

COMMENTARY

A balanced digital diet for under 5s: A commentary on Orben (2021)

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Funding information

Economic and Social Research Council, Grant/
Award Number: ES/R004129/1

Handling Editor: Moin Syed

Abstract

Orben (2021) proposed a 'Digital Diet' approach to thinking about children's consumption of digital media. Here, we consider the Digital Diet with a focus on young children under 5. As well as discussing how Type and Amount apply to this age group, we argue that Balance needs to be considered differently for young children, and their families, compared to older children and adolescents. Considering the developmental needs of preschool children, we suggest that Balance must include not only a balance of activities within the digital world, but beyond it. The Digital Diet should be part of a wider healthy lifestyle, involving a range of activities and, crucially, social interaction. We also suggest an additional dietary factor: Timing of digital media use. Supporting children to form healthy Digital Diet habits early in life, may enable them to maintain a healthy digital lifestyle themselves as they continue to grow.

KEYWORDS

child development, digital media, infants, preschool children, social interaction

We read Orben's (2021) suggestion of a 'Digital Diet' approach to children's and adolescents' digital media use with interest, and welcome this much more nuanced approach to considering guidelines on media use. Metaphors are useful to aid public understanding of scientific and social issues, and to allow for a more informed policy discussions

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(Kendall-Taylor & Haydon, 2016). Likening the use of digital media to how we consume food, and provide food for our children, is therefore likely to strike a chord with parents and policymakers alike.

As a group of researchers, our work focuses on infants and young children under 5, and we have been thinking about the applicability of the Digital Diet to this specific age group. Research shows that preschool children can learn valuable skills, including language, problem-solving, and science, technology, engineering, and maths (STEM) from interactive touchscreen apps (Xie et al., 2018), video chats (e.g., Gaudreau et al., 2020), and educational television (Madigan, McArthur, Anhorn, Eirich, & Christakis, 2020). However, these benefits depend on Child, Context, and Content ('Three C's framework', Fred Rogers Center Quality Framework Statement, 2012). For example, while 'active' media use, in which the child engages in activities requiring the use of cognitive skills (e.g., making cognitively challenging decisions and solving problems while using a PC, tablet device, or gaming system) may be beneficial (Hirsh-Pasek et al., 2015), 'passive' media use, such as watching online videos, can have detrimental effects (Anderson & Pempek, 2005).¹ In terms of Context, joint media engagement between parent and child makes media consumption more interactive and can improve learning, especially for children aged 5 and under (Fred Rogers Center Quality Framework Statement, 2012). Parental cognitive, physical, affective, and technical assistance can scaffold the child's learning from digital media (Neumann, 2018; Wood et al., 2016). This is akin to the Type of digital media consumed in the Digital Diet. Amount is also key here, but not in isolation from Type. While excessive media use in preschoolers can be detrimental to children's attention (Portugal, Bedford, Cheung, Mason, & Smith, 2021, on touchscreen use; Zimmerman & Christakis, 2005, on television viewing) and language development (Moon et al., 2019; van den Heuvel et al., 2019), moderate use of appropriately designed educational media content can have benefits for young children (Arnold et al., 2021; Dore et al., 2019). These factors are particularly important for young children as the first few years of life are crucial for healthy brain development, including language, social skills, and cognitive development (Fox, Levitt, & Nelson III, 2010).

Where our take on the Digital Diet approach starts to differ from Orben's is on the question of 'Balance'. For us, thinking about digital media use in young children is not about how they balance using more than one form of digital media simultaneously: this is less applicable to this age group. What it is about, is how children's media use is balanced with other activities in their lives, and with social interaction in particular. Young children require social interaction to be able to learn from their experiences (Myers, LeWitt, Gallo, & Maselli, 2017), and, most importantly, that interaction needs to be contingent, with caregivers responding promptly and meaningfully to their children's behaviour (Masek et al., 2021). Joint media engagement (co-use or co-viewing of digital media) enhances its benefits for young children, compared to watching television or playing games on a tablet alone (Dore & Zimmermann, 2020). And the issue is not only related to how children use digital media themselves: parents' verbal interactions with their children decrease in the presence of digital media (Masur, Flynn, & Olson, 2016; Radesky et al., 2015), and parents' engagement with mobile devices leads to more negative emotions, social bids for attention, and self-soothing activities in infants (Myruski et al., 2018; Stockdale et al., 2020). So, for young children, and their caregivers, digital media use needs to be balanced with ensuring parent-child interaction is not hindered. In addition, the amount of time parents uses digital media is related to the amount of time children use digital media (Poulain, Ludwig, Hiemisch, Hilbert, & Kiess, 2019). Just as it is important for caregivers to model healthy eating behaviours, they should also model healthy digital media use.

