieved					
	Sample emerging	Sample expected	Sample exceeding	At least expected	National at least expected (2018/2019)	PPTs Diff
Communication and Language*	25.5	67.8	6.7	74.5	82.2	7.7
Physical Development	18.2	77.3	4.5	81.8	87.1	5.3
PSED	22.4	73.7	4.0	77.7	84.8	7.1
Literacy	37.9	55.3	6.9	62.2	71.4	9.2
Maths	30.1	60.9	9.0	69.9	78.5	8.6

Note: N = 3,253, *N = 3,252.

Table 30 shows the typical gender pattern with girls outperforming boys in all areas. However, the data also suggests that the gap between our sample and the national average in 2018/2019 for literacy and maths is bigger for girls than for boys. In terms of FSM, the expected pattern is seen in Table 31, with fewer children eligible for FSM achieving at least expected in all areas compared to those not eligible. However, the gap between our sample and the national average is similar in both groups, although comparisons to national data are only possible for communication and language, literacy, and maths as only 2018/2019 data was publicly available for subgroups for these areas of learning.

Table 30: Percentage of children 'emerging', 'expected', and 'exceeding' in the prime learning areas of literacy and maths by gender and comparison to 2018/2019 national data

		EYFSP level achieved					
	Gender	Emerging	Expected	Exceeding	At least expected	National at least expected	PPTs Diff
Communication and Language	Girls	19.0	73.4	7.6	81.0	85.6	-4.6
	Boys	31.0	63.0	6.1	69.1	73.2	-4.1
Physical Development	Girls	12.0	83.0	5.0	88.0	92.2	-4.2
	Boys	23.0	73.0	4.0	77.0	82.3	-5.3
PSED	Girls	16.3	79.0	4.7	83.7	90.1	-6.4
	Boys	27.5	69.1	3.4	72.5	79.8	-7.3
Literacy	Girls	32.5	59.2	8.3	67.5	78.1	-10.6
	Boys	42.0	52.1	5.9	58.0	65.0	-7.0
Maths	Girls	27.8	64.5	7.7	72.2	82.4	-10.2
	Boys	32.0	57.8	10.2	68.0	74.7	-6.7

Note: girls = 1,484; boys = 1,544.

Table 31. Percentage of children 'emerging', 'expected', and 'exceeding' in the prime learning areas of literacy and maths by FSM and comparison to 2018/2019 national data

		EYFSP level achieved					
	FSM (Y/N)	Emerging	Expected	Exceeding	At least expected	National at least expected	PPTs Diff
Communication and Language	Yes	35.7	60.6	3.7	64.3	71	-6.7
	No	22.9	69.6	7.6	77.2	84	-6.8
Physical Development	Yes	27.8	70.1	2.1	72.2	-	-
	No	15.2	79.8	5.1	84.9	-	-
PSED	Yes	31.3	66.2	2.5	68.7	-	-
	No	20.0	75.5	4.5	80.0	-	-
Literacy	Yes	52.1	44.4	3.5	47.9	58	-10.1
	No	34.3	57.9	7.8	65.7	76	-10.3
Maths	Yes	42.6	53.2	4.2	57.4	65	-7.6
	No	27.3	62.8	10.0	72.8	81	-8.2

Note: 'no' = 568; 'yes' = 2,375.

Table 32 shows that a smaller percentage of children born in the summer term achieve at least expected across all learning areas than either children born in the autumn or spring term, with only 54% of summer born children in our sample achieving at least expected in literacy. No national comparison data is available by term of birth for learning areas. Table 33 shows that a much smaller proportion of children who speak English as an additional language achieve at least expected in communication and language and in maths compared to children whose first language is English.

Table 32: Percentage of children 'emerging', 'expected', and 'exceeding' in the prime learning areas of literacy and maths by term of birth

		EYFSP level achieved			
	Term of birth	Emerging	Expected	Exceeding	At least expected
Communication and Language	Autumn	18.0	70.6	11.4	82.0
	Spring	24.9	68.9	6.2	75.1
	Summer	33.0	63.2	3.8	67.0
Physical Development	Autumn	12.3	80.5	7.2	87.7
	Spring	17.0	79.5	3.5	83.0
	Summer	21.4	75.7	2.9	78.6
PSED	Autumn	16.0	77.2	6.8	84.0
	Spring	22.6	74.1	3.3	77.4
	Summer	26.8	70.7	2.5	73.2
Literacy	Autumn	28.0	60.2	11.8	72.0
	Spring	39.0	55.3	5.7	61.0
	Summer	45.9	50.2	3.9	54.1
Maths	Autumn	21.7	64.6	13.7	78.3
	Spring	29.1	63.4	7.5	70.9
	Summer	38.2	55.7	6.2	61.9

Note: autumn term, N = 857; spring term, N = 888; summer term, N = 920.

Table 33: Percentage of children 'emerging', 'expected', and 'exceeding' in the prime learning areas of literacy and maths by EAL status

		EYFSP level achieved			
	EAL (Y/N)	Emerging	Expected	Exceeding	At least expected
Communication and Language	Yes	38.4	57.5	4.0	61.5
	No	23.5	69.1	7.4	76.5
Physical Development	Yes	23.9	73.0	3.0	76.0
	No	17.6	78.1	4.4	82.5
PSED	Yes	31.0	65.6	3.4	69.0
	No	21.2	74.9	3.9	78.8
Literacy	Yes	46.3	47.5	6.2	53.7
	No	36.1	56.8	7.1	63.9
Maths	Yes	40.0	54.7	5.2	59.9
	No	28.5	62.2	9.3	71.5

Note. EAL = 497; not EAL = 2,155.

Turning to the GLD results, Table 34 shows that the proportion of children in our sample who achieved a good level of development was 13.3 percentage points smaller than the proportion in the national data from 2018/2019 and ranged from 12 to 13 percentage points when disaggregated by FSM or gender. For children with SEND, the gap is smaller, with approximately a ten percentage point difference, while for children without SEND the gap is bigger at 14.2 percentage points. Similarly, the gap is much bigger for EAL children with the proportion in our sample being 16 percentage points smaller than for the pre-pandemic cohort. There is also a larger percentage point difference for children born in the spring term while the gap is smaller for summer born children at 11.1 percentage points. Table 35 shows the regional breakdown of GLD. Data from the North East and London is excluded due to low pupil numbers (4 and 29 respectively). This data shows that fewer than 70% of children achieved GLD in all regions. The percentage point difference gap ranges from -4 in the East Midlands to -28 in the South West. It is important to note that fewer children contributed to data from South West schools, which may explain the bigger percentage point difference.

Table 34: Percentage of children achieving a good level of development (GLD) overall, and by gender, FSM, SEND, term of birth, and EAL status compared to 2018/2019 national data

	N	% sample	% national average 18/19	PPTs Diff
ALL	3,252	58.7	72	-13.3
Male	1,544	53.7	66	-12.3
Female	1,484	64.8	78	-13.2
FSM	568	44.4	57	-12.6
NoFSM	2,375	62.2	74	-11.8
SEND	313	15.3	25	-9.7
NoSEND	2,532	62.8	77	-14.2
Autumn born	857	67.9	81	-13.1
Spring born	888	58.1	73	-14.9
Summer born	920	50.9	62	-11.1
EAL	497	50.9	67	-16.1
EL1	2,155	60.5	74	-13.5

Note: FSM = free school meals; SEND = special educational needs and disability; EAL = English as an additional language; EL1 = English as a first language.

Table 35: Percentage of children achieving a good level of development (GLD) by region compared to 2018/2019 national data

	N	% sample	% national average 18/19	PPTs Diff
North West	504	54	72	-18
Yorkshire	609	56	70	-14
East Midlands	282	66	70	-4
West Midlands	443	58	70	-12
South East	514	59	75	-16
South West	206	44	72	-28
East of England	661	62	72	-10

Finally, we looked at group-level gaps in our sample compared to the 2018/2019 cohort. Table 36 shows that the gap in outcomes between FSM and non-FSM and between males and females is less than one percentage point different in our sample compared to the pre-pandemic sample, while the EAL gap is larger by 2.6 percentage points. In contrast, the difference in the percentage of children achieving GLD between children with SEND and those with no SEND in our sample is smaller by 4.5 percentage points.

Table 36: Group level gaps in GLD

	% sample	% national average 18/19	PPTs difference
Gap between FSM and NOFSM	18.16	17	1.14
Gap between M and F	10.33	12	-1.67
Gap between SEND and no SEND	47.25	52	-4.75
Gap between EAL and no EAL	12.55	7	5.55

In addition to this data on learning areas, we also have data on the underlying learning goals for the majority of children. This data is available in Appendix 3 with tables showing the proportion of children achieving emerging, expected, and exceeding in each learning goal compared to the national cohort 2018/2019. Data is presented overall and disaggregated by gender, term of birth, FSM, and EAL.

Chapter 4: The influence of COVID-19 on school practices

What have been the experiences of schools in supporting the academic skills and socio-emotional wellbeing of YR children during 2020/2021, and what influence has this had on their practice?

Summary

- When children started school, 76% of schools reported that this cohort needed additional support compared to pre-pandemic cohorts. This figure fell to 68% in the spring term, but by the end of the year 56% of schools still reported that this cohort needed additional support.
- Before children started school, the main concerns in terms of EYFSP areas were communication and language (97.8%), PSED (97.9%), literacy (96.7%), and maths (90.1%). At the end of the year, overall concerns had reduced but schools still had concerns about literacy (73.6%), communication and language (63.9%), and PSED (73.6%).
- This is reflected in the qualitative data where teachers raised concerns about children's wellbeing as well as their learning.
- At all timepoints, schools raised concerns about the practicalities of running schools during the pandemic—how to deal with staff and pupil absences, increased staff workload, safety of staff and pupils, and staff wellbeing.
- By the end of the year, schools were also reporting concerns about meeting external expectations, for example, Ofsted inspections and pupil performance on statutory assessments.
- School provision for home learning changed between the first and third lockdown with increased provision in all areas and particularly increased live and pre-recorded lessons. However, the two most common resources offered to parents were suggestions for activities and access to online learning platforms
- The most frequently reported successes by schools were the provision of online learning and engagement with families.
- Just over 20% said live lessons were a success; many schools reported that these improved engagement and connection with teachers and classmates.
- The most useful support provided to schools was IT equipment and schools would have liked more of this. In addition, schools would have liked more guidance from the government and local authorities as well as support for getting in touch with hard to reach families
- The most frequently reported challenges were managing workloads, getting in touch with hard to reach families, and 12.8% of schools felt live lessons were challenging with this age group.
- Following the third national lockdown, the overwhelming majority of schools reported that children who were able to attend during the lockdown were doing better on the EYFSP learning areas than children who could not attend, particularly in communication and language (72.6%), PSED (80.1%) and literacy (73.8%). At the end of the year, 50% of schools reported a similar advantage between groups.
- Some schools stated their intention to keep in place pandemic-related measures that were working well, for example, online platforms and systems to encourage parental engagement such as video calls, online parents evenings, and online assemblies.

