



# The Impact of COVID-19 on Families' Home Literacy Practices with Young Children

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## Abstract

The practice of shared book reading is a nurturing support for early language, literacy, and socio-emotional development within young children's typical care. However, the closures of childcare, early education programs, and centers for family activities in the Spring of 2020 due to COVID-19 brought many sudden changes to the everyday lives of families with young children. In order to explore the impact of COVID-19 on shared reading, we surveyed parents of children between the ages of 2 and 5 ( $n = 85$ ) about their children's frequency of shared reading engagement in February and October, 2020 as well as the frequency of screen-mediated reading, the number of readers their children read with, and book preferences at both time points. Parents were also asked about changes in their children's regular care and whether and how they had tried new kinds of (virtual) literacy activities during their increased time at home. Findings showed that there were no significant changes in frequency of shared reading from February to October, but there was a significant increase in frequency of screen-mediated reading, especially among families who lost outside-the-home childcare. There was also a significant decrease in the number of adults regularly reading with the children. Caregivers described adapting to virtual options for storytime. Ultimately, while families were still able to provide consistent amounts of shared reading with their children throughout COVID-19, the nature of that shared reading was changed. Future research will investigate whether these changes may have an impact on children's typical learning from shared reading.

**Keywords** Shared reading · Screen-mediated reading · COVID-19 · Early literacy development · Parent–child interaction

Reading aloud or sharing a book with a young child is a commonplace but still rich opportunity for nourishing early language and social development. In the study of early childhood education and language development, there is robust evidence of the importance of frequent and high-quality, interactive shared reading with preschool-aged children both in small groups in the classroom or one-on-one with a caregiver in the home for promoting an array of oral language and pre-literacy skills (e.g., DeBaryshe, 1993; Whitehurst et al., 1988; Sénéchal et al., 2008; Zauche et al., 2016). It is widely acknowledged that shared reading is part of children's "language nutrition" (e.g., Zauche et al., 2016). For preschool-aged children exposure to storybook language and opportunities to interact with adults around books can boost children's new word learning in measurable ways (e.g.,

Elley, 1989; DeBaryshe, 1993; Sénéchal & Cornell, 1993; Farrant & Zubrick, 2013) through both exposure to new words in stories, but also through the conversations with a reader that stories provoke. Shared reading in the home also presents unique opportunities for interaction between adults and children that go beyond the vocabulary and text of the book but that can potentially impact parent–child relationships (Bus & van IJzendoorn, 1997; Gilkerson et al., 2017; Canfield et al., 2020), and form home–school connections that support early learning in the classroom (Myer et al., 2016). Benefits of shared reading with preschool-aged children include support for socio-emotional development and communication skills (Bergin, 2001; Aram & Shapira, 2012), and help in establishing a bond between caregivers and children (Blumberg & Griffin, 2013). All around, there is very little "downside" to shared reading from the point of view of a child, and it is widely promoted and encouraged by early childhood educators, pediatricians, and public service campaigns. Thus, it is no surprise that it is a common, often daily, occurrence with preschool-aged children not only in

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early child education and care (ECEC) centers, but also at home.

While book sharing in the home is a typical occurrence, it is still a highly variable practice for families, in terms of *who* reads, *how often*, and in what *style*. Many studies have documented the wide range in how often caregivers read with their children in the home. Across samples of varied socio-economic status, age of the target child, and even language(s) used in the household, researchers have found ranges in the frequency of American parents reading aloud at home with their 2- to 5-year-old children as infrequently as a few times per week to as often as several times per day (e.g., Deckner et al., 2006; Malin et al., 2014; Read et al., 2021). Additionally, Deckner et al., (2006) found mothers self-reported the duration of reading sessions ranging from 5 to 60 min at a time. Thus, while sharing books with preschool-aged children in the home is common, how often it is reported to happen and for how long may still vary widely from family to family.

