

# Does too much electronic device use really impact child & adolescent development?

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One only has to travel on public transport to observe just how electronic device use has permeated into our lives. From the menial task, all the way through to education, employment, social interaction, communication and entertainment. The fact is electronic device use has now become a standardised feature of life and a common topic parents often raise is does electronic device use adversely affect child development and behaviour?

Electronic devices vary widely, ranging from the traditional forms such as T.V, desktop computers and laptops, to the now more portable technologies such as tablets, mobile phones, and now wearable internet connected technologies such as watches and fitness wrist bands. It is important to remember whilst electronic devices are the hardware medium used to access content, the software installed within these devices is often overlooked as a contributing factor towards the possible impacts electronic device use may have upon child and adolescent development. One example is some educational apps had been identified harvesting certain personal children data or specific device ID.<sup>[1]</sup> Even though this may have been for the purposes of marketing or other means, one still must question how these advertisements or device monitoring potentially impact children behaviour or future development.

Different devices will tend to determine how and where the device is used, which may subsequently be associated with differing behaviours. Thus a mobile phone maybe easily whisked away in an isolated area away from others viewing content, while a free standing desktop computer in a family area generally prevents viewing of undesirable material.

Problematic smartphone use (PSU) is a description commonly used when describing a range of behaviors or consequences which tend to negatively impact an individuals life as a result of excessive use of electronic devices. This term is interchangeably used between children an adults, thus an example of PSU in children maybe excessive mobile phone use causing distraction from completing homework tasks later causing lower grades at school. While an example of PSU in adults may be excessive use of a mobile phone routinely during work hours which resulted in the loss of employment. The Jeong & Park study of 1378 preschool children identified that PSU was associated with increased device use frequency. Importantly, those children who exhibited PSU, were more strongly associated with using the devices for entertainment as opposed to using electronic devices for educational purposes.<sup>[2]</sup>

Hosokawa & Katsura (2018) who studied mobile technology use and adjustment in 5 year olds identified numerous similarities to the Jeong & Park (2021) result, that frequent and routine use of mobile devices was also associated with behavioral problems in school. The behavioural problems identified by Hosokawa & Katsura were increased hyperactivity, inattention, conduct problems and emotional symptoms<sup>[3]</sup> In fact 14% of participants within this study were reported to use electronic devices 60 minutes or more of the day these conduct problems were significantly linked to to regular use of mobile devices.<sup>[3]</sup> Of interest to this article, the Hosokawa & Katsura study cited additional studies which also identified numerous other adverse impacts to child development as a result of excessive electronic device use, such as social and psychological development, reducing parental-child interaction, impeding furthering development of associated verbal learning, problem solving and expressive creativity, sleep disturbance, lowered physical fitness and increased isolation which restrict social interaction cues development.<sup>[3]</sup>

Niiranen et.al (2021) had associated increased electronic device use in 5 year old's was linked with certain negative behavioural psycho-social symptoms, namely attention & concentration difficulties, hyperactivity, impulsivity, emotional internalising and externalising symptoms, even

conduct problems”.<sup>[4]</sup> While the above information highlight possible relationships between excessive electronic device use being associated with disrupting the normal flow of child development in a variety of ways, it was also identified such disruptions are more likely to accrue over a longer course of time and not via short term use.<sup>[4]</sup>

In the book called ‘The brain that changes itself’ written by Mr. Doidge further complements the above supporting information in so far as to discuss the concept of neuroplasticity and it’s connection between the use of TV’s and gaming causing the brain to receive information at rapid rates over time ‘remaps the brain’ and ‘alters the brain’ due to over stimulation. This remapping of the brain occurs by triggering neurotransmitters such as dopamine which are associated with pleasure and are also known to be strong motivators in behavioural reinforcement which can also be seen in certain drug related addictions.<sup>[5]</sup> The World Health Organisation broadly suggests 0 – 1 year old’s having no screen time, and 2 to 4 years old’s having no more than 1 hour (less is better).<sup>[6]</sup> The Australian 24-hour movement guidelines add additional recommendations for children aged 5 – 17 years stating “no more than two hours of sedentary recreational screen time per day” not including educational screen times.<sup>[7]</sup>

Davis (2009) raised some interesting points regarding the negative impacts of excessive use of social media, technology and electronic devices which tend to create interpersonal disharmony. By recognising such disharmony, Davis suggested some healthy interventions focused to reduce or eliminate how electronic devices and social media may negatively affect us. Suggestions such as developing awareness on the how, why & when we always gravitate towards using our technology and social media, being mindful and trying to live in the present, use texting / social media and technology time outs, creating no use technology zones i.e bedrooms & dinner tables and time limits etc and spending more time participating in face to face interaction.<sup>[8]</sup>

Perhaps one of the most effective ways parents can mitigate PSU is to develop strong attachment between family and the child, the development of social interactions with positively influence communities, and most importantly the ongoing development to participate in activities away from the use of electronic devices.<sup>[9]</sup>

The primary intention of this article was to stimulate familial and community discussion regarding how children and adolescents use there electronic devices, and how extended times of use may contribute to behvaioural and developmental change or even contributing towards distancing oneself from the family unit.

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