School survey results across all timepoints

Schools' concerns for children's development before and after starting school

It was important to the project to understand the changing concerns of schools for their pupils over the course of the 2020/2021 academic year. At T1, in the autumn:

- 76% of schools reported that more of the YR children needed additional support as a result of the pandemic than pre-pandemic cohorts;
- 19% reported that they might need more support; and

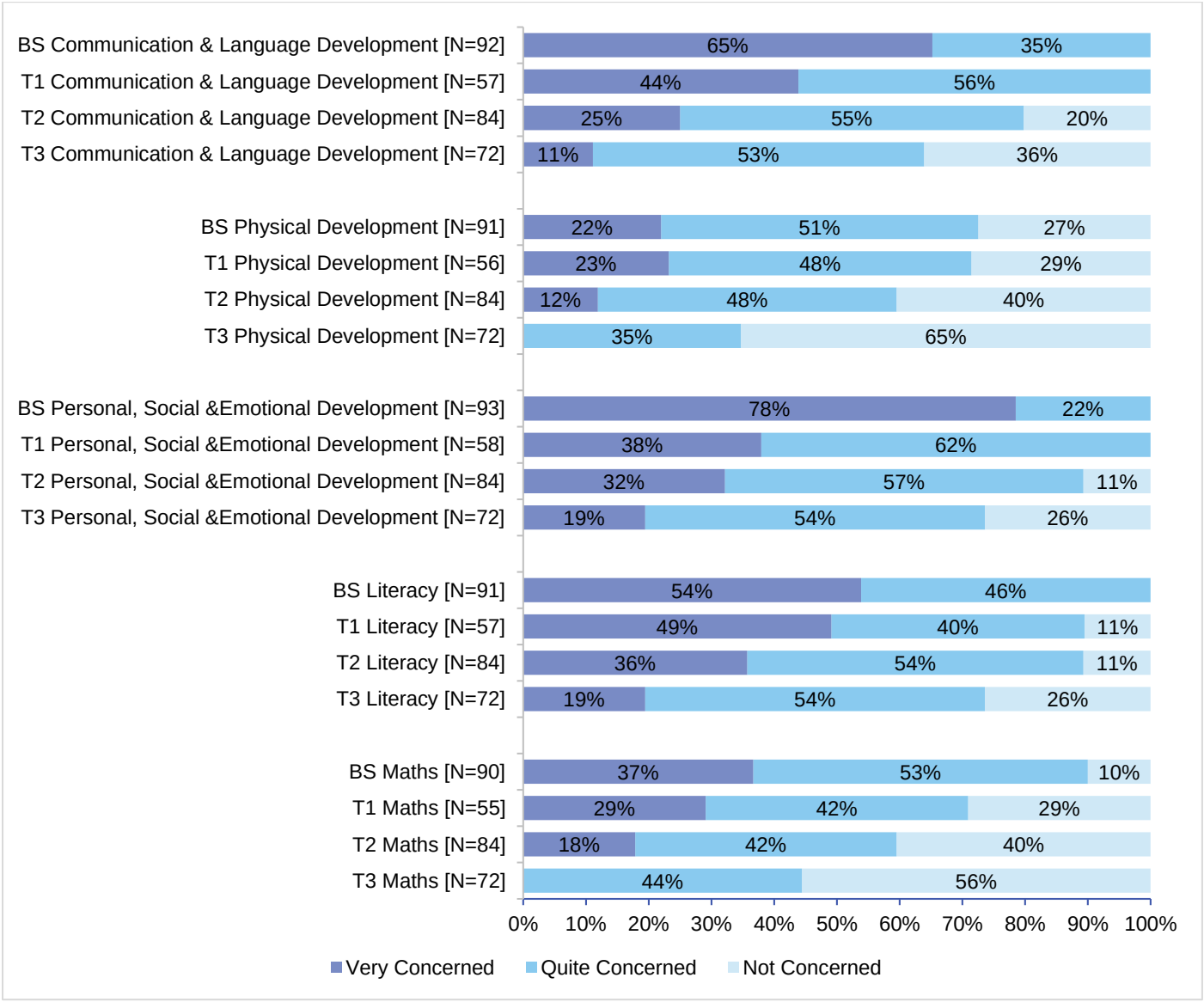
- only 5% reported no need for additional support.

The need for additional support' decreased slightly at T2 in the spring when the corresponding figures were 68%, 30%, and 2% respectively. By T3, in the summer term, the figures were 56%, 32% , and 12%. This shows that, although concerns for this cohort did decrease over time, they persisted across the academic year.

Schools' concerns for children's development in the areas of the EYFS curriculum

Schools were asked at T1 what areas of the EYFS curriculum they had concerns about for this cohort before the pupils began in September (Figure 19). Schools reported the greatest concern for children's PSED and communication and language development with 97.9% (92) and 97.8% (91) saying they were 'very' or 'quite' concerned about each of these areas respectively. Schools also had considerable concerns about children's literacy development with 96.7% (89) reporting that they were very or quite concerned about development in this area. Maths was the next biggest worry, and 90.1% (82) of schools were very or quite concerned for this area before children began school. Although schools did have concerns about children's development in the remaining areas (physical, understanding the world, expressive arts and design), these were more limited.

Figure 19: Schools' concerns about YR children's development in areas of the EYFS curriculum before children started school (BS), T1, T2, and T3



Note: in cases where there were fewer than five respondents in the 'very concerned' category, these responses were collapsed into the 'quite concerned' category.

Once children started school and their needs could be more directly assessed, schools still reported the biggest areas of concern were their PSED and communication and language. For communication and language, 96.5% of schools felt

very or quite concerned about children's development in this area while 93.1% (54) of schools were very or quite concerned about children's PSED. For literacy, 89.5% (51) of schools were very or quite concerned while 70.9% (39) were very or quite concerned about children's development in maths. At this point, schools' concerns for children's physical development were slightly more pronounced but once again schools were more confident in children's abilities in the other areas of the curriculum.

This pattern of concerns remained—results at T2 were very similar to those at T1 with some small notable differences. At this point, schools (89.3%, 75) were most concerned about children's literacy development. PSED remained a concern for 89.3% (75) while concerns around communication and language had reduced slightly with 79.8% (67) reporting worries in this area. For both maths and physical development, 59.5% (50) of schools reported ongoing concerns while the majority did not have concerns about children's understanding of the world and expressive arts and design development.

Finally, at T3 in the summer, there were reductions in the concerns schools were reporting about children's development. Once again, literacy and PSED were the most significant areas of concern—73.6% (53) reported being very or quite concerned. However, overall, schools reported lower levels of concern in these areas (a greater proportion responded that they were 'quite' rather than 'very' worried about their pupils). Communication and language was an area of concern for 63.9% (46) while 44.4% (32) reported being concerned about children's maths development. Again, concerns about children's development in the other areas were much less pronounced.

Overall, while over the course of the academic year schools were reporting fewer worries about their pupils' development in all areas of the curriculum, by the summer term a meaningful proportion of schools still had particular concerns about children's literacy, PSED, and communication and language.

Schools' main concerns through the academic year

In each survey, schools were asked to describe their main concern at that point in the academic year in free text. At T1, the main concern mentioned by 66.1% (37) was children's learning with many specific mentions of the need for children to 'catch up' (Table 37). Children's wellbeing was also a paramount concern for school staff: 44.6% (25) mentioned this, often in terms of the need to support children's mental health or emotional wellbeing. Often, these two primary concerns were mentioned together, for example:

> *'Mental health and wellbeing of all. Low self esteem and confidence of children—many more now feel overwhelmed by learning. Many have regressed, particularly in writing and maths' (headteacher).*

Table 37: Schools' main concerns at T1 (53 schools)

	T1	
	N	%
Pupil: learning	37	66.1
Pupil: wellbeing	25	44.6
School practical management	22	39.3
Staff: wellbeing	18	32.1
Other: COVID safety	18	32.1
Other: wider community	10	17.9
Pupils: home learning	7	12.5
School: external expectations/influences	5	8.9
Other	3	5.4

How to practically manage the school during partial closures was also a considerable concern for staff with 39.3% (22) of schools mentioning this as a main concern. This included concerns around the difficulty of staffing with teachers and children needing to isolate, how to ensure staff and children were safe in school, and the increased workload staff were facing, often as a result of needing to teach both face to face and online. Indeed, this concern was often related to concerns around staff wellbeing, which was mentioned by 32.1% (18) of schools. There were specific mentions of staff feeling lonely or running out of energy, for example:

> *'Coping with staff absence, not being able to mix among staff (staff feel lonely), unable to use school facilities (staff room, kettle etc.), short notice switch to online teaching, managing remote and class teaching' (assistant headteacher).*

Similarly prevalent were concerns for COVID safety, for staff particularly, and this was also mentioned by 32.1% (18) of schools. For example:

> *'Lockdown has not had an effect in this area yet to reduce cases. The worry of infection and isolation is extreme. We constantly worry about which class will be affected next' (headteacher).*

Finally, there were concerns for the wider community, particularly for the health and wellbeing of families and others around the school—mentioned by 17.9% (10) of schools. Challenges around pupils having to do home learning were mentioned by seven (12.5%) and five (8.9%) mentioned the pressure of external expectations (primarily of children's learning) or other unhelpful external influences. Finally, three schools (5.4%) mentioned other concerns outside of these categories.

Table 38: Schools' main concerns at T2 (82 schools)

	T2	
	N	%
Pupil: learning	57	69.5
Pupil: wellbeing	39	47.6
School practical management	28	34.1
Staff: wellbeing	14	17.1
Other: COVID safety	14	17.1
Pupil: transition	6	7.3
Other	8	9.8

At T2, school staff were asked the same question and results were very similar (Table 38). Once again, the main concern for schools was children's learning, as noted by 69.5% (57). However, compared to T1, the nature of schools' comments had changed, with more specific concerns about covering gaps in knowledge, particularly literacy and maths, supporting children's learning behaviours, as well as ensuring children meet age-related expectations. Once again, schools would often mention worries for children's wellbeing alongside concerns for learning, and again this was the second most prominent concern mentioned by 47.6% (39).

> *'Children are behind in so many areas, knowing where to start and which gaps to address first is a huge issue' (headteacher).*

> *'Our main concerns are children's PSED—ensuring that they are happy and settled in school and are able to discuss their emotions, why they are feeling that way, and ways to help them to feel better. We have noticed an increase in behaviour issues since returning so we are focusing on this too (biting, hitting, unable to share the resources). Another main concern of ours is children's literacy skills as we understand that phonics and writing can be difficult for parents to teach and*

support at home. We have therefore noticed quite a gap in children's writing abilities. This is also something that we are particularly focusing on' (EYFS lead).

Indeed, some schools even highlighted the challenge of balancing the need to support children's wellbeing with the focus on academic attainment.

'Ensuring that children settle quickly to allow them to have high levels of engagement so that they can have an increased pace of learning without impacting on their mental health and wellbeing' (EYFS lead).

Practical management of the school was once again the third most prominent concern, mentioned by 34.1% (28) of schools. Workload was also mentioned at this timepoint but schools also struggled maintaining bubbles and following COVID restrictions. In fact, managing bubble closures was a consistent challenge for schools. Staff wellbeing was once again very related to practical management issues and mentioned by 17.1% (14) of schools. Schools noted that staff were exhausted or at risk of burnout and had broad concerns for staff emotional wellbeing:

'Over lockdown, workload increased and a lot of people found this quite exhausting. I think nationally everyone is just exhausted. It is non stop' (classroom teacher).

Table 39: Schools' main concerns at T3 (72 schools)

	T3	
	N	%
Pupil: learning	37	51.4
School: practical management	23	31.9
Pupil: wellbeing	18	25.0
School: external expectations	11	15.3
Staff: wellbeing	6	8.3
Other: COVID safety	6	8.3
Other	8	2.8

At T3, schools were asked to identify the main concerns of staff for the following academic year (2021/2022; see Table 39). Pupil learning continued to be the paramount concern for schools overall, mentioned by 51.4% (37) as a primary worry, with references to children's gaps in knowledge as well as weaknesses in language and communication.