In addition, children are likely exposed to different numbers of readers depending on both their household makeup as well as the amount and type of outside-the-home care they participate in. Most studies of shared reading practices have focused on mother–child interactions and outcomes, though research comparing mothers’ and fathers’ reading frequency and styles in two-parent households find differences in both the amount of reading and the types of extra-textual dialogue that mothers and fathers use (Malin et al., 2014; Duursma et al., 2020), and even further differences dependent on the gender of the child in combination with the gender of the parent (Vandermaas-Peeler et al., 2012). In addition to parents, though of course, children are widely reported to enjoy shared reading with older siblings, babysitters, grandparents, and other extended family, both residential and non-residential, as well as shared reading that they experience in more structured outside-the-home literacy activities (e.g., library “storytimes”) and center-based care or preschool.

Not only are the frequency of shared reading opportunities and the number and diversity of readers available to a child variable, but the interactive quality of shared reading can also vary considerably from reader to reader and thus, from child to child. Dialogic reading, during which the reader encourages the child to actively engage with the book by asking questions and providing feedback, is an example of this. The extent to which parents engage in this type of high-quality reading interaction depends on their beliefs about the efficacy of the strategy (e.g., Pillinger & Wood, 2014). In a study by Bojczyk et al. (2016), researchers reported that mothers who endorsed beliefs in the helpfulness of children's active participation in shared book reading were more likely to utilize dialogic reading strategies, and likewise Pillinger and Wood (2014) found that encouraging parents to read more dialogically with their preschool-aged

children can improve their own attitudes about the importance of reading.

Given the importance of shared reading, and the variability in opportunity and quality of shared reading among children with different household and outside-the-home care environments, an historical event that impacts households’ care routines and daily lives profoundly could easily have a “downstream” impact on shared book reading in particular. COVID-19 has been such an historical event. The closures of early childhood education and care (ECEC) and centers for family activities in the Spring of 2020 due to COVID-19 brought many sudden changes to families’ typical routines. The changes in simply where and with whom children spend their waking hours were considerable for many families in the U.S. beginning in March 2020 as childcare centers, preschools, public spaces like libraries and museums, and most other organized children’s programs were all closed to in-person, on-premises activities following strict public health orders. These closures in addition to physical separation from friends and family outside the immediate household, such as grandparents or “playgroups,” impacted the daily lives and routines of families, especially those with young children needing full-time adult supervision and structured activity (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2020). As closures and quarantines occurred across the U.S. in the Spring of 2020, families were each tasked with taking care of their children full time without the typical support they may have been receiving prior.

In the current study we were interested in whether these overall disruptions to care, support, and daily routines would have manifested changes in the specific practice of shared reading with young learners—a small, but important part of children’s early educational environment. Prior to the pandemic, children had access to many in-person shared reading opportunities, such as at ECEC centers they may have been attending, community programs like libraries, and even at friends’ and relatives’ homes. Thus, it is worth considering whether the nationwide stay-at-home orders and the ECEC and activity center closures brought on by COVID-19, may have impacted children’s typical shared reading routines. We know from two very recent studies of the impacts of COVID-19 lockdowns that changes in care routines appear to have had a general impact on younger children’s language development. Davies et al. (2021) found that with a sample of 189 families living in the UK, there was a positive association for 8- to 36-month-old children in the amount of time they spent in ECEC and their language growth from Spring to Winter 2020, such that receptive vocabulary growth was stronger for toddlers who were able to continue attending ECEC during the period. In another recent study of 1742 children across 13 countries, Kartushina et al. (2021) found that 8- to 36-month-old toddlers who spent more time during

the initial COVID-19 lockdowns (from March to September of 2020) participating in shared reading with their in-home caregivers, as well as children who engaged less in passive screen viewing, had larger increases in their expressive vocabulary size. Thus, it is clear that choices around shared reading, even in the context of a pandemic, are an important part of the bigger picture of how children's daily care and early education affect their developing language skills.