With young children much more so than with older children and adolescents, the role of caregivers needs to be considered. Just as with sugary snacks, we should try to avoid our children developing an association between digital media and the term 'treat'. Weaning experts recommend that dessert is offered to children at the same time as their main meal (Huss, Laurentz, Fisher, McCabe, & Kranz, 2013; Stirling-Reed, 2019). Restricting an activity often makes children want it more and hold it in high value; if allowed, a child might spend many hours watching television, just as they might choose to eat chocolate for many of their meals. Perhaps, the solution could be to treat digital media as we would dessert: offer digital media to children alongside a balance of other developmentally appropriate and appealing activities (e.g., going to the playground or sensory play) and, importantly, place a timeframe on the digital media activity. The American Academy of Paediatrics (2016) recommends digital media use for 2- to 5-year-olds is

TABLE 1 Additional considerations of the digital diet for preschool children

	Orben (2021)	Additional considerations for preschool children
Type	Consider which technologies are being used, and the effects these have on development.	Encourage 'active' use of digital media, preferably co-using the media with another person.
Amount	Consider time spent using each type of media device, in the context of overall media use.	Consider time limits for digital media use, and offering digital media time as just one of a number of possible activities.
Balance	Consider the holistic balance between different media devices, used both separately and together.	Consider the balance of digital media use with other activities, particularly social interaction, physical activities, and outdoor time.
Timing	Not included, but advising older children and adolescents about when using media devices may have negative effects could be beneficial.	Help children form healthy media habits early in life by only allowing them to use devices at times of day that will not disrupt routines, including sleep.

restricted to 1 hr per day of high-quality programming. In the United Kingdom, the Royal College of Paediatrics and Child Health (2019) states that it cannot supply a universal cut-off for specific forms of screen time due to methodological limitations in the current literature, although it suggests that applying thresholds might be appropriate. Thus, just as we would not give children an endless supply of chocolate to eat for dessert, unlimited screen time should be avoided, and restricted to high-quality content. Children might finish their dessert first, then move on to their main meal; similarly, once children have finished their digital media time, they might move on other activities. By doing this, we might begin to teach children how to balance their own digital media use: an important life skill that digital natives will need in the future.

In addition to the six considerations of the Digital Diet put forward by Orben (2021), we would like to consider another: Timing. *When we eat* is increasingly being acknowledged to have an impact on our health (e.g., Manoogian, Chaix, & Panda, 2019). Although still an emerging area of research with children, evidence suggests that eating a late evening meal is associated with disrupted circadian rhythms and increased obesity levels (Martínez-Lozano et al., 2020). In terms of digital media use, just as it might not be advisable to give a child a large meal immediately before bed and expect them to sleep well, media use before bed is also known to disrupt sleep, potentially due to psychological and physiological arousal, blue light suppressing melatonin production, or simply pushing back bedtime (Carter, Rees, Hale, Bhattacharjee, & Paradkar, 2016; Cheung, Bedford, De Urabain, Karmiloff-Smith, & Smith, 2017). While this point could equally apply to children of all age groups, parents of preschool children have more influence over what their child eats and when, just as they have more control over their child's access to media devices (Ofcom, 2019). In addition, habits such as food preferences are known to develop before the age of 5 (Skinner, Carruth, Bounds, & Ziegler, 2002), while McArthur, Browne, Tough, and Madigan (2020) suggest screen use is consistent from 24 to 60 months. Thus, starting early with healthy habits around the timing of digital media use is likely to be beneficial.

Finally, extending our thoughts on Balance led us to consider the fact that a Digital Diet, as with any diet, needs to be part of a healthy lifestyle more broadly (e.g., Covington, Armstrong, Trude, & Black, 2021). As Orben (2021, p.3) says, '[i]f we only stick with the status quo and study technologies in isolation, we might not be seeing the whole picture'. We are in complete agreement with this point, but we also think that we are not seeing the whole picture if we study digital media in isolation from the rest of children's lives. So, young children may use digital media for entertainment, education, and communication. Consuming a balance of types of digital media, in appropriate quantities, at the right time of day, and preferably whilst interacting with others, will allow them to have a healthy Digital Diet. As part of a healthy lifestyle, though, young children also need to be physically active (Carson et al., 2017), play with their peers (Pyle, DeLuca, & Danniels, 2017), communicate socially (Myers et al., 2017), experience nature

(Fyfe-Johnson et al., 2021), and learn from the physical world around them (Yannier et al., 2021). Digital media may be able to contribute to some of these activities, but it cannot replace them.

To conclude, the Digital Diet concept helps parents and carers, as well as researchers, to consider how digital media might best be integrated into children's lives in a way that is beneficial to their development. Some aspects of the Digital Diet apply differently to preschool children than to older children and adolescents, because of the reliance of this age group on interaction in order to learn, and because of the higher levels of influence that caregivers have over their activities (see Table 1 for a summary). By supporting young children to form healthy Digital Diet habits early in life, we may enable them to maintain a healthy digital lifestyle themselves as they continue to grow (Parliamentary Office of Science and Technology, 2020).

ENDNOTE

¹ Note that, more recently, researchers working with older age groups and looking specifically at social media use have suggested that the active-passive dichotomy is often over-simplified, for example, Kross et al., 2021.

AUTHOR CONTRIBUTIONS

Amy Bidgood: Conceptualization; writing – original draft; writing – review and editing. **Gemma Taylor:** Conceptualization; funding acquisition; writing – review and editing. **Joanna Kolak:** Conceptualization; writing – review and editing. **Eve Marie Bent:** Conceptualization; writing – review and editing. **Nicola Hickman:** Conceptualization; writing – review and editing.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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How to cite this article: Bidgood, A., Taylor, G., Kolak, J., Bent, E. M., & Hickman, N. (2022). A balanced digital diet for under 5s: A commentary on Orben (2021). *Infant and Child Development*, e2292. <https://doi.org/10.1002/icd.2292>