'Pressure of getting children back to achieving "end of year expectations" when we need time to focus on knowledge and skills children do not have. Also having a wider gap in class—children who will reach end of year expectations and children who are still working on previous year expectations' (classroom teacher).

However, in contrast to earlier in the year, at this point schools' second most pressing concern was practical management within the school—reported by 31.9% (23) and often related to concerns for how to manage bubbles and a desire to return to pre-pandemic ways of working to utilise staff and resources for educational recovery as well as more general worries about the potential of inadequate funding and staffing. There were also more specific concerns about how schools would meet external expectations of the education sector, with references to pupil attainment assessments and Ofsted inspections. These types of concerns were noted by 15.3% (11). For example:

'Pressure to achieve pre-pandemic national attainment data, lack of funds to support pupils in school who need extra interventions' (headteacher).

Pupils' mental heath was reported as a main concern by 25.0% (18) of schools, and this was sometimes related to the desire for pupils to be able to mix again and for there to be a sense of normality and consistency in the school community:

> *'[The concern is] that bubbles will remain and classes will remain in their year groups and not be able to mix. We've had no face to face assemblies, whole-school events, or cross-year group playtimes and the children, and staff, miss this. Academic catchup is a concern but the mental health of the children, and staff, is priority' (EYFS lead).*

> *'[A priority is] ensuring children feel safe and are emotionally well. The pandemic has been a scary time for them and we have had many children who have seen family member very ill, some of whom have passed away' (EYFS lead).*

Finally, 8.3% (6) of schools mentioned ongoing concerns about COVID safety, such as resurgences in the virus and the impact of this on schools, 8.3% (6) were concerned about staff wellbeing, and 2.8% (8) had other concerns outside of the aforementioned categories.

Schools' experiences of lockdown three (January to March 2021)

Learning from lockdown one

To understand better schools' experiences of lockdown three it was useful, first, to understand how practice had changed compared to lockdown one. Schools were asked whether they had adapted their home learning offer since lockdown one and 98% (82) said that they had made changes. The most frequently cited reasons for this were learning from the experience of lockdown one (31.1%, 78), feedback from families (21.0%, 59), improved government guidance (15.1%, 10), and improved understanding of technology (14.3%, 10). Other, lesser, influences were improved school guidance/training, implementing best practice as modelled in other schools, or 'other' (Table 40).

Table 40: Reasons for changes to schools' home learning offer in lockdown three (82 schools)

	N	%
School's experiences during the first lockdown	78	31.1
Feedback from families	59	21.0
Improved government guidance	10	15.1
Improved understanding of technology	10	14.3
Fuller/improved curriculum offer	7	7.6
Improved school guidance/training	6	5.9
Best practice from other schools	3	4.2
Other	1	0.8

Schools were also asked specifically how their home learning offer had changed with regard to five key methods or activities: live lessons, pre-recorded lessons or videos, structured lesson plans for parents, suggested activities for parents, and additional online resources (for example, BBC Bitesize). Overall, the majority increased their provision in all areas with the exception of suggested activities for parents, which for the majority remained unchanged (Table 41). The greatest increases were seen in the provision of live lessons (89.5% or 51 schools increased their offer) and pre-recorded lessons or videos (77.9%, 53).

Table 41: Changes in schools' home learning offer at lockdown three compared to lockdown one

	Started or increased		Kept the same		Decreased or stopped	
	N	%	N	%	N	%
Live lessons (N=57)	51	89.5	4	7.0	1	1.8
Pre-recorded lessons/videos (N=68)	53	77.9	12	17.6	3	4.4
Structured lesson plans (N=59)	30	50.8	24	40.7	4	6.8
Suggested activities for parents (N=80)	32	40.0	46	57.5	1	1.3
Additional online resources (N=82)	52	63.4	28	34.1	1	1.2
Other (N=19)	15	78.9	4	21.1	-	-

Experience of in-school provision during lockdown three

Although schools were closed to many students, all schools provided face-to-face teaching for at least some of their pupils. The average number of children attending in-school teaching (in the whole school) was 103 (SD = 69), ranging from 24 to 458 pupils. When specifically considering how many of those children were in the YR cohort, the average figure was 16 (SD = 9) with a range of 2 to 45 pupils. For those children attending in-school teaching, 80.0% (67) of schools reported that children's school day was structured similarly to when school was open to all pupils, and 81% (68) reported that children mostly had their usual classroom teacher.

Home learning provision during lockdown three

Overall, during lockdown three, the majority of children received their education through remote home learning. As such, it was important to consider what this looked like for different schools. The two most common activities schools provided to parents of YR children were suggested activities they could do with their child and online resources, typically through online platforms such as Google Classroom, Tapestry, or others (both 83.1% or 69 schools, see Table 42). Many schools (73.5%, 61) offered pre-recorded lessons or videos, either recorded by the school or produced by others. Live lessons were less common and only 55.4% (46) offered these as part of their home schooling offer. Structured lesson plans were the least common form of provision but were still offered by 43.4% (36). Finally, 14 schools (16.9%) reported that they included other types of activities or support for home learning.

Table 42: How schools delivered home learning (83 schools)

	N	%
Suggested activities for parents	69	83.1
Online resources	69	83.1
Pre-recorded lessons	61	73.5
Live lessons	46	55.4
Structured lesson plans for parents	36	43.4
Other	14	16.9

In addition to providing resources for parents to use with their children, schools were also asked how they monitored home learning. Overall, 64% (53) of schools mentioned that they asked families to submit some form of work to the school; 13% (11) specifically mentioned that they would provide feedback on children's work. In terms of the ways in which attendance and work was monitored, 85.5% (71) reported that they used online platforms (for example, Google Classroom, Tapestry, Seesaw; see Table 43). Live video calls were also a key tool used by schools to monitor home learning, with 61.4% (51) mentioning they used these for assessing how children were learning and how families were

managing with home learning. Less frequently used methods included phone calls, which 27.7% (23) of schools used, and email (20.5%, 17). Lastly, 13.3% (11) mentioned monitoring attendance through the teacher register and 9.6% (8) mentioned other forms of communication with parents.

In terms of formats used to submit children's work, the most commonly used option was photographs (34.9% or 29 schools mentioned receiving children's work in this way), followed by videos, which were used by 19.3% (16) of schools. Written work or worksheets were the least commonly reported form of submitted work mentioned by only 13.3% (11) of schools.

Table 43: Methods of monitoring home learning used by schools during lockdown three (83 schools)

	N	%
Online platform	71	85.5
Live video calls	51	61.4
Phone call	23	27.7
Email	17	20.5
Teacher register	11	13.3
Other	8	9.6

Parental and child engagement with home learning during lockdown three

Schools were asked to consider how they felt parents and children had engaged with home learning during lockdown three, using a ten-point scale from 'not at all engaged' (0) to 'showing a great deal of engagement' (10; see Table 44). Overall, schools reported that levels of engagement for both parents and children were relatively high and very consistent—rated at six to eight on the scale by 60.7% (51) of schools. Parental engagement on its own was rated as nine to ten by 20.2% (17) schools and child engagement at nine to ten by 21.4% (18). However, 83.1% (69) of schools said that engagement with home learning changed over the course of lockdown three. For parental engagement, 71.4% (50) reported that engagement decreased and only 24.3% (17) reported that it increased. Similarly, for child engagement, 70.0% (49) reported that it decreased while only 25.7% (18) reported that it increased.

Table 44: Levels of engagement with home learning shown by parents and children during lockdown three and how engagement changed over time

	Parent		Child	
	N	%	N	%
Engagement with home learning in middle of lockdown (February 2021)				
Scale 0–5	16	19.0	15	17.9
Scale 6–8	51	60.7	51	60.7
Scale 9–10	17	20.2	18	21.4
Total	84	100.0	84	100.0
Direction of change in home learning engagement				
Engagement decreased	50	71.4	49	70.0
No change	3	4.3	3	4.3
Engagement increased	17	24.3	18	25.7

Total	70	100	70	100

Schools' reflections on areas of success and challenge during lockdown three

Schools were asked to reflect on their experiences during lockdown three and what they considered to be their successes and challenges during a very difficult time (Table 45). The most frequently mentioned success was schools' experiences with online learning: 43.5% (37) mentioned the benefits of online learning in terms of how it provided a space to organise and communicate different types of content, and also that it provided a variety of ways for families to engage with learning material. Indeed, the second most frequently mentioned success was schools' engagement with families, which 35.7% (30) of schools mentioned, and the vast majority of these comments were in relation to online tools that supported communication (such as live video calls). For example:

> *'Providing parents with a home learning "menu" went really well for us as it provided choices to parents. It meant that those parents who were continuing to work full time but from home didn't feel as many pressures about home learning. Our weekly 1:1 zoom calls also allowed us to continually check-in with our parents and ensure that they were comfortable with all of the provided learning, and meant that we were on hand to provide any additional support. The children also really enjoyed their zoom calls with their peers' (EYFS lead).*

Table 45: Qualitative codes of schools' perceptions of what went well during lockdown three that may do again in the future (84 schools)

	N	%
Online learning overall	37	44.0
Engagement with families	30	35.7
Offering live online lessons	20	23.8
Offering pre-recorded lessons/videos	19	22.6
Teaching practices and learning strategies	10	11.9
Other	8	9.5

Several schools specifically mentioned that they would continue to use these online tools in future, including:

> *'Parental engagement through our online platform—we are looking at how we can explore this and build on its success and the use of pre-recorded lessons as a teaching tool' (EYFS lead).*

> *'Continue with Seesaw and Teams, moving forward using this for homework, communication with parents has improved' (EYFS lead).*

Live lessons were also considered a success by 22.6% (19) of schools and many specifically mentioned that live interactions improved engagement and supported children to feel connected to their teacher and classmates, and also that live lessons were well received by parents. The same percentage, 22.6% (19), mentioned pre-recorded lessons and videos as something they considered a success, with some schools noting that this allowed families to access material in a way that worked for them. Additionally, 11.9% (10) mentioned aspects of their learning strategy, often in terms of how they organised their home learning offer for parents, or how they targeted their in-school provision, as a success. Finally, 9.5% (8) noted other successes outside of these categories.

Table 46: Qualitative codes of schools' perceptions of what challenges they did not overcome during lockdown three that they may change in the future

	N	%
Engagement with families	30	38.5
Online learning issues	16	20.5
Practical management/workload issues	15	19.2
Live online lessons	10	12.8
Not sure/not applicable	6	7.7
Other	6	7.7

Areas that schools felt were challenges they had not managed to overcome very much mirrored the areas of success, suggesting that schools' experiences of what was important and what constituted success were similar (Table 43). Engagement and communication with parents was the most prominent area of struggle, with 38.5% (30) of schools noting issues such as challenges getting parents to engage with home learning, particularly over a prolonged period, or finding it difficult to get in touch with parents. For example:

> *'Some parents were very difficult to engage and maybe we should have tried harder to get those children into school as they are now significantly behind' (EYFS lead).*

Online learning issues were mentioned by 20.5% (16) of schools, and although issues varied, a meaningful proportion centred on how online provision could have been better utilised to support engagement with children and their families. For example:

> *'The one thing that we were not doing but changed during the course of the lockdown was the Zoom calls with their peers. This wasn't something that we were providing before but as the lockdown continued to extend to the 8th of March, we felt that it was appropriate to review this and put Zooms into practice' (EYFS lead).*

Relatedly, live online lessons were noted as a challenge by 12.8% (10) of schools, although responses varied with some schools suggesting the need for more live lessons in response to feedback and others suggesting that live lessons were not well received by this age group particularly:

> *'More live lessons—this was what more families wanted but we could not provide due to the age of the children. More live meetings with a social focus (see each other, look forward to them etc.)' (classroom teacher).*

> *'We tried some Zoom sessions for the children, these were not widely accessed by our younger children and parent [carers] struggled to access zoom links etc. Younger children seemed to feel shy and interactions were quite stilted' (EYFS lead).*

Practical management of the school was the third most noted challenge, indicated by 19.2% (15) of schools. The majority of these concerns were around the challenge of balancing remote learning and in school provision and the impact of this on teachers' workload and maintaining a manageable timetable. Finally, 7.7% (6) of schools responded with 'none' or 'not applicable' to this question and 7.7% (6) responded with other challenges outside of these categories.