Two of the most notable changes occurring in children's daily routines since the start of the pandemic, specifically in the U.S. and other developed countries, have been changes in both passive screen time and new means of screen use. Despite the nationwide closures of schools and other public spaces for children's activities (e.g., libraries, museums, playspaces) and physical distancing measures preventing gathering with others outside one's household (e.g., playgroups, children's group classes), many programs made efforts to adapt their curriculum and in-person activities to virtual/online formats such as live video-chat or video streaming, in order to keep them accessible to families. To name a few, some of the online adaptations that were made include video-chat based preschool classes, virtual library events, and video-chatting with friends and family members, which often served as a replacement for the outside-of-the-home care that was lost due to the pandemic. Furthermore, numerous educational apps, games, and internet-based video services have made virtual learning and entertainment possible for children during COVID-19. Therefore, screen technology provided young learners with unique access to education, interactive playtime, entertainment, and social interaction, making it a convenient solution for quarantining children—and for many, the only solution. Perhaps unsurprisingly, children's screen time rates increased significantly since the start of the COVID-related restrictions and quarantines, and their exposure to screens has been higher during the pandemic than ever before (Hartshorne et al., 2021). In short, in the U.S. nationwide stay-at-home orders led to prominent lifestyle changes even among young children, clearly reflected in children's unprecedented levels of screen usage after the start of the pandemic.

It follows that given these dramatic changes to children's daily routines and care, we should record the impact of COVID-19 on the ways caregivers and their children engage in shared reading. More specifically, we are interested in exploring whether children engaged in more screen-mediated reading, as opposed to in-person shared reading, than prior to the pandemic. Live video chatting services, for instance, allow children to engage in screen-mediated reading with relatives or through a local library. Children can comprehend books over video-chat just as well as live shared reading, suggesting that this technology was a viable option for reading to children for families with access to devices and the internet bandwidth to support it, especially during

the current pandemic (Gaudreau et al., 2020). In addition to screen-mediated reading, families could also utilize asynchronous shared reading options for their children, such as watching pre-recorded storytime videos available online, or downloading and using self-narrating "story apps" available for use on smartphones and tablets that may make storytime a more independent experience even for a young child who cannot yet read on their own (e.g., Parish-Morris et al., 2013; Ciffone et al., 2016).

In order to observe the impact of these changes, we surveyed caregivers about their children's experiences of shared reading in February before COVID-19 impacted them, as well as in October when some care situations became more stable. Our research questions were as follows:

- (1) Did the *frequency* of shared book reading change during the COVID-19 initial impact period?
- (2) Did the *type* of shared book reading change during the COVID-19 initial impact period?

## Method

The experimental protocol described below was approved by the [Blinded] University Institutional Review Board for Social Behavioral Educational research (Protocol ID: 20-09-1495). Consent was obtained from each adult survey respondent before any information was collected.

## Sample

Residential caregivers of children between the ages of 2 and 5 were recruited through word-of-mouth, lab-based volunteer lists, and social media to participate in the survey. Initially, 96 survey responses were recorded, though responses were dropped if a respondent did not provide the age of their child, confirm that they were a residential caregiver, or if the participant did not complete at least 50% of the survey. The final sample consisted of 85 completed surveys. Each participant identified themselves as a primary residential caregiver of their child for the majority of the time between the months of January and October of 2020.

## Procedure

Surveys were administered online through the use of Qualtrics survey software. Caregivers were provided with the anonymous link to complete the survey, which contained questions and directions in English. They were informed that the survey should take no more than 15 min of their time and that their participation was completely voluntary and anonymous.

## Survey

The survey consisted of 22 individual questions, containing both multiple choice options and fill-in responses (see Appendix for full survey). The first section asked for basic demographic and language information, such as the caregivers' relationship to the child, age, primary language, and other language use or exposure.

The second set of questions asked participants about their child's literacy routines before COVID-related shutdowns, thinking back to February 2020. This included the frequency that the child typically heard stories read aloud on a six-point scale ranging from 1 (*rarely/never*) to 6 (*several times a day*), the number of adult readers who regularly read with the child, frequency of attending outside the home literacy activities on a four-point scale ranging from 1 (*rarely/never*) to 4 (*multiple times a week*), frequency of screen-mediated reading (e.g., using "story apps" or e-book reading, listening to live/recorded stories online), on a six-point scale ranging from 1 (*rarely/never*) to 6 (*several times a day*), an open-ended question about storybook preferences, and questions regarding child care types used before and potentially lost due to COVID-related shelter-in-place orders, as well as the approximate hours of change in/loss of weekly childcare.

The final set of questions asked participants about their child's literacy routines in October 2020, eight months after the original shelter-in-place orders. This included the same measures from the second set of questions, with the additional open-ended questions asking if caregivers had intentionally introduced any storybooks meant to expose children to or help them understand difficult topics, and if they had engaged in new literacy themed online activities in place of outside-the-home literacy activities during the past eight months.

