EDITORIAL

Interactive media use and early childhood development☆,☆☆

Uso de mídia interativa e desenvolvimento infantil precoce

Q1 Mijna Hadders-Algra 🌐

University of Groningen, University Medical Center Groningen, Department of Pediatrics, Section of Developmental Neurology, Groningen, The Netherlands

The study by Juliana Nobre et al. in this issue introduces a novel instrument to assess interactive media use in children younger than 4 years. The development of this instrument is well-timed. Society is confronted with an explosive increase in the use of interactive media. Recent data from the United States illustrate the changes in media use. In 2011, 41% of American 0–8 year olds had a smartphone in the home, whereas in 2017 this number had increased to 95%. Despite the increase in mobile devices, children's overall screen time did not increase. Children continued to use screen media on average well over two hours per day. Yet, the relative time spent with mobile devices increased from 4% to 35% of total screen time. Also, the majority of the youngest children nowadays use mobile devices: in 2013–2014, 30–44% of children younger than 1 year used a mobile device, and 77–90% of 2-year-olds (studies in the United States and France). Unlike the computer's keyboard and mouse that require considerable fine motor coordination, the touch screens of mobile devices are compatible with the fine motor skills of young children. At around 1 year of age most children are able to tap, touch, swipe, and pinch on the screen. Due to the ubiquity of the accessible mobile devices, interactive media currently form an integral part of young children's daily life. Nevertheless, the effect of these media on child health and development is not well understood.

The large majority of studies on screen media use in children addressed passive forms of screen media use, such as watching television programs, prerecorded videos, and DVDs. These studies reported that increased screen time is associated with a higher risk of obesity. This increased risk has been attributed especially to the effect of snacking while watching TV and to the exposure to advertising for high-calorie foods and snacks. Increased screen time also has been associated with a negative effect on sleep, most likely caused by the screen's arousing content and its blue light suppressing melatonin and therefore affecting circadian rhythm. Many studies showed associations between excessive viewing during childhood and cognitive, language, and socio-emotional delay. Yet, it is important to realize that associations do not automatically imply causation, as it is well known that families that function less well, e.g., families with a low household income or a single parent, are prone to high media use. Nevertheless, the longitudinal study by Madigan et al. indicated that greater screen time when the child was 2 or 3 years old was associated with worse developmental scores at the end of the preschool years. To investigate the effect of screen media use on a broad range of outcomes, it is necessary to focus on the interactive media use in young children.
The studies on screen-based language learning illustrate that children learn more from media in the following two conditions: (1) when caregivers join the activity and are actively engaged and (2) when it involves specific contingent interactions. This means that learning is most effective when it imitates the real life situation of interaction with a caring adult. Patricia Kuhl suggested that the efficacy of this learning condition is not only mediated by its ability to enhance the child’s attention and arousal, but also by the provision of multifaceted information, as the uttered words are accompanied by social cues, such as eye gaze and pointing gestures.

The studies described above indicate that the effect of interactive media use on child development largely depends on the social context of its use and the type of activities performed. The novelty of the questionnaire developed by Nobre et al. is that it pays explicit attention to these latter two aspects of interactive media use. The questionnaire results in a multicriteria index, in which higher scores reflect, for instance, the absence of excessive screen time, the use of a tablet (instead of a smartphone), performing activities requiring manual actions or consisting of educational applications, and caregiver attendance and monitoring. The authors demonstrated that a higher score on the multicriteria index – reflecting a higher quality of interactive media use – in Brazilian children aged 23–24 months was associated with higher scores on the language, cognitive, and fine motor scales of the Bayley Scales of Infant and Toddler Development. The positive association between good quality interactive media use and language development corresponds to the above described literature. The positive association between good quality interactive media use and fine motor development agrees with the findings of a recent study reporting that tablet use at preschool age was associated with better fine motor skills. The association between good quality interactive media use and better cognitive development is new. The findings of Nobre et al. imply that the multicriteria index offers new opportunities to evaluate the effects of interactive media use on early childhood development. Yet, I suggest that the authors may improve the sensitivity of the index by adding two items: one on the way in which the caregivers interact with the child during joint media activity and another on the child’s predominant types of manual actions during interactive media use. Application of the multicriteria index will pave the way to a better understanding of the effects of interactive media use. This knowledge is required for adequate guidance and advice for caregivers on interactive media use in infancy and preschool age. Conceivably, interactive media when properly used, i.e., with parental guidance and interaction, and not longer than 2 hours per day and not shortly before bedtime, may be one of the tools to promote early childhood development. Recall that explorative self-practiced activities are pivotal drivers of development.

Conflicts of interest

The authors declare no conflicts of interest.
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