Support for schools that was considered helpful

Given the enormous challenges schools faced during lockdown three, the survey at T2 also considered what schools felt were the most helpful sources of support for them during this time (Table 47).

Table 47: Forms of support that schools found most helpful during lockdown three (N=82)

	N	%
IT equipment/support	24	29.3
Support from the MAT	11	13.4
Parents and community support	11	13.4
None or unsure	10	12.2
Online resources	9	11.0
Local authority support	7	8.5
Colleagues and staff	7	8.5
Other	9	11.0

The most frequently mentioned support that was considered helpful was IT equipment or support, noted by 29.3% (24) of schools. Schools mentioned laptops and ICT equipment (including, but not exclusively, from the Department for Education) as well as IT support from various sources, particularly where this allowed staff to provide online learning resources for pupils. The next most frequently mentioned support was from multi-academy trusts (MATs), with 13.4% (11) of schools finding this useful. Comments noted the benefit of centralised guidance and procedures and this often included references to technical support from the MAT. Parental and community support was also noted by 13.4% (11), for example:

> *'We received really positive feedback from our parents and families, which was fantastic for boosting staff's moral and also helped us to see that the opportunities we were providing were appropriate and effective' (classroom teacher).*

Online resources (such as PhonicsPlay and White Rose Maths) were mentioned by 11.0% (9) of schools and 8.5% (7) mentioned that the local authority provided support that they appreciated. Similarly, colleagues and staff were mentioned by 8.5% (7) as an invaluable form of support throughout lockdown three. However, 12.2% (10) of schools reported that they could not identify any valuable support that they received, and 11.0% (9) mentioned other forms of support outside of these categories.

Table 48: Forms of support that schools would have liked more of during lockdown three (N = 72)

	N	%
IT equipment/support	21	29.2
Government/LA support	17	23.6
Agency/other support for vulnerable families	9	12.5
Additional funding	7	9.7
None or unsure	8	11.1
Wellbeing resources/support (staff and families)	4	5.6
Other	10	13.9

Schools also reported what additional forms of support that they would have found helpful during lockdown three (Table 45). Once again, IT equipment and support was mentioned by 29.2% (21) and was the most frequently reported form of support schools would have appreciated. Within this, the most frequent mentions were of the need for additional provision of laptops and devices to families to support them with home learning. For example:

> *'Laptop scheme needed to be in place much quicker so families could access learning at home' (headteacher).*

Schools also felt they would have benefitted from more guidance and support from the government and their local authority. This often centred around needing more forewarning and time to prepare for changes to regulations as well as a need for more information about what was expected. For example:

> *'More firm guidance from government and county council. We also felt overwhelmed by the amount of information that could not be classed as "guidance"' (headteacher).*

Some schools felt that they struggled with their most vulnerable pupils and keenly felt the impact of the lockdown on children's lack of contact with services such as social services and speech and language therapy. For example:

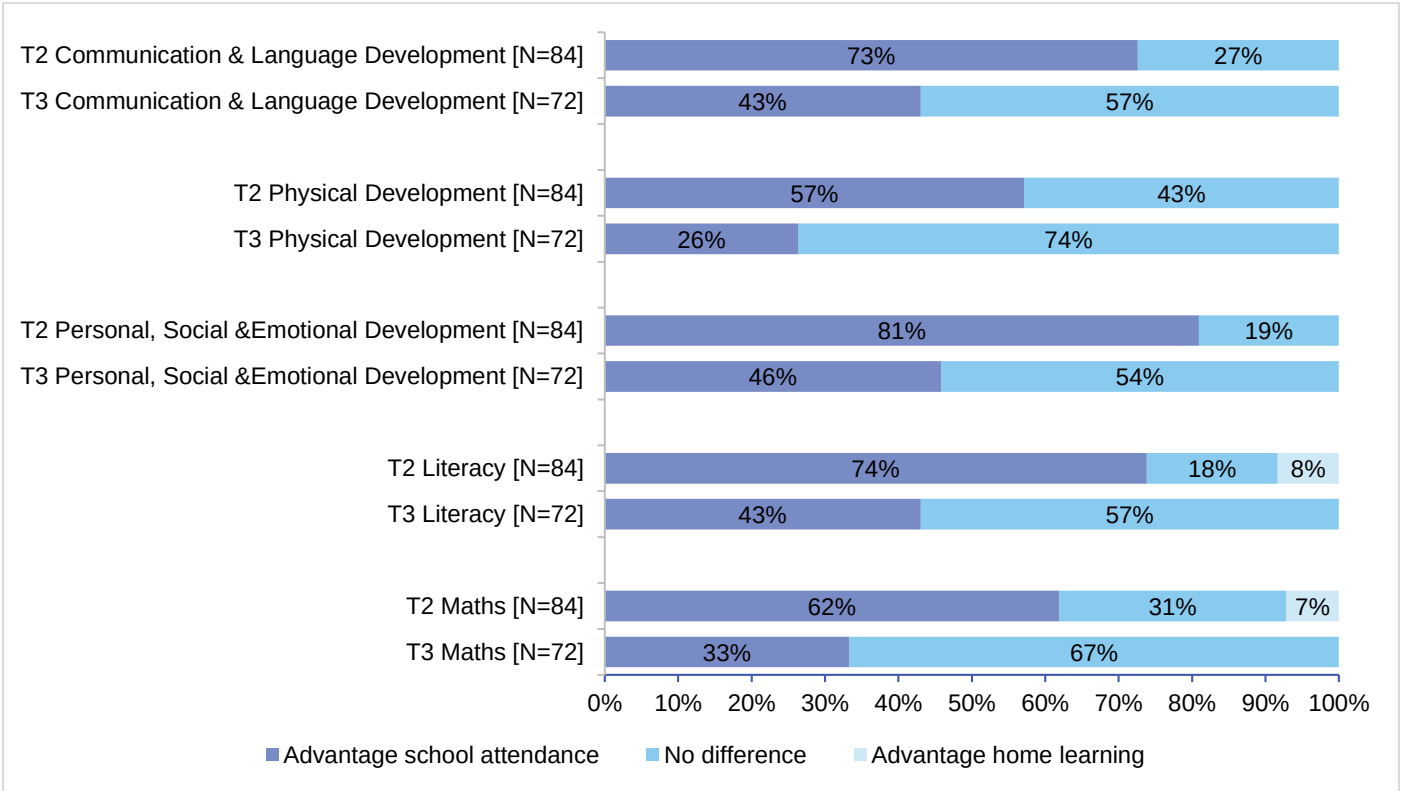
> *'Outside agencies have worked from home and schools have had to pick up the pieces' (EYFS lead).*

There were also comments about a general lack of support for getting in touch with hard to reach families who were not engaging or were struggling with home learning. Additionally, 9.7% (7) of schools mentioned the need for additional funding, particularly to finance additional staff, and 5.6% (4) would have liked additional resources to support both families' and staff wellbeing. Finally, 11.1% (8) did not identify any desired areas of additional support and 13.9% (10) mentioned forms of support outside of these categories.

Differences in attainment based on school attendance versus home learning during lockdown three

Schools were asked to consider whether they felt there were advantages for children who attended in-school provision or for those that received home learning in any areas of EYFS curriculum (Figure 20). At T2, when lockdown three had only recently been lifted, schools overwhelmingly felt that those children who attended in-school provision had an advantage over those that received home learning in all areas of the curriculum. This was most notable for children's PSED, literacy, and communication and language development for which 80.1% (68), 73.8% (62), and 72.6% (61) of schools felt that children who attended in school provision had an advantage.

Figure 20: Relative advantage of children receiving in-school provision or home learning during lockdown three, assessed at T2 and T3



At T3, these numbers had changed and only 50% (36) of the 72 respondents felt there was a noticeable difference between those children who received HL and those that attended in-school provision. However, of those that did feel there was a difference, once again schools felt children who attended in-school provision had particular advantages in PSED (92% or 33), literacy, and communication and language (both 86.1%, 31).

School plans for educational recovery and future practice

Identified interventions and forms of support

When asked how they were planning to access additional support for pupils at T1, 61% of schools stated they would use existing school-based resources, 34% reported they would develop their own resources, and 7% said they would access the Government National Tutoring Programme (GNTP); 16% of respondents said they would utilise other resources and 5% reported that they would use the Nuffield Early Language Intervention (NELI; Table 49).

At T2, 77% (64) of schools reported that they would use existing school-based resources, 96% (80) stated they would develop their own resources, and 22% (18) indicated that they would utilise the GNTP; 18% (11) reported that they would access a mix of off the shelf resources, particularly around literacy, while a further 10% (8) of schools said that they would make use of NELI.

When asked for the final time at T3, 75% (47) of schools indicated that they would continue to utilise existing school-based resources. These largely comprised resources around communication and language (for example, Talk Boost or WellComm) and to a slightly lesser extent literacy based resources (such as Read Write Inc). Other existing school-based resources included PSED resources, physical interventions, maths-based resources, and utilising extra teaching or specialist staff. Forty percent (25) of respondents stated that they would develop their own resources; literacy-based resources were most prominent here followed by resources on physical development, maths, communication and language, and accessing additional teaching or specialist staff. Finally, 73.0% (46) of schools reported they would make use of NELI and a further 18% (11) indicated they would access other resources largely in the form of additional teaching or specialist staff.