## Measures

The following quantitative measures were derived from caregivers' survey responses, and used in subsequent analyses described below. Each child's age in months and the average number of hours of outside-the-home care lost were derived from caregivers' background responses regarding their child. In addition, three measures were used to compare possible differences in shared reading from before vs. during COVID-19 care routine impacts. Ordinal scaled measures were taken to describe children's typical frequency of shared reading in both February and October 2020, and frequency of screen-mediated shared reading in both February and October 2020. In addition, the number of different adults reported to regularly read aloud with each child was recorded for both February and October.

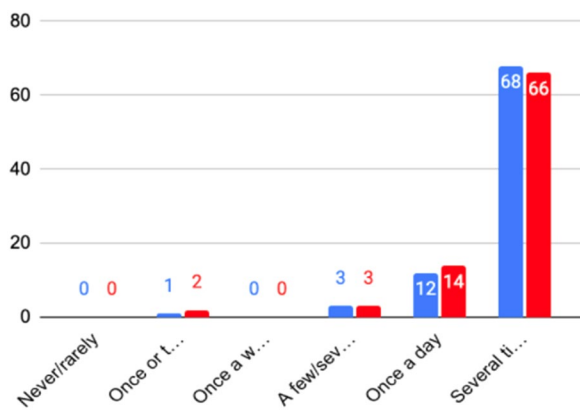
## Results

Overall, the sample of participants surveyed were English-language dominant American residents with young children who were typically experiencing frequent opportunities for shared reading before the pandemic. All respondents reported that they were a primary residential caregiver of the child, and most (85%) labeled themselves as a "parent" in relation to the child (other responses were "mother" (13%) and "father" (2%)). All of the parents reported that their child's primary language was English, while 24.7% of parents reported an additional language in the home (the most common being Spanish, Cantonese, and German) heard or spoken a range from 2 to 50% of the time with an average of 20.3% of the time.

Of the entire sample, 67 parents (79%) reported at least some form of lost outside-the-home care, most commonly a structured daycare or preschool program that had been closed. For families who lost outside-the-home care, the range of hours per week lost was between 2 and 56,  $M = 32.8$  ( $SD = 14$ ). Qualitatively, some parents responded to an open-ended prompt and further described how care had changed in a range of ways, but most commonly was increased time with the parents themselves (e.g., "our child now spends 100% of their time at home with both parents) and/or with extended family, specifically grandparents. Others (9%) reported increasing time with family outside of their immediate household, but in a "bubble," and some (5%) reported either relocating or having a family member relocate in order to increase time together. Meanwhile, some parents (5%) reported a decrease in the amount of time spent with friends and family outside their immediate household, while 5% reported hiring or adding hours to current nannies or caregivers. In addition, some families considered the start of fully online kindergarten programs in August as a type of childcare, though in-home or center-based in-person adult supervision was still needed.

**RQ1** Did the overall frequency of shared reading change during the COVID-19 impact period?

In order to test whether the overall frequency of shared reading with children in our sample changed due to COVID-19 and the subsequent impact on families and their children's regular routines, we first compared caregivers' report of their child's frequency of engaging in shared reading in February, 2020 with their reported shared reading frequency at the time they filled out the survey (October, 2020). At both time points, the modal response was that children were typically hearing stories read aloud multiple times a day (81% of the sample reported this in February, and 77% in October). Using a nonparametric related-samples Wilcoxin Signed Rank



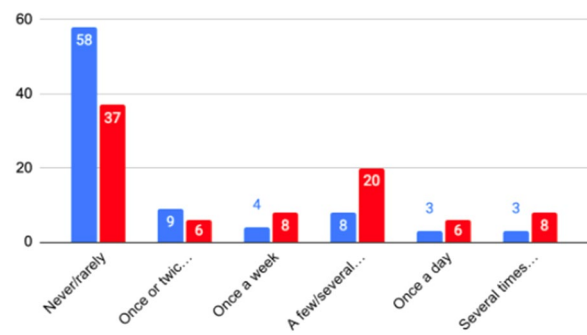
**Fig. 1** Total number of survey respondents reporting each level of frequency of shared reading in February (blue bars) and October (red bars)

