

Mobile touch screen device use among young Australian children – first results from a national survey

Pieter Coenen^a, Erin Howie^a, Amity Campbell^a, Leon Straker^a

^a*School of Physiotherapy and Exercise Science, Curtin University, Perth, WA, AUSTRALIA*

1. Introduction

Mobile touch screen devices (MTSD) such as tablets and smart phones are rapidly becoming accessible to many children. In Australia, with a population of 23.5 million, industry figures show that there were 10.8 million tablet and more than 16 million smart phone users in 2014 (Fadaghi, 2014a, b). The increasing use of MTSDs by children is enabled by their high portability which allows for use in many daily life situations, and intuitive interfaces which do not require literacy or highly developed fine motor skills. Moreover, education authorities are integrating tablets into education and are investing heavily in this technology, including initiatives to introduce tablets into early child care settings. As a result, it is not surprising that young children can frequently be seen using MTSDs in a variety of locations and settings.

The use of MTSDs among children has, apart from social and mental effects, potential for physical health effects. For example, from research on traditional electronic devices (such as televisions and desktop computers) it is known that device use can lead to awkward body postures (Ciccarelli et al., 2011) and reduced physical activity behaviour (Straker et al., 2007). The latter may be directly due to screen time or due to displacement of other physical activities. MTSDs are however fundamentally different than the devices used in these previous studies as they can be used almost anywhere and by very young children. There are currently no studies on the physical health effects of MTSD use by young children.

Current Australian activity guidelines for 5-17 year old children advise a maximum daily amount of screen time (not just MTSDs but also other devices such as TVs or desktop computers) of two hours for leisure or entertainment purposes (Australian Government - Department of Health, 2014a). For children aged between 2 and 5 years a maximum of one hour screen time is advised while it is advised that children under the age of 2 not use any electronic devices at all (Australian Government - Department of Health, 2014b). Available data collected prior to widespread MTSD use suggest that many young children are exceeding these screen time guidelines (Duch et al., 2013; Hinkley et al., 2012). Due to their portability and increasing availability, MTSDs are expected to increase daily screen time even more. In the USA, MTSD use has been documented with 13% of children aged 0-1 years often or sometimes using educational games and 19% using creative apps. By 2-4 years of age these percentages had risen sharply to 52% and 45% respectively (Rideout, 2013). Results from this study furthermore show that access to MTSD in families with 0-8 year old children rose rapidly from 52% in 2011 to 75% in 2013. As a result of this potential for high use by young children, there are international calls for a re-evaluation of screen time guidelines (Christakis, 2014).

While the use of MTSD among young children is potentially large and increasing, with potential health impacts, there is a lack of information on MTSD use among this age group. Also, aside from anecdotal evidence little is known about the context in which young children use MTSD, including why, when and where they are used. A better understanding of the context will help to inform interventions and guidelines. The aim of our study was therefore to describe the prevalence and context of use of IT devices among a small representative sample of the Australian population of young children.

2. Methods

Nationwide, Australian parents of 0-5 year old children were recruited through childcare providers and their relevant networks, community groups and via local media. Parents were asked to fill out a 10 minute online questionnaire on the electronic device use (including MTSDs) of their children. Furthermore, specific to MTSDs, this questionnaire contained questions regarding the context (purpose, location and potential effects) of the use. This questionnaire was developed after reviewing the literature and based on current knowledge on the matter.

3. Results

Parents of 159 children from all Australian states and mainland territories completed the survey. These children were on average 3.8(±1.7) years of age, while 30 of them were under the age of 2. A

substantial proportion of parents reported their child used MTSD devices for more than 30 minutes a day during weekdays and weekend days (Table 1). The reported purpose of MTSD use by children was mainly to 'keep children calm and happy' (44%), but also 'education' (37%) and 'communication' (20%). Children used MTSDs mainly 'at home' (60%), 'while traveling' (22%) and 'while out' (at the beach, restaurant etc.; 17%). The most common posture reported for MTSD use was 'sitting in a chair, car seat or pram' (49%), 'lying' (18%), 'sitting at a table' (14%) and 'standing' (9%).

Table 1. Electronic device use by Australian young (0-5 years old) children. The number of children in each of the device use categories (expressed as a percentage of the total amount of questionnaires filled out) is shown.

	Television	Desktop computer	Laptop	Tablet	Mobile phone	Electronic games
Non-use on weekdays	16.5%	83.7%	72.0%	30.6%	38.7%	89.4%
Use ≤30 minutes on weekdays	21.4%	12.2%	14.0%	43.5%	54.8%	8.5%
Use >30-≤60 minutes on weekdays	36.9%	4.1%	10.0%	17.6%	6.5%	2.1%
Use >60 minutes on weekdays	25.2%	0.0%	4.0%	8.2%	0.0%	0.0%
Non-use on weekend days	18.5%	71.4%	66.0%	22.9%	43.8%	74.5%
Use ≤30 minutes on weekend days	15.7%	26.5%	18.0%	45.8%	46.9%	17.0%
Use >30-≤60 minutes on weekend days	16.7%	2.0%	12.0%	21.7%	6.3%	6.4%
Use >60 minutes on weekend days	49.1%	0.0%	4.0%	9.6%	3.1%	2.1%

4. Discussion

This study provides valuable preliminary national data on MTSD use by 0-5 year old Australian children. Results suggest that tablet and mobile phone use are prevalent among young children and their use is for substantial durations of time (even exceeding national guidelines). This information on the use and context of use is an essential first step in understanding this new phenomenon. More detailed information is needed to understand the use of MTSD, its context and its potential health impacts. Such information would be of importance in developing guidelines for healthy MTSD use in young children.

References

- Australian Government - Department of Health, 2014a. Australia's physical activity and sedentary behaviour guidelines for children (5 - 12 years).
- Australian Government - Department of Health, 2014b. Move and play every day - National physical activity recommendations for children (0-5 years).
- Christakis, D.A., 2014. Interactive media use at younger than the age of 2 years: time to rethink the American Academy of Pediatrics guideline? *JAMA pediatrics* 168, 399-400.
- Ciccarelli, M., Straker, L., Mathiassen, S.E., Pollock, C., 2011. ITKids part II: variation of postures and muscle activity in children using different information and communication technologies. *Work* 38, 413-427.
- Duch, H., Fisher, E.M., Ensari, I., Harrington, A., 2013. Screen time use in children under 3 years old: a systematic review of correlates. *The International Journal of Behavioral Nutrition and Physical Activity* 10, 102.
- Fadaghi, F., 2014a. Australia's smartphone boom. <https://www.telsyte.com.au/?p=2497>. February, 2014.
- Fadaghi, F., 2014b. Australian tablet sales. <https://www.telsyte.com.au/?p=2598>. February, 2014.
- Hinkley, T., Salmon, J., Okely, A.D., Crawford, D., Hesketh, K., 2012. Preschoolers' physical activity, screen time, and compliance with recommendations. *Medicine and Science in Sports and Exercise* 44, 458-465.
- Rideout, V., 2013. Zero to Eight: Children's Media Use in America 2013.
- Straker, L., Abbott, R., 2007. Effect of screen-based media on energy expenditure and heart rate in 9- to 12-year-old children. *Pediatric Exercise Science* 19, 459-471.