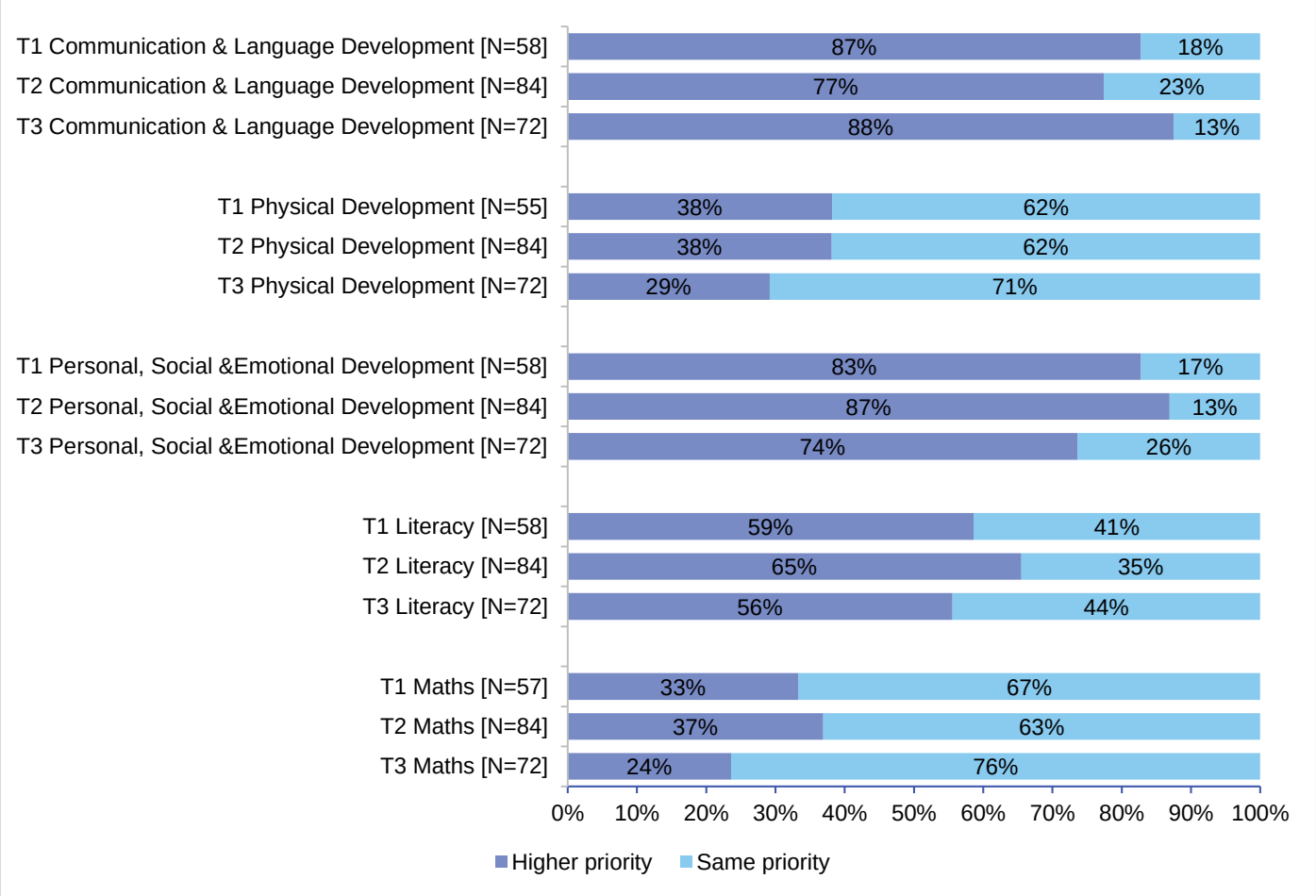
Table 49: Resources and approaches schools intended to use to support children in need of additional support

	T1		T2		T3	
	N (56)	%	N (83)	%	N (63)	%
Develop your own resources	19	33.9	80	96.4	25	39.7
Existing school based resources	34	60.7	64	77.1	47	74.6
Government National Tutoring Programme	<5	7.1	18	21.7	10	15.9
Nuffield Early Language Intervention	<5	5.4	8	9.6	46	73.0
Other resources	9	16.1	10	12.0	11	17.5

Prioritisation of the EYFS curriculum

In an effort to understand whether schools were changing their focus within the classroom, schools were asked to report on their prioritisation of the EYFS curriculum compared to pre-pandemic cohorts. At T1, schools overwhelmingly reported giving higher priority to PSED and communication and language as compared to previous years, with 82.8% (48) reporting this change (Figure 21). Literacy was also given greater priority by 58.6% (34). For the remaining areas of the curriculum, the majority of schools reported giving this area the same level of priority as in previous years.

Figure 21: Prioritisation of the EYFS curriculum compared to pre-pandemic cohorts, assessed at T1, T2, and T3



Note: in cases where there were fewer than five respondents in the 'higher priority' or 'lower priority' categories, these responses were collapsed into the 'same priority' category.

This pattern of prioritisation was very similar at T2 where 86.9% (73) of schools reported prioritising PSED higher this year as compared to previous pre-pandemic cohorts. Communication and language was given priority by 77.4% (65) schools and literacy was being prioritised by 65.5% (55). For the other areas of the curriculum, the majority of schools said their focus was similar to that in previous years.

Finally, at T3, results were slightly different. At this point, 87.5% (63) of schools said they were prioritising communication and language more than in previous cohorts, an increase on T2. While PSED was still a central focus for many schools, at this point, a smaller proportion (73.6%, 53) than at T2 reported that they were prioritising this area of the curriculum. Similarly, prioritisation of literacy was down on T2 to only 55.6% (40) of the sample. Once again, for all other areas of the curriculum the majority of schools said that it received the same level of priority as in previous years.

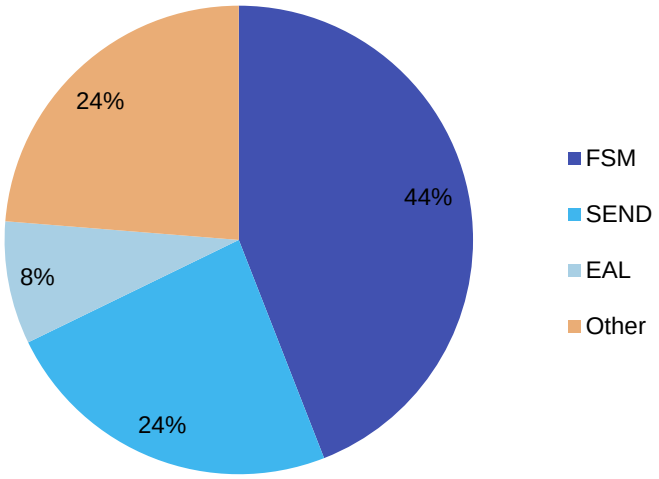
School plans for educational recovery

When asked what was the intended goal of their 'educational recovery' plan, 47 of 69 (68.1%) schools indicated that their key aim was to minimise the gap between this cohort and pre-pandemic cohorts. This was closely followed by schools aiming to minimise the attainment gap between children with higher and lower levels of attainment (62.3%, 43 schools). Only 13% (9) suggested other reasons including improving pupil health and wellbeing and reducing the gap for specific groups of learners (for example, SEN, Pupil Premium, or boys).

In addition to this previous question, schools were asked which groups of learners they were most concerned about when considering educational recovery plans (Figure 22). Overall, 44.1% (26) were most concerned about children eligible for free school meals, citing lack of engagement in home learning and widening learning gaps as the key reasons behind their concerns. SEND children were the main concern for 23.7% (14) of schools, many of which believed that the lack of professional support, disruptions to routine, and their PSE wellbeing to be causes of concern. Some (8.5%, 5) were particularly concerned about their EAL learners, citing specific concerns around communication and language.

Other learners cited as the primary concern for the remaining 23.7% (14) of schools included looked-after children, summer-born pupils, boys, and all children.

Figure 22: Groups of learners that schools were most concerned about in their educational recovery plans (59 schools)



When asked how schools were considering funding their educational recovery plans, 75.8% (50) stated that they intended to utilise both the catch-up premium and their existing school budget (Table 50). Similarly, 62.1% (41) of respondents said they would access funding through the Pupil Premium while 37.9% (25) planned to utilise central government funding. Lastly, 36.4% (24) indicated other funding streams including grants, fundraising, and local authority funding.

Table 50: Intended funding sources for schools' educational recovery plans (66 schools)

	N	%
Catch-up premium	50	75.8
Existing school budget	50	75.8
Pupil Premium	41	62.1
Central government funding	25	37.9
Other	24	36.4

Staff wellbeing and support

As noted previously, schools reported concerns about the impact of COVID-19 and partial school closures on the mental health and wellbeing of their staff. Specifically, when asked at T1, 81% of schools were concerned that the pandemic would have long-term outcomes on the health and wellbeing of staff. Although this number decreased slightly at T2—to 69%—this suggests it was still an area of considerable concern. At T3, schools were asked what provisions they had provided to support the mental health and wellbeing of staff during the academic year, and whether they intended to continue offering this provision (Table 51). Overwhelmingly, for all forms of support schools provided, their plans were to continue offering this support going forward. The most common form of support schools provided was signposting to mental health support (94.1%, 64). Specific mental health and wellbeing training was provided to staff in 85.3% (58) of schools, while 79.1% (53) provided wellbeing meetings or check-ins, often with senior members of staff. Additionally, 73.5% (50) provided specific access to professional mental health support services such as counsellors and 50.7% (34) mentioned appointing identified mental health first-aiders within the school. Additional staff or sharing out responsibilities was provided by 31.3% (21 schools), 27.3% (18) provided staff with additional no-contact or planning time, and 12.0% offered other forms of support outside of these categories.

Table 51: Provisions schools provided to support staff mental health and wellbeing during the academic year at T3

	Currently offering, will continue		Not currently offering	
	N	%	N	%
Access to professional mental health support services	50	73.5	17	25.0
Mental health/wellbeing training for staff	58	85.3	8	11.8
Appointing mental health first-aider(s)	34	50.7	33	49.3
Staff wellbeing meetings or check-ins	53	79.1	13	19.4
Signposting to mental health support	64	94.1	4	5.9
Additional no-contact or planning time	18	27.3	46	69.7
Additional staffing or sharing of responsibilities	21	31.3	42	62.7
Other	6	12.0	43	86.0

Schools' learning over the course of the 2020/2021 academic year

Schools were asked what they felt they had learned over the previous year more generally and whether there were changes of practice due to the pandemic that they intended to keep going forward. The lessons learnt during this time were often wide reaching and schools mentioned a number of benefits resulting from changes they had made during partial school closures. For example, one school responded:

> *'Time-saving systems that will stay—some staff meetings to stay on teams when it doesn't need to have our large staff together. Ability for us to work on documents online at the same time to swiftly make changes. Electronic forms that have been more beneficial. One-way system makes the school site much calmer. Additional cleaning measures have now become routine. Staggered lunchtimes to stay—now only 90 children max on the playground rather than over 180 has reduced the amount of first aid incidents. Parents having more of an awareness through the online learning platform of the expected level of work from each year group. Pre COVID we didn't have great parental engagement in curriculum meetings or parents reading information sent home. Having video lesson examples of what is taught, and how, has really opened a lot of parents' eyes' (EYFS lead).*

Indeed, 77.8% (49) of schools mentioned continued use of the online platforms and processes they established or increased during partial school closures (Table 52). Particularly within this there was a focus on using these tools for improved parental engagement through the offer of video call meetings, online parents evenings, and online assemblies.

Table 52: Lessons learned over the previous academic year that schools intend to carry forward

	N	%
Continue using online provision/platforms	49	77.8
Changes to the practical management of the school	26	41.3
Changes to teaching and learning strategies	12	19.0
Improved engagement and communication practices	11	17.5
Supports for pupil wellbeing	8	12.7
Supports for staff wellbeing	6	9.5
Other	3	4.8

This often also coincided with changes to the practical management of schools, which was mentioned by 41.3% (26), including changes such as using online systems to provide information to parents or to send things home. There were also mentions of changing aspects within the physical environment of the school, such as changes to drop off, staggered starts, limiting people within the school, having smaller group sizes in large spaces (lunch/playground), and having children attend school in their PE kits. Changes to teaching and learning strategies were mentioned by 19.0% (12) of schools and while these responses varied in content, there were some consistent mentions of the importance of flexibility for meeting children's needs. Indeed, the next most frequent change was additional support for children's wellbeing, with 12.7% (8) of schools that responded mentioning this as something they would take forward. For example:

> *'But since returning after this year's lockdown, we focused on following the needs of our children and dropped the pressures of our usual busy timetables. We continued to prioritise reading, writing, and maths, however, our SLT gave us the flexibility to focus on settling our children back into school, which allowed us to be more creative with our teaching and follow the children's interests more. We have really prioritised children's wellbeing this year and participated in lots of different activities which the children have responded really well to! These are both things that all of us have really enjoyed and will continue to put into practice' (EYFS lead.)*

Finally, 9.5% (6) schools mentioned they would be continuing to focus on support for staff wellbeing, and three schools (4.8%) mentioned other lessons outside of these categories.