test, results demonstrated that across the whole sample there was not a significant change in frequency of shared reading,  $p = 0.331$  (7 positive differences, 12 negative, 66 ties). See Fig. 1. Furthermore, when we divided the sample based on whether children had lost outside-the-home care ( $n = 67$ ) or had not ( $n = 18$ ), we also found no significant differences between overall frequency of shared reading in February compared to October for neither group of children who had lost outside-the-home care,  $p = 0.412$ , nor those children who had not lost care,  $p = 0.317$ . Thus, these findings clearly demonstrate that the reported frequency overall of children's shared reading exposure was not different eight months into the COVID-19 impact period from what it had been before.

**RQ2** Did the type or quality of shared reading change during the COVID-19 impact period?

In order to explore whether the type of shared reading children experienced differed for preschoolers during and after the first several months of experiencing COVID-related changes in their daily routines and care, we tested differences in frequency of reported screen-mediated reading between February and October, 2020. At both time points, the modal response was that children were never/rarely engaging in screen-mediated reading (68% of the sample reported this in February, and 44% in October). Nonparametric related-samples Wilcoxin Signed Rank tests showed that across the whole sample there was nonetheless a significant increase in frequency of shared reading via screens,  $p < 0.001$  (35 positive differences, 5 negative, 45 ties). See Fig. 2.

In addition, for children who did not lose any outside-the-home care ( $n = 18$ ) there was a significant increase in screen-mediated reading from February to October,  $p = 0.019$  (7 positive differences, 1 negative, 10 ties), and for those children ( $n = 67$ ) who did lose outside-the-home care, there was also a significant increase in



**Fig. 2** Total number of survey respondents reporting each level of frequency of screen-mediated reading in February (blue bars) and October (red bars)

screen-mediated reading during the first several months of COVID,  $p < 0.001$  (28 positive differences, 4 negative, 35 ties). These findings suggest that while the frequency of screen-mediated shared reading among households was very low to begin with, it increased significantly throughout the initial impact period of COVID-19, and to an even greater extent among households who experienced loss in care outside the home.

It is also of note that there were both significant positive correlations between children's age in months and the frequency with which they engaged in screen-mediated reading in February ( $r_s = 0.311$ ,  $p = 0.004$ ), as well as between age and frequency of screen-mediated reading in October ( $r_s = 0.347$ ,  $p = 0.001$ ), indicating that despite changes that might be attributed to the household effects of COVID-19 there was also simply a higher likelihood of older children being allowed or able to make use of screen-mediated reading compared to younger children.

To further explore whether the variety of voices in the shared reading experienced by children was impacted by COVID-related changes in their daily routines, we also tested whether the number of readers that the child regularly heard stories from or read with differed between February and October, 2020. A dependent samples t-test comparing means of reported number of typical adult readers prior to ( $M = 3.46$ ,  $SD = 1.26$ ) vs. during ( $M = 2.95$ ,  $SD = 1.05$ ) the pandemic revealed that across the whole sample there was a significant decrease in number of adult readers in children's typical experience of shared reading,  $t(84) = 3.17$ ,  $p = 0.002$ ,  $d = 0.344$ . In addition, this pattern of decline in number of readers was true both for children who did not lose outside-the-home care,  $t(17) = 2.38$ ,  $p = 0.029$ ,  $d = 0.572$ , as well as for children who did lose outside-the-home care,  $t(66) = 2.78$ ,  $p = 0.007$ ,  $d = 0.353$ . In sum, even though children were reportedly hearing stories read aloud just as frequently in October as they had been in February, 2020, there were fewer people regularly reading with them eight months into the pandemic as there had been before.

In addition, exploratory correlational analyses revealed that only two variables significantly correlated with the number of readers children were regularly reading with in October. First, the frequency with which children had engaged in outside-the-home literacy activities in February negatively correlated with the number of readers available in October ( $r = -0.282, p = 0.009$ ). Second, the average number of hours per week of outside-the-home care that was lost during the impact period positively correlated with the number of readers available in October ( $r = 0.272, p = 0.027$ ). Both of these relationships appear to describe situations where the loss of outside-the-home opportunities to connect with non-residential readers because of COVID-19 predicted changes in the number of readers regularly available to children in the fall of 2020. However, the positive relationship between hours of care loss and number of readers adds nuance to our understanding of families' responses. These data show that at least for some families whose children lost access to their ECEC programs, they were nonetheless able to introduce *more* readers into their children's routines. Anecdotally, parents reported situations that may explain this in which ECEC classroom teachers or extended family began hosting virtual shared reading sessions over video chat, or a parent who was home more regularly during the pandemic began a reading routine with the child.

