



Briefing Note: The effects of screentime in the early years on attention and language

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Summary

- There are concerns that screentime in the early years (before age 5) could be negatively affecting young children's attention and language skills.
- Early screen use (before the age of 2) and excessive screen use (frequently more than 2 hours a day) has been associated with delayed development of important cognitive skills.
- The consequences of problematic screentime are partially direct (passive visual stimulation) and partially indirect (displacement of beneficial activities).
- There are little differences in cognitive outcomes between young children with no screentime and limited screentime (approximately 1 hour a day).

Recommendations

- Screentime should be a shared activity between child and caregiver, with a preference for age-appropriate content, preferably with proven educational merit.
- Evidence-based national guidelines on screentime with young children should be promoted to caregivers, as well as support and strategies to help them follow the advice.
- Policies should be applied to childcare providers to limit screentime and increase active play and conversation, especially in cases where those activities are limited at home.

This is the first note in a new series called 'Developing Minds in a Digital World'. Each note in the series focuses on the effects of new forms of technology for different stages of child development.

The Issue

Roughly 9 in 10 children under the age of 5 (defined here as 'early childhood') watch video streaming services and approximately 1 in 4 have their own mobile phone (Ofcom, 2023). Compared to television, current technology (i.e., smartphones, tablets) provide even more immediate and constant stimulation to young children with a wider range of content, which is much harder for adults to supervise. There are concerns that the ubiquity of screentime in early childhood is adversely affecting or will adversely affect children's cognitive development, especially their attention spans and language skills (e.g., Garcia, 2025).

There are increasing calls for the UK government to produce recommendations and policies regarding young children's screentime, including from a special report by the House of Commons Education Select House of Commons Education Committee (2024). Furthermore, the Technology Secretary has suggested that regulations are forthcoming (Cohen, 2025). The intention of such policies would be to foster healthy development and reduce behavioural issues, especially in schools. There are disagreements within the public and in government concerning whether such policies are necessary, how they would be implemented and whether they would be effective.

Given that caregivers with lower levels of educational attainment are more likely to provide their children with screens at earlier ages (e.g., Wiltshire et al., 2021) and for longer periods of time (e.g., Tandon et al., 2012), any negative consequences of screentime for the development of attention and language skills could exacerbate existing societal inequalities in school

readiness and, ultimately, longer-term achievement. The purpose of this briefing note is therefore to summarise the most up-to-date empirical literature regarding the effects of screentime at home on young children to form recommendations and suggest feasible policies to mitigate their potentially negative impact on children's cognitive development.

Consequences of Screentime for Cognitive Development

Although concerns about screentime have mounted in recent years, the consequences of screentime for children's development have been studied since the advent of television (TV). Restricting the number of hours per day children watch TV, especially among the youngest, was recommended; but when TV exposure was limited, screentime was thought to have minimal consequences (Bar-on, 2000). Recent public health advice, which considers a much wider range of devices (e.g., smartphones, computers, tablets, video games), similarly recommends no screentime at all before the age of 2, but that 1 hour per day subsequently is acceptable (World Health World Health Organisation, 2019). This is supported by research (N = 9,300) finding no differences in outcomes among 2 to 5 year-olds with no screentime and those with limited screentime (i.e., an hour a day; Twenge & Campbell, 2018). Thus, it is important that the consequences of regulated and supervised screentime are not exaggerated. Concerns regarding early exposure to screens and high levels of screentime remain, however, especially for the development of attention and language.