Conclusions

Table 53: Summary of key study findings

Research questions	Finding
What is the relationship between YR children's experiences of the COVID-19 pandemic and their socio-emotional wellbeing, language, and numeracy skills?	Both parents and schools perceived that children had been disadvantaged in their socio-emotional wellbeing, language, and numeracy skills when entering reception classes in 2020 due to their experiences during the COVID-19 pandemic. Although both parents and schools felt some 'educational recovery' had been achieved by the end of the academic year (2020/2021) the EYFS attainment levels in these core areas were below what could have been expected based on the previous (pre-pandemic) YR cohort (2018/2019).
What were children's experiences prior to starting formal schooling and during YR?	The majority of children in our sample did not attend Early Childhood Education and Care (ECEC) during the first lockdown (priority was given to children of key workers and vulnerable children) and over half of them did not return to ECEC when restrictions lifted in June 2020. Parents were concerned about their children starting YR, particularly (63%) in terms of Personal, Social and Emotional Development (PSED). However, once children had started YR, the majority of parents thought children had settled in well and at the end of the school year most parents (80%) were happy with how their child was coping. Two thirds of parents felt confident home-schooling their children during the third national lockdown (January to March 2021) and just over half of parents said they enjoyed home-schooling their children. Overall, parents were largely happy with the school's engagement and communication and appreciated the structure and routine provided by online lessons. Average scores from the HLE Index were between 26 and 28 at each of the three timepoints, suggesting little change in the quality of the HLE during the study.
How are children's experiences prior to starting formal schooling and during YR 2020/2021 associated with their socio-emotional wellbeing, language, and numeracy skills by the end of YR? **To what extent do socio-emotional wellbeing and attainment vary according to school and individual-level socio-demographic circumstances, with a particular emphasis on disadvantage?**	Indicators capturing children's experience of the pandemic were not as strongly associated with children's outcomes as the pupil characteristics that have been demonstrated to be important in the past. This might be due to the sample size of this study being smaller than anticipated. Pupil characteristics that are typically associated with pupil educational outcomes were associated with the EYT numeracy and language scores in this study: • Children born in the summer term, children with Special Educational Needs and Disabilities (SEND), children with siblings, and children with a lower quality home learning environment were predicted to have lower EYT vocabulary scores. • Children born in the summer, children with SEND, and children with a parent educated at a level below higher education were predicted to have lower EYT numeracy scores. Experiences during lockdown did not seem to predict numeracy scores over and above these child-level variables. • While it was our intention to explore characteristics associated with EYT socio-emotional scores this was not possible due to non-normal distributions and limited variance in outcomes. It should be noted that these findings should be interpreted with caution given the small sample size (456–549 pupils), the representativeness of the sample, and missing data.
How do EYFSP outcomes of the 2020/2021 YR cohort in this study compare with average outcomes of the 2018/2019 cohort with	The proportion of children in our sample who achieved a 'good level of development' (GLD) was 13% smaller than the proportion in the national data from 2018/2019, (58.7% reaching a GLD compared with 72% in 2018/2019). In an average-sized Reception class this could equate to three fewer pupils reaching a GLD as a consequence of the pandemic. These findings suggest a greater proportion of children, around 41% compared with 28% in 2019, could particularly

similar demographics and socioeconomic characteristics?	benefit from an adjusted and responsive curriculum to support their learning and development. A smaller proportion of children in our sample achieved at least the 'expected' level in all five learning areas where the study collected EYFSP data, with literacy (9.2%) and maths (8.6%) seeing the largest percentage differences with 2018/2019 outcomes. A smaller proportion of children eligible for free school meals (FSM) achieved at least 'expected' in all learning areas compared to children not eligible for FSM. However, the percentage difference in outcomes between these groups in our sample and the 2018/2019 cohort was minimal. Therefore, FSM eligibility does not seem to explain differences in outcomes. Children learning EAL, however, do seem differentially affected. The proportion of EAL children achieving a GLD in our sample was 16 percentage points smaller than the proportion who achieved GLD in the 2018/2019 cohort. It should be noted that these findings should be interpreted with caution given the relatively small sample size (3,253 pupils) and unknown level of moderation completed to support the reliability and validity of teacher's assessments.
What have been the experiences of schools in supporting the academic skills and socio-emotional wellbeing of YR children during 2020/2021, and what influence has this had on their practice?	When children started school, 76% of schools reported that this cohort needed adjusted support compared to pre-pandemic cohorts and 56% of schools still reported that this cohort needed adjusted support at the end of the school year. Before children started school, the main learning areas of concern were PSED (97.9%), communication and language (97.8%), literacy (96.7%) and maths (90.1%). At the end of the year, overall concerns had reduced but schools still had concerns about children's literacy (73.6%), PSED (73.6%) and communication and language (63.9%). After the third national lockdown (January to March 2021), the overwhelming majority of schools reported that children who were able to attend during the lockdown were more advanced in their learning and development than children who could not attend, particularly in PSED (80.1%), literacy (73.8%), and communication and language (72.6%). At the end of the year, 50% of schools reported a similar advantage in attainment in these learning areas for those children who had attended school during the lockdown compared to those who had been unable to attend. At all timepoints, schools raised concerns about the practicalities of running schools during the pandemic relating to issues such as staff and pupil absences, increased staff workload, safety of staff and pupils, and staff wellbeing.

The COVID-19 pandemic had an unparalleled impact on the education system from early years settings through to higher education institutions. Our study has explored the impact of the pandemic on children who started reception in the academic year following the first national lockdown (March to June 2020). These children were the first cohort transitioning from early education settings into school settings during a time of crisis, with the majority having not had access to early education in the months leading up to this important transition. In addition, these children had endured a period of lockdown in which social contact was vastly reduced and there was limited access to activities outside the home. For many children the experience of lockdown was made harder by cramped living conditions, no access to green spaces, parental mental health difficulties, and financial hardship. On starting school, they had to contend with the disruption caused by COVID-19 restrictions only to then go back into another lockdown after just one term of schooling. Against this backdrop, we have explored the perspectives of parents and school staff on children's adjustment to school. We have also looked at the experiences of parents, teachers, and children during the third national lockdown (January to March 2021), including the experience of home schooling and the impact on children's outcomes at the end of the school year. We used this data to contextualise our analysis of children's outcome data on socio-emotional development and educational attainment at the end of their first school year.

Unsurprisingly, our parent survey data showed that a large proportion of parents were concerned about their children starting school and the impact that the pandemic had had on their child's school readiness. However, once children started school, most parents were not concerned about how their child was coping and felt that they had settled in well.

At the end of school year, over 80% of parents felt that their child had coped well with school. Those parents who did express concern about their child's adjustment were largely focused on the child's socio-emotional wellbeing rather than attainment. Where concerns about attainment were raised, these tended to about literacy and maths rather than other areas of the reception curriculum.

The third lockdown presented huge challenges to both parents and school staff. The vast majority of parents had to engage in home schooling whilst juggling work and other commitments. Parents largely praised schools for the support they received during that time. They were positive about the communication and engagement of teachers, the resources provided, and the routine offered by online lessons. However, home schooling was not without its difficulties. Parents faced challenges around access to technology, for example, internet and printers, finding space for their child to take part in online learning, having multiple children to home school, and fitting home schooling in around work and other commitments. Beyond the practical challenges, a third of our sample did not feel confident delivering home schooling and just over half of our sample enjoyed home schooling their children. In fact, during the third lockdown, engagement with home schooling decreased in both parents and children. On the other hand, parents were much more confident and got more enjoyment from engaging with their child during activities that were not related to formal education.

The school surveys showed a slightly different perspective. At the beginning of the school year, 76% of schools felt that the 'COVID' YR children needed additional support compared to pre-pandemic cohorts; this proportion decreased slightly—to 68%—in the spring and by the summer term had decreased even further, to 56% of schools. The EYFSP areas of learning for which school staff reported the greatest concern at the beginning of the school year were PSED and communication and language, with 97.9% and 97.8% of schools saying they were 'very' or 'quite' concerned about each of these areas respectively. Schools also had considerable concerns about children's literacy and maths skills. Once children started school and their needs could be more directly assessed, schools still reported similar concerns, although concerns for children's physical development were slightly more pronounced. After the third lockdown, schools were most concerned about children's literacy development and PSED, while concerns around communication and language had reduced slightly. By the summer, there were reductions in the concerns schools were reporting about children's development. Once again, literacy and PSED were the most significant areas with 73.6% of schools reporting that they were 'very' or 'quite' concerned about these areas. However, overall, schools reported lower levels of concern in these areas (a greater proportion responded that they were 'quite' rather than 'very' worried about their pupils). Communication and language was an area of concern for 63.9% of schools, while 44.4% of schools reported being concerned about children's maths development.

It is against this backdrop that the project investigated the relationship between the COVID-19 pandemic and children's outcomes. The continuing disruption to the school year meant that the research team had to change data collection plans. With respect to the Early Years Toolbox, that meant we were not able to establish a baseline for how children were faring at the beginning of the school year and, thus, could not take a longitudinal view of how scores changed throughout reception year. In addition, schools did not have a legal requirement to report EYFSP scores to the Department for Education for the academic year 2020/2021 and therefore we cannot compare our sample with national-level EYFSP outcomes (more details on the limitations to this study are discussed in the next section).

Nevertheless, the data we collected allowed us to gain deep insights into how this cohort of new school starters were doing. Data from the Early Years Toolbox on children's socio-emotional development could not be statistically analysed because of a lack of variation in the scores. However, the multilevel models for the vocabulary scale showed that younger children (summer born), children with SEND, children with siblings, and children with a lower quality home learning environment were predicted to do worse on the EYT vocabulary scale. The percentage of EAL children in the school was also a significant predictor of performance on this scale, although the actual effect size was practically nil. Younger children (summer born), children with SEND, and children with a parent educated below higher education level were predicted to have lower scores on the numeracy scale. On the other hand, the experiences of lockdown as captured by our data did not seem to have any predictive powers. However, it should be noted that our findings should be treated with caution due to the sample size and the fact that the data was not representative of the national population.

Turning to the EYFSP outcomes, unsurprisingly, areas that had been raised as concerns in previous reports (for example, Fox et al., 2021) were all adversely affected. Communication and language, physical development, and PSED had all been highlighted in previous reports as areas of concern for both parents and teachers. These were also the areas of concern emerging from our study's survey data. The EYFSP data we collected from schools showed a smaller proportion of children achieved at least 'expected' in these areas compared to the national data from 2018/2019. The analysis of literacy and maths outcomes reflects these findings. The proportion of children in our sample achieving at

least ‘expected’ in the areas of literacy and maths was lower than the 2018/2019 national sample. This was particularly true for girls and for children learning English as an additional language.

Looking at the proportion of children achieving a good level of development at the end of the school year, we found that the proportion of such children in our sample was 13 percentage points lower than the proportion in the pre-pandemic cohort. If you take an average class size of 26.6 children, 13% of that class equates to around three pupils. On this basis there could be three fewer children in each class achieving a ‘good level of development’development than before the pandemic. The GLD attainment gap was even higher for EAL children with a 16 percentage point difference between our sample and the 2018/2019 cohort. With regard to gender, the GLD attainment gap between boys and girls appeared to decrease compared to pre-pandemic levels—although by less than 1%—whereas in contrast, the gap widened in relation to EAL children and their peers with English as a first language.