In a final probe of shared reading during the pandemic in our sample, an exploratory qualitative analysis was conducted of the books that participants reported reading with their children. Caregivers were asked to report any of their children's favorite book titles and/or book topics both in February and October (see Appendix). The titles and topics that parents reported at both time points were age appropriate and often popular for young children in this age range (e.g., *Goodnight Moon*, *Green Eggs and Ham*). Most children had preferences that had not substantially changed from February and October (53%) in terms of genre (e.g., nursery rhymes, books about science), topic (e.g., trucks, unicorns), and complexity, while those children whose preferences reportedly changed seemed to do so in the direction of increases in variety and complexity rather than the reverse. Some parents (35%) reported an expansion in their children's preferences in terms of book genres and topics (e.g., adding comic books or books about historical figures to their other favorite types or topics). Some parents (21%) reported that their children's preferences had advanced to longer or more complex books (e.g., chapter books) reflecting expected literacy development across time. Furthermore, some parents (49%) reported intentionally introducing books about "big" topics in order to explicitly use shared reading to address family-relevant issues in an accessible way. These "big" topics were classified into five categories in descending order of the frequency they were mentioned: (1) racial justice (e.g., *The Children's March*; *Anti-Racist Baby*), (2) gender

equity (e.g., *Goodnight Stories for Rebel Girls*), (3) family milestones (e.g., books about potty training, or becoming an older sibling), (4) managing difficult emotions, and least commonly (5) pandemic-related topics such as hand washing. In sum, this qualitative analysis of the types of books children were being read during this period appears both to be typical of what is recommended for this age group, and seems to have followed a pattern of maturation and diversification of interests over time.

## Discussion

The main findings of this targeted survey were clear: children of the parents in our sample were not missing out on frequent shared reading during the early months of lockdown due to the pandemic when compared to how much storybook reading they had been reportedly engaged in before the pandemic changed their daily routines. However, on two measures the *way* in which children were experiencing shared reading was different in October, 2020 than it had been eight months earlier. According to parents' reports, children's exposure to and use of screen-mediated reading had increased, and the number of different caregivers that they regularly read with had decreased. These two differences may be unsurprising given the widespread closure of ECEC facilities, which placed an increased burden on residential caregivers to do more on their own and to depend more on screens in an attempt to occupy, educate, and help their children connect. However, it is important to note that what *is* surprising is that despite the sudden onset of the pandemic and the magnitude of changes that came with it, caregivers with the resources available still valued and maintained shared reading as an integral part of their children's daily routines. Despite the simple hypothesis that loss of outside-the-home ECEC activities would correlate with fewer available readers, more complex relationships between what was lost, what was preserved, and what was gained occurred.

In two other recently published studies, the frequency of reading with children during the early months of the pandemic appears to have been preserved. In a survey of American parents' views on distance learning for their children unable to attend in-person preschool in the spring of 2020, the most common type of learning activities that parents reported engaging in with their preschoolers were reading activities (Stites et al., 2021) over and above art, science, music or math activities. In a study of German children from March to May of 2020, researchers also found no significant decrease in reading at home, despite the impact COVID-related lockdowns had on other activities such as outdoor play or schoolwork (Poulain et al., 2021). These findings along with our own suggest that shared reading with young children may have been a uniquely robust pandemic activity,

perhaps easier to maintain or replace at home compared to other educational activities typical in ECEC.