Attention

While reading and play are known to stimulate the prefrontal cortex, the development of

which is associated with important cognitive skills (i.e., self-control), screentime disproportionately stimulates sensory-related areas of the brain (Namazi & Sadeghi, 2024). Thus, there are concerns that high exposure to fast-paced and highly addictive inputs from screens delays the development of young children's attention spans or potentially undermines them. The best evidence of this association comes from large samples of longitudinal data, which follow the same children over time to better understand the relationship between screentime exposure and attention. These studies have established two important factors:

- *Levels of screentime exposure:* a systematic review consistently found a relationship between higher amounts of screentime and worse attention scores, especially when exposure was excessive for their age group (Santos et al., 2022). It is debated whether attention can be distinguished from related cognitive skills linked to academic success (known as executive functions) during early childhood (Ahmed et al., 2019). A meta-analysis of executive functioning, however, observed no significant association between levels of screentime and cognitive ability broadly, but did find that passive screentime (e.g., TV viewing) was negatively related to children's executive functioning (Bustamante et al., 2023).

- *Age of child:* another systematic review found support for the negative effects of early exposure to screens, but not consistently (60% of studies), suggesting that the relationship is likely nuanced (Jourdain et al., 2023). In a well-designed study, screentime exposure at age 2 negatively predicted executive functioning at age 3, but screentime at age 3 did not demonstrate a negative concurrent effect (McHarg et al., 2020).

All of the aforementioned research emphasises the need to better understand contextual

factors to distinguish a clear causal relationship between screentime and attention in young children. Confounding factors, or 'third factors', that could be essential components of understanding how attention develops and is affected by screentime – including caregiving styles, societal norms and especially socioeconomic status – should be carefully considered in studies of screentime and attention but rarely are.

Language

Although the video content which forms a substantial proportion of young children's screentime (Ofcom, 2023) can provide exposure to vocabulary, it is not as beneficial for language development as 'joint attention', where a child and an adult are engaged in the same activity (Tomasello & Farrar, 1986). In particular, reading with a child has been consistently shown to promote children's cognitive development (Bus et al., 1995; Farrant & Zubrick, 2012). Yet, the percentage of caregivers who read to their children is continuously decreasing while rates of screentime increase (Busby, 2024; Ofcom, 2023). In other words, caregivers are likely replacing behaviours known to benefit children's language development with screentime (Brushe et al., 2024). This is an example of one of the longest-standing hypotheses about the adverse effects of screentime: the 'displacement' of time which could be better spent on more beneficial activities (Hornik, 1981), sometimes referred to as a 'substitution' effect.

Meta-analytic evidence suggests higher levels of screentime exposure is associated with less advanced language development in early childhood (Madigan et al., 2020). Similarly, a comprehensive systematic review suggests that screentime use before age 2 is associated with lower communication skills and more limited language development (Massaroni et al., 2023). As with attention, nuance is needed in

interpreting these findings. Passive screentime without interactions, such as watching a video, has the worst consequences for children's language development (Massaroni et al., 2023), compared to active screentime (i.e., featuring interactions, such as playing games). Given that language impairment is also associated with attention deficits (Ebert & Kohnert, 2011), problematic screentime may affect language skills via multiple mechanisms.

Recommendations for Parents and Policymakers

Specific knowledge of the consequences of screentime during young childhood for outcomes in adolescence and adulthood is still relatively limited because: 1) many studies are cross-sectional (i.e., administered at one time point) or, if they are longitudinal, cover relatively short periods of development and 2) because technology changes so rapidly, research is often several years behind current trends. Nevertheless, the existing empirical evidence justifies a number of recommendations for various stakeholders.

Parents

Despite the associations of screentime with maladaptive behaviours, a smaller subset of research provides reasons for optimism regarding positive consequences of screens for young children. For example, one study identified positive links between touchscreen use and earlier achievement of fine motor control (Bedford et al., 2016). The following are two recommendations for caregivers related to effective use of screens:

- *Educational technology (EdTech)*: analyses of EdTech applications (software which uses smartphones, tablets and other screen-based devices to support learning), have suggested positive effects on learning outcomes (Griffith et al., 2020; Outhwaite et al., 2023a). However,

the most rigorous studies (i.e., randomised control trials) have suggested comparatively smaller positive effects, as well as substantial differences in how beneficial different apps are, if at all – in one review, 24pc of the most popular maths learning apps contain no maths (Outhwaite et al., 2023a). An extensive review of maths apps for young children found that, to be effective, learning content needed to be personalised to children's needs (Outhwaite et al., 2023b), adding to increase calls for personalisation in education interventions (Kelly, 2023). Furthermore, it is unclear whether the benefits of EdTech outweigh the downsides of providing children with further screentime – the utility likely depends on the age of the child, their overall screentime and their specific learning needs.