Taken together this data suggests that, in terms of outcomes measured by the EYFSP, all areas were affected by the pandemic and particularly literacy and maths. The typical pattern in relation to free school meals is seen, but the achievement gap does not seem to have widened. However, children learning EAL appear to have been particularly affected. In addition, the impact of the pandemic on girls appears to be greater than the impact on boys, with the gap between genders closing as fewer girls reached expected levels in literacy and maths, although both groups did worse than pre-pandemic cohorts: girls by approximately ten percentage points and boys by approximately seven percentage points.

These results are supported by schools’ own perceptions of children’s development as throughout the academic year schools expressed concerns for children’s learning (particularly literacy) and their wellbeing. In the third lockdown, schools made active changes to the home learning offer to include more live lessons and pre-recorded videos, and the qualitative data highlighted that schools found the resources particularly useful for teaching children literacy and maths. Both schools and parents mentioned that these areas of the curriculum were more challenging for parents to teach and that resources to support teaching in these areas were invaluable. However, schools also noted noticeable drops in literacy and maths achievement in this cohort (as supported by the EYFSP results) and worried about how they would meet educational recovery expectations going forward. Overall, these findings demonstrate that schools were acutely aware of the needs of their pupils and worked tirelessly and innovatively to provide the resources that parents and children needed to make home schooling as successful as possible. Schools cited provision of online learning and engagement with families as key successes during lockdown, although as yet we do not know the implications of these in the longer term. However, while schools and parents were able to work in partnership to make home learning successful in many ways, there is no substitute for in-school provision when it comes to academic skills such as literacy and numeracy.

The findings of this report fit within the wider body of research emerging on the impact of COVID-19 on educational outcomes. School and parent concerns at the beginning of the academic year surrounding school readiness are reflected elsewhere (Nicholls, Neale, Joyner and Sheikh, 2020) and the importance of attendance at an early years setting during lockdown for improving receptive vocabulary and cognitive executive functions have also been reported (Davies et al., 2021). Our results also found that teachers reported that pupils who remained in an educational setting during lockdown fared better in terms of progress than those who did not.

In an EEF study conducted by the NFER on the impact of COVID-19 on pupil attainment in Key Stage 1 during the academic year 2020/2021 (with data collection points in autumn 2020, spring 2021, and summer 2021) it was found that at the end of Year 1 pupils were achieving three months behind expected levels in reading and a similar, although smaller, lag in attainment was observed for maths (one month behind expected levels) as pupils slowly ‘caught up’ during the academic year. In both reading and maths, however, a substantial gap in attainment between disadvantaged children and their peers was found (Rose et al., 2021). Similarly, Weidmann et al. (2021) found attainment gaps in maths within primary-aged children (Years 2 to 6) eligible for FSM and those not eligible for FSM had increased in autumn 2020 compared to autumn 2019. Whilst the increased gap in maths attainment in the Weidmann study was greater than that reported here, it should be noted that that children in the study were older and and data was captured early in the school year. In contrast, the same study found no evidence of the gap widening in English attainment, although the caveats above still hold true. This is particularly important given the increased levels of disadvantage and challenging circumstances found due to the pandemic (Joseph Rowntree Foundation, 2021; Children’s Commissioner, 2020). The present study, on children entering reception, goes some way towards filling the knowledge gap in terms of the impact of the COVID 19 pandemic on YR children A smaller proportion of children were meeting at least expected levels in all areas of the EYFSP compared to the 2018/2019 cohort. This is in line with findings from other research as reported

above. When assessing any differences, however, results should be framed within the context of children's development at different ages.

Finally, the impact on teachers should not be ignored and can also be found in the wider literature; it leads to uncertainty and concerns, not least for the most vulnerable pupils (Kim and Asbury, 2020). This, and the hard work done by schools and teachers to adapt to change, is reflected in these research findings.

Limitations and lessons learned

The results of this study should be interpreted with some limitations in mind, which mainly derive from the unprecedented circumstances in which it took place and the need to limit the burden on schools and families already stretched for time and resources during this difficult year. The main limitation is a consequence of the fact that this study's data collection plan had to change as result of the disruption to schools in the autumn term. Our original design involved collecting EYT data in the autumn 2020 and summer 2021 terms to allow us to look at the trajectory of development over the course of the reception year. Unfortunately, schools were experiencing a significant level of disruption with COVID-19 restrictions as well as high rates of pupil and staff absence and, therefore, only a small proportion of schools could complete the first round of assessments. This meant that we did not have baseline data with which to establish the immediate effects of lockdown or to explore change over time.

In addition, a further unanticipated partial closure of schools from January to March 2021 led to schools not being required to report EYFSP scores to the DfE at the end of the 2020/2021 academic year. Therefore, this data was not available from the NPD. We were able to obtain EYFSP data for over 3,000 children directly from participating schools, but this was not moderated. Our sample of schools had a similar proportion of children with SEND but a lower proportion of EAL children as both the 2020/2021 and 2018/2019 population of schools. In addition, our sample of schools had a similar proportion of FSM children as the 2020/2021 population but this was higher than in 2018/2019. However, even with the full 2020/2021 EYFSP cohort there would be potential cohort differences that could explain differences in outcome above and beyond COVID-19. Ideally, we would have used propensity score matching or weighting to ensure a more comparable sample from the NPD but we relied on publicly available data, so this level of comparison was not possible. This means that the results of comparison of our sample data with the 2018/2019 cohort need to be interpreted with caution, although collecting the EYFS data directly from schools was valuable in contributing to the overall findings and the researchers are unaware of this approach being adopted elsewhere.

Unfortunately, we had a large amount of missing data at different timepoints. Our relatively small sample size at different timepoints meant we could not carry out all the planned statistical analyses, specifically the logistic regressions for EYFSP. In addition, given a general lack of remote assessments with English norms that would not over-burden teachers, we used the Early Years Toolbox. However, the CBSQ, in addition to not being normed on an English population, presented strong limitations as a measure of social skills and wellbeing at only one point in time. Scores for all CSBQ measures were not normally distributed, which meant we could not carry out the multilevel models for these variables in any meaningful way. Consequently, we were reliant on the PSED attainment of these children as recorded by schools within the EYFSP. The amount of missing data also meant that the only group-level analysis we could carry out robustly was the one based on disadvantage, that is, including eligibility for FSM as an interaction term in the multilevel models. The data related to EAL and SEND status was too sparse to allow these variables to be used as interaction terms within the models.

Parent and school surveys were carried out at three timepoints, which potentially provided a strong longitudinal view to our data. However, in order not to overburden schools and parents we had to make pragmatic decisions about what questions to include. In particular, we retained factual questions that could be easily checked by respondents rather than attitudinal questions, which would require participants to reflect back on a long period of time. As such, not all questions were the same at all timepoints, which means we have not captured the same level of detail for all participants in terms of experiences during the initial and subsequent lockdowns.

Finally, as an exploratory study a large number of analyses were conducted and whilst the study plan was published in March 2021, prior to conducting the final analysis, additional hypothesis were explored. Consequently, the overall findings should be treated with some caution given the increased risk of false positive results.

Future research and publications

Overall, this study looked at only one academic year (reception). Following these pupils into further years of formal schooling would be both feasible and desirable to explore the longer-term picture—whether the changes observed in this study were retained or were mitigated over time. Two of the authors of this report (Dr Claudine Bowyer-Crane and Dr Sara Bonetti) have received funding from the Nuffield Foundation to assess the impact of COVID-19 on educational, language, and socio-emotional outcomes in KS1, which is relevant to such a longitudinal study.[4] Likewise, it could be valuable to compare the outcomes from our 2020/2021 sample with subsequent cohorts (children entering reception classes in 2021/2022).

It would be interesting to gain more insight into the consequences of the pandemic on EAL pupils and also on what support works best for this group. This report is a good starting point: https://www.lambeth.gov.uk/rsu/sites/www.lambeth.gov.uk.rsu/files/the_impact_of_school_closures_on_pupils_with_english_as_an_additional_language_2022_0.pdf

However, we know that 'EAL status' is a broad category that encompasses a lot of different realities for children. We believe it would be interesting to check at the interaction between EAL and FSM status and to disentangle how support can be concretely different for this group. In particular, a lot of excellent work has been done to provide resources for school-aged EAL children but much less has been done for the 0–5 age range (and their families).

Another result that stood out as interesting and worthy of further investigation is the seemingly stronger impact of the pandemic on girls compared to boys, whereby their 'usual advantage', for example in the area of literacy, has significantly decreased according to our data.

We published an interim briefing in March 2021 providing insights from the first school and parent survey. This briefing is available on the Education Endowment Foundation website along with the study plan and the statistical analysis plan.

[4] See https://www.iciclesproject.com/

References

Andrew, A., Cattan, S., Costa-Dias, M., Farquharson, C., Kraftman, L., Krutikova, S., Phimister, A. and Sevilla, A. (2020) 'Family Time Use and Home Learning During the COVID-19 Lockdown', London: IFS. Family time use and home learning during the COVID-19 lockdown

Bengtsson, M. (2016) 'How to Plan and Perform a Qualitative Study Using Content Analysis', *NursingPlus Open*, 2, 2352-9008, pp. 8–14. doi.org/10.1016/j.npls.2016.01.001

Benson, T., Sladen J., Liles, A., & Potts, H.W.W. (2019) 'Personal Wellbeing Score (PWS): A Short Version of ONS4: Development and Validation in Social Prescribing', *BMJ Open Quality*, 8:e000394. doi:10.1136/ bmjoq-2018-000394

Children's Commissioner Office (2020) 'Childhood in the Time of Covid': https://www.childrenscommissioner.gov.uk/report/childhood-in-the-time-of-covid/

Davies, C., Hendry, A., Gibson, S. P., Gliga, T., McGillion, M. and Gonzalez-Gomez, N. (2021) 'Early Childhood Education and Care (ECEC) During COVID-19 Boosts Growth in Language and Executive Function', *Infant and Child Development*, 30 (4), e2241.

DfE (2019a) 'Childhood and Early Years Survey of Parents in England (2019)': SFR template National Statistics 240815 (publishing.service.gov.uk)

DfE (2019b) 'Early Years Foundation Stage Profile Results in England, (2019)': EYFSP 2019 Main Text Oct (publishing.service.gov.uk)

DfE (2019c) 'Schools, Pupils and Their Characteristics': Schools, pupils and their characteristics, Academic Year 2018/19 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

DfE (2019d) 'Special Educational Needs in England': Special educational needs in England, Academic Year 2018/19 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

DfE (2020a) 'Attendance in Education and Early Years Settings During the Coronavirus (COVID-19) Pandemic, Week 28': Attendance in education and early years settings during the coronavirus (COVID-19) pandemic, Week 28 2020 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

DfE (2020b) 'Schools, Pupils and Their Characteristics': Schools, pupils and their characteristics, Academic Year 2019/20 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

DfE (2021a) 'Schools, Pupils and Their Characteristics': Schools, pupils and their characteristics, Academic Year 2020/21 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

DfE(2021b) 'Special Educational Needs in England': Special educational needs in England, Academic Year 2020/21 – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

DfE (2022) 'Children of Critical Workers and Vulnerable Children Who Can Access Schools or Educational Settings': Children of critical workers and vulnerable children who can access schools or educational settings – Explore education statistics – GOV.UK (explore-education-statistics.service.gov.uk)

Field, A. (2018) *Discovering Statistics Using IBM SPSS Statistics* (5th edn), London: Sage.