These findings suggest there was adaptation to a new care environment that compensated what children had lost with new ways of reading. The nourishing activity of shared reading for children's language and socio-emotional development was not diminished in this sample—a positive finding. However, this finding should still be considered within the broader context of immense familial stress that was pervasive during this impact period on families who lost access to care and activities for their young children (e.g., Calarco et al., 2020; Calarco, 2021), especially for mothers, who tend to be both the primary caretaker and the primary reader for young children in a household. In addition, we must consider the limits to the generalizability of these findings beyond the types of families surveyed here. Based on qualitative responses to how each family's care routines had been affected by COVID-19, we can estimate that families in our sample were well resourced. Parents were able to compensate for the loss of outside-the-home care in order to mitigate the negative impacts on their children. Specifically, many parents reported that even with a loss of full-time outside-the-home care, one residential parent was able to shift or decrease their working hours to compensate, and other families were able to hire residential care (e.g., a nanny), or even relocate or change their living situation to take advantage of familial care (e.g., moving in with a grandparent). While these care changes likely created their own stressors, it does appear that within our sample families had the resources to adapt to maintain children's healthy care routines and regular supervision. This, of course, was not true for all American families. Emerging research on the impacts of COVID-related ECEC closures in the UK suggests that loss vs. maintenance of outside-the-home care was more strongly correlated with the language development outcomes of young children from less economically advantaged homes with fewer resources to compensate (Davies et al., 2021). In the current study, families who were facing major health, financial, and childcare crises were not represented, and would not have been likely to prioritize taking the time to complete this voluntary shared reading survey. Thus, our positive findings only reflect the impacts of COVID-19 on the at-home shared reading practices of one swath of the population.

Given the high levels of reported shared reading across families in our sample in February, it is also clear that in this sample reading was a valued activity that the parents (who self-selected to complete this survey) made efforts to continue for many possible reasons including but not limited to promoting oral language skills and socio-emotional development. These findings might have looked very different for families with fewer resources, or who were not already supporting such high amounts of pre-literacy

experience for their young children prior to the pandemic. Further research that unpacks the impacts that care and activity loss the early months of the pandemic may have had on these more vulnerable populations is warranted and ongoing.

It should be noted that some of the changes reported, such as those of expanding book type preferences and increases in screen-mediated reading, may reflect children's natural literacy development even without the influence or impact of the pandemic. For example, the positive correlations between age and frequency of screen-mediated reading even in February, 2020 introduce the possibility that COVID-19 was more of an accelerant rather than a cause of increased screen-mediated reading given that, of course, children were also continuing to age and mature during the eight month impact period. Therefore, the results are not contingent on the advent of COVID-19, nor the changes associated with it. For this sample there is no way to decouple the effects of COVID-19 and the effects of maturation on use of screen-mediated reading, but future studies may help us understand the role that increased familiarity and facility with technological interfaces affect *both* children and their caregivers' engagement with and learning from screen-mediated shared reading.

Research on how screen-mediated vs. traditional reading affects children's learning both in terms of language and literacy, and socio-emotional learning should be further explored. The impact of changes in how shared reading happens in the home with preschool-aged children is especially important given that some of these changes may last beyond the pandemic itself. After many months of adapting to having fewer adult readers available, and more screen mediated reading, both children and their caregivers are likely to have become more familiar with the use of technology (e.g., video-chat, educational apps) for interaction and educational activities. It is an open question whether these developments will change the future landscape of opportunities for children to benefit from shared reading, and how these changes at home will restructure the home-school connection as children return to more time in ECEC programs. In a recent study, Hu et al. (2021) found that 53% of preschool educators surveyed in Hong Kong believed that online teaching (i.e., interaction with humans online, as well as interaction with digital content) would continue beyond the pandemic, and most believed that parents of preschoolers would support their children's screen mediated educational activities. Given the importance of a positive connection between children's at-home and at-school reading experiences (e.g., Meyer et al., 2016) future and ongoing research will be needed to understand the long-term effects of changes in shared book reading during the pandemic on children's experience of shared reading in the home *and* in ECEC classrooms moving forward.

In conclusion, this study documents some of the micro-level effects of COVID-19 on the particular caregiving and educational practice of shared book reading in a small sample of relatively well-resourced families. However, it represents an important finding of resiliency and adaptation around an important part of so many families' daily lives. Shared book reading, even during the tumult, stress, and uncertainty of a global pandemic was a way of maintaining connection and promoting the care and education of many young children.