- *Co-viewing*: screentime should not be a solitary activity for young children. Instead, adults should at least actively supervise screentime to prevent access to inappropriate content (Chen & Shi, 2019) and, preferably, make screentime a joint activity by 'co-viewing' the content with the child. By co-viewing, adults can mitigate the potential harms of screentime for executive functioning development and ensure that screentime is beneficial for the development of language skills. This includes providing engagement and conversation around video content (Madigan et al., 2020) and ensuring that e-books are an enriching experience equivalent to traditional co-reading (Mathers et al., 2025).

Policymakers

Although the Education Committee's report on screentime recommended providing clear guidelines from the government for caregivers, the government has initially chosen not to support this recommendation (Department for Education Committee, 2025). Based on the best-available evidence, it would be advisable for the government to adhere to the recommendation

and to raise awareness of these guidelines via simple, actionable messaging. The previous UK government supplied advice to caregivers on what educational apps are beneficial (the Hungry Little Minds initiative; Department for Education, 2020), and a similar campaign could be conducted for this issue.

More targeted strategies could be utilised via the proposed 1,000 'Best Start' family service centres that the Education Secretary recently announced (Department for Education, 2025). These centres are intended to support families on best practices regarding screentime in childhood and could encourage caregivers to make good decisions around screen use a priority, including providing books, toys and other strategies. If so, the Department for Education may want to target specific groups, especially low socioeconomic status families. A well-powered French cohort study demonstrated that caregivers with low levels of educational attainment were significantly less aware of guidelines on screentime in early years (Poncet et al., 2022).

Concerns have also been raised regarding the absence of explicit policies regarding screentime in childcare settings (Morton, 2024). Ofsted does encourage practitioners to support young children in making "healthy choices" regarding screentime, and settings with excessive screentime would be unlikely to score well on other criteria (Ofsted, 2024). However, Ofsted does not provide specific regulations for childcare settings on restricting screentime or adherence to international public health (i.e., World Health Organisation) guidelines. The Department for Education should mandate that childcare facilities closely follow age-appropriate recommendations regarding screentime and ensure that staff are accountable for the content that young children consume, to give children the best possible start to their screentime habits.

Conclusion

In summary, the best-available evidence suggests that screentime for children below the age of 2 should be avoided and then limited to preferably a maximum of 1 hour per day until commencing school. The consequences for cognitive development when keeping to these guidelines are minimal, if any. In contrast, both early and excessive exposure to screens is thought to have tangible negative consequences for attention, although more research is required to disentangle the exact relationship, given the influence of other factors (i.e., socioeconomic status). Young children's language development is thought to be particularly affected by screentime via the displacement of beneficial behaviours with adults, especially conversations and reading together.

Caregivers can mitigate the effects of screens by carefully using EdTech, which has been shown to produce beneficial results, and by co-viewing video content with their children. Policymakers should consider setting guidelines around screen use and then promoting best practices to caregivers through advertising campaigns and via health professionals and support centres. In addition, regulations should be applied to prevent excessive screentime in childcare settings.

More longitudinal research is needed: analysis of new and forthcoming UK-based longitudinal birth cohort studies that measure both screentime from their onset and the consequences for cognition and behaviours throughout the lifecourse will be vital. As with many developmental phenomena, addressing the current mental health crisis surrounding social media in adolescence and young adulthood begins by improving behaviours and relationships with technology and screens much earlier in development in the current generation.

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