Fox., L., Bowyer-Crane, C., Lambrechts, A.A., Manzoni, C., Nielsen, D., & Tracey, L. (2021). *Mitigating impacts of Covid-19 in the Early Years – Rapid Evidence Review.* Report from University of York and NIESR. Available at UoY-mitigating-impacts-of-covid19-in-early-years-rapid-evidence-review.pdf (york.ac.uk)

Green, M. J., Pearce, A., Parkes, A., Robertson, E. and Katikireddi, S. V. (2021) 'Pre-School Childcare and Inequalities in Child Development', *SSM-Population Health*, 14, 100776.

Heck, R. H., Thomas, S. L. and Tabata, L. N. (2014) *Multilevel and Longitudinal Modeling with IBM SPSS*, New York: Routledge.

Howard, S. J. and Melhuish, E. (2017) 'An Early Years Toolbox for Assessing Early Executive Function, Language, Self-Regulation, and Social Development: Validity, Reliability, and Preliminary Norms', *J Psychoeduc,* 35 (3), pp. 255–275.

Hox, J., Moerbeek, M. and van de Schoot, R. (2010) *Multilevel Analysis: Techniques and Applications* (2nd edn), Routledge. https://doi.org/10.4324/9780203852279

Hox, J. J. and Maas, C. J. (2002) Sample Sizes for Multilevel Modelling. *Social Science Methodology in the New Millennium. Proceedings of the Fifth International Conference on Logic and Methodology, pp. 0 - 19*

Hox, J. J., Moerbeek, M. and van de Schoot, M. (2018) *Multilevel Analysis: Techniques and Applications*, New York: Routledge.

Hughes, C., Daly, I., Foley, S., White, N. and Devine, R. T. (2015) 'Measuring the Foundations of School Readiness: Introducing a New Questionnaire for Teachers—The Brief Early Skills and Support Index (BESSI)', *British Journal of Educational Psychology*, 85 (3), pp. 332–356.

Joseph Rowntree Foundation (2021) 'UK Poverty 2020/21': UK Poverty 2020/21 | JRF

Kelly, Y., Sacker, A., Del Bono, E., Francesconi, M. and Marmot, M. (2011) 'What Role for the Home Learning Environment and Parenting in Reducing the Socioeconomic Gradient in Child Development? Findings from the Millennium Cohort Study', *Archives of Disease in Childhood*, 96 (9), pp. 832–837.

Kim, L. E. and Asbury, K. (2020) '"Like a Rug Had Been Pulled from Under You": The impact of COVID-19 on Teachers in England During the First Six Weeks of the UK Lockdown', *Br J Educ Psychol*., 90 (4), pp. 1062–1083. DOI: 10.1111/bjep.12381. Epub 2020 Sep 25. PMID: 32975830; PMCID: PMC7537096.

Lorah, J. (2018) 'Effect Size Measures for Multilevel Models: Definition, Interpretation, and TIMSS Example', *Large-Scale Assess Education*, 6 (8): https://doi.org/10.1186/s40536-018-0061-2

Melhuish, E. (2010) 'Impact of the Home Learning Environment on Child Cognitive Development: Secondary Analysis of Data from "Growing Up in Scotland"', Scottish Government Social Research: https://dera.ioe.ac.uk/1233/1/0098010.pdf

Melhuish, E. C. and Gardiner, J. (2020) 'Study of Early Education and Development (SEED): Impact Study on Early Education Use and Child Outcomes Up to Age Five Years', London: Department for Education.

Melhuish, E. C. and Gardiner, J. (2021) 'Study of Early Education and Development (SEED): Impact Study on Early Education Use and Child Outcomes Up to Age Seven Years', London: Department for Education.

Melhuish, E. Gardiner, J. and Morris, S. (2017, revised 2021) 'Study of Early Education and Development (SEED): Impact Study on Early Education Use and Child Outcomes Up to Age Three', London: Department for Education.

Melhuish, E., Sylva, K., Sammons, P., Siraj-Blatchford, I. and Taggart, B. (2001) 'The Effective Provision of Pre-School Education (EPPE) Project: Social/Behavioural and Cognitive Development at 3-4 Years in Relation to Family Background' (Technical Paper 7), Institute of Education, University of London.

Melhuish, E. C. and Gardiner, J. (2018, revised 2021) 'Study of Early Education and Development (SEED): Impact Study on Early Education Use and Child Outcomes Up to Age Four Years' (research brief), London: Department for Education.

Nemes, S., Jonasson, J. M., Genell, A. and Steineck, G. (2009) Bias in Odds Ratios by Logistic Regression Modelling and Sample Size, *BMC Med Res Methodol*, (9) 56: https://doi.org/10.1186/1471-2288-9-56

Nicholls, M., Neale, I., Joyner, O. and Sheikh, M. (2020) 'School Readiness', London: Kindred^2: Kindred2-YouGov-School-Readiness.pdf (kindredsquared.org.uk)

Pascal, C., Betram, T., Cullinane, C. and Holt-White, E. (2020) 'COVID-19 and Social Mobility' (Impact Brief #4: Early Years), London: The Sutton Trust: https://dera.ioe.ac.uk/35885/1/Early-Years-Impact-Brief.pdf

Pituch, K. A. and Stevens, J. P. (2016) *Applied Multivariate Statistics for the Social Sciences* (6th edn), Thousand Oaks, CA: Sage.

Raudenenbush, S. W. and Bryk, A. S. (2001) *Hierarchical Linear Models: Applications and Data Analysis Methods* (2nd edn), Thousand Oaks, CA: Sage.

Rose, S., Badr, K., Fletcher, L., Paxman, T., Lord, P., Rutt, S., Styles, B. and Twist, L. (2021) 'Impact of School Closures and Subsequent Support Strategies on Attainment and Socio-Emotional Wellbeing in Key Stage 1 – Research Report', London: Education Endowment Foundation. https://d2tic4wvo1iusb.cloudfront.net/documents/pages/projects/Impact-on-KS1-Closures-Report.pdf?v=1638448453

Roulstone, S., Law, J., Rush, R., Clegg, J. and Peters, T. (2011) 'Investigating the Role of Language in Children's Early Educational Outcomes: An Analysis of Data from the Avon Longitudinal Study of Parents and Children (ALSPAC)', Nottingham: Department for Education.

Sammons, P., Sylva, K., Melhuish, E. C., Siraj, I., Taggart, B., Toth, K. and Smees, R. (2014) 'Effective Pre-School, Primary and Secondary Education 3-16 Project (EPPSE 3-16): Influences on Students' GCSE Attainment and Progress at Age 16' (Research Report RR3*52*), London: Department for Education.

Shum, A., Skripkauskaite, S., Pearcey, S., Raw, J., Waite, P. and Creswell, C. (2021a) 'Changes in Parents' Mental Health Symptoms and Stressors from April to December 2020' (Report 07), Co-SPACE study: https://cospaceoxford.org/findings/changes-in-parents-mental-health-symptoms-and-stressors-jan-2021/

Shum, A., Skripkauskaite, S., Pearcey, S., Waite, P. and Creswell, C. (2021b) 'Update On Children's & Parents/Carers' Mental Health; Changes in Parents/Carers' Ability to Balance Childcare and Work: March 2020 to February 2021' (Report 09), Co-SPACE study: Changes in children and parents' mental health: March 2020 to February 2021 - Co-Space (cospaceoxford.org)

Snijders, T. A. and Bosker, R. J. (2011) *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modelling*, Vancouver: Sage.

Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I. and Taggart, B. (2004) 'The Effective Provision of Pre-School Education (EPPE) Project: Technical Paper 12 - The Final Report: Effective Pre-School Education', London: DfES/Institute of Education, University of London.

Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I. and Taggart, B. (2008) 'Final Report from the Primary Phase: Pre-School, School and Family Influences on Children's Development During Key Stage 2 (7-11)', Nottingham: Department for Children, Schools and Families.

Sylva, K., Melhuish, E. C., Sammons, P., Siraj, I. and Taggart, B. with Smees, R., Toth, K. and Welcomme, W. (2014) 'Effective Pre-School, Primary and Secondary Education 3-16 Project (EPPSE 3-16) Students' Educational and Developmental Outcomes at Age 16 - Research Report RR354', London: Department for Education.

Tabachnick, B. G. and Fidell, L. S. (2013) *Using Multivariate Statistics* (6th edn), Upper Saddle River, NJ: Pearson.

Waite, P., Pearcey, S., Shum, A., Raw, J. A. L., Patalay, P. and Creswell, C. (2021) 'How Did the Mental Health Symptoms of Children and Adolescents Change Over Early Lockdown During the COVID-19 Pandemic in the UK?', *JCPP Advances*, 1 (1): https://doi.org/10.1111/jcv2.12009

Weidmann, B., Allen, R., Bibby, D., Coe, R., James, L., Plaister, N. and Thomson, D. (2021) 'Covid-19 Disruptions: Attainment Gaps and Primary School Responses', London: Education Endowment Foundation. https://educationendowmentfoundation.org.uk/public/files/Covid-19_disruptions_attainment_gaps_and_primary_school_responses_-_May_2021.pdf

Appendix A: Recruitment documents

01/03/21

The Impact of COVID-19 on School Starters in 2020/21

Dear colleague,

We would like to invite you and your school to take part in an educational research study. This study is being conducted by researchers at the University of York, Education Policy Institute and National Institute of Economic and Social Research.

What is the aim of this study?

This project seeks to understand the experiences of children starting school in the wake of repeated local and/or national lockdowns, and with changes to the way schools might operate in order to account for COVID-19 (e.g. social distancing and bubbles). Importantly, the study will focus on children's socio-emotional wellbeing as well as educational outcomes.

Who is eligible to take part in the study?

We are inviting all infant and primary schools to take part in the study with the following exceptions:

- Schools who are currently enrolled in an EEF Early Years trial.
- Schools who are early adopters of the new EYFS.
- Schools who have less than 15 pupils in the Reception Year cohort.

What does taking part in the research involve?
From February 2021, schools wishing to participate can either opt to join the full study or, if a lighter touch is preferred, share school-collected EYFSP data for 2020/21 and fill out a short survey.

Schools opting to join the full study

Phase 1 (March 2021)	**Phase 2 (June/July 2021)**
Schools complete school survey	Selected children complete assessments*
Parents invited to complete parent survey	Schools complete school survey
iPads/vouchers received after 10-12 parent surveys received	Parents invited to complete parent survey

	Schools share end of year ELG assessments (if completing them)

*We are using the Early Years Toolbox to collect data for this study (http://www.eytoolbox.com.au/about-team). The Early Years Toolbox is an iPad-based app in which children complete numeracy and language tasks quickly in the form of a game. Teachers will also be asked to complete the scale relating to child socio-emotional wellbeing. The data will be automatically uploaded to a database once you have completed each assessment so you do not have to worry about this.

Schools opting for a light touch participation

Schools opting for a light touch participation will only be asked to provide anonymised Early Years Foundation Stage Profile scores for the children in their school enrolled in YR in 2020/21 and to complete a brief school survey.

What are the benefits of participating in this study?

Schools opting to join the full study will receive:

- One Apple iPad (necessary for completing the assessments) or a voucher of the value of £350 for schools that may not require an additional iPad and the cost of the Early Years Toolbox app. This iPad and the app will be the property of the school in perpetuity providing unlimited access to this standardised measure of development.
- £10 vouchers to provide to parents who completed each questionnaire

Schools opting for a light touch participation:

Schools opting for a light touch approach will receive a voucher worth £50 once we have received the EYFSP data and the school survey response.

How do we sign up for the study?
We hope you consider taking part in this research. If you would like to sign up or have any questions please email Dr Louise Tracey at education-schoolstarters-cv19@york.ac.uk.

Further appendices:

Further Appendices can be found in the accompanying document.

This document is available for download at https://educationendowmentfoundation.org.uk

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