## Appendix

### Survey Questions

**Q1** What is your relationship to the child (e.g., parent, grandparent, other)? \_\_\_\_\_

**Q2** Have you been (one of) the child's primary residential caregiver(s) the majority of the time between January and October 2020? Y/N

**Q3** How old is your child? \_\_\_\_ years and \_\_\_\_ months.

**Q4** What is your child's strongest language?

\_\_\_\_\_

**Q5** What other languages is your child hearing and using on a regular basis (at least an hour per day, or 5 h per week), and approximately what percentage of their time do they hear each language (e.g., "Spanish, 30%")? \_\_\_\_\_

### Thinking back to your child's routines in February 2020:

**Q6** How frequently was your child hearing stories read aloud (by any family or care provider)?

- (a) Rarely/never.
- (b) Once or twice a month.
- (c) Once a week.
- (d) A few/several times a week.
- (e) Once a day.
- (f) Several times a day.

**Q7** Approximately how many different adults regularly (every week or so) read aloud with your child? \_\_\_\_\_

**Q8** Were there any topics, types of stories, or specific titles that your child especially enjoyed? \_\_\_\_\_

\_\_\_\_\_

**Q9** How frequently was your child attending literacy-themed activities outside of home/school (e.g., library storytimes, story-related performances, trips to the library/bookstore to browse and choose books, etc.)?

- (a) Rarely/never.
- (b) Once or twice a month.
- (c) Once a week.
- (d) A few/several times a week.

**Q10** How frequently was your child accessing stories via screen media (e.g., listening to / interacting with e-books, watching author read-alouds on an internet platform like YouTube)

- (a) Rarely/never.
- (b) Once or twice a month.
- (c) Once a week.
- (d) A few/several times a week.
- (e) Once a day.
- (f) Several times a day.

**Q11** What changes occurred in your child's care routine as a result of COVID-19 and subsequent Shelter-in-Place orders, if any? (check all that apply).

\_ my child was enrolled in an outside-the-home childcare/preschool program that closed. If so, how many hours per week did they typically attend \_\_\_\_\_ and how many weeks was the closure? \_\_\_\_\_.

\_ my child had a regular in-home caregiver (e.g., nanny, babysitter, family member) who could no longer help care for the child. If so, how many hours a week did they typically spend with this caregiver \_\_\_\_\_ and for how many weeks was this person not able to participate in your child's care? \_\_\_\_\_.

\_ the amount of time my child was cared for by a residential caregiver significantly increased (e.g., a parent staying home from work; an older sibling home from school; a newly hired nanny). If so, how many increased hours per week did your child spend with this new care situation? \_\_\_\_\_ and for how many weeks was this arrangement in place? \_\_\_\_\_.

\_ my child started a new outside the home childcare or preschool program that had not previously been part of their routine. If so, how many increased hours per week did your child spend with this new care situation? \_\_\_\_\_ and for how many weeks was this arrangement in place? \_\_\_\_\_.

\_ other changes in the child's care routine in terms of time, people or relationship to the child?

\_\_\_\_\_

### Now thinking about your child's current routines:

**Q12** How frequently does your child hear stories read aloud (by any family or care provider)?

- (a) Rarely/never.
- (b) Once or twice a month.
- (c) Once a week.
- (d) A few/several times a week.
- (e) Once a day.



(f) Several times a day.

**Q13** Approximately how many different adults regularly (every week or so) read aloud with your child? \_\_\_\_\_

**Q14** Are there any topics, types of stories or specific titles your child especially enjoys? \_\_\_\_\_  
\_\_\_\_\_

**Q15** Have you introduced any new stories to your child with the intention of helping them understand “big” issues that have arisen in the last six months (e.g., viruses, grief and loss, racial justice, etc.). If so, please tell us a little more about that. \_\_\_\_\_  
\_\_\_\_\_

**Q16** How frequently does your child currently access stories via screen media (e.g., listening to/interacting with e-books, watching author read-alouds on an internet platform like YouTube)

- (a) Rarely/never.
- (b) Once or twice a month.
- (c) Once a week.
- (d) A few/several times a week.
- (e) Once a day.
- (f) Several times a day.

**Q17** Has your child engaged in any new literacy-themed activities in place of things they used to do before (e.g., virtual storytimes, etc.)? If so, can you tell us more about how this went?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_.

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