



## Digital Media and Developing Minds: What do we know?

The *Digital Media and Developing Minds* conference held in New York presented a comprehensive and very useful set of papers from US and international speakers in a packed program from October 15-18.

The conference was presented by Children and Screens: the Institute of Digital Media and Child Development- a non-profit organization founded by Dr. Pamela Hurst-Della Pietra. Dr. Hurst-Della Pietra was curious eight years ago to understand the cognitive and long-term impacts of frequent technology use among her own children. She started the Institute in 2013.

The range of themes tackled included technology use in early childhood; digital media, mental health and relationships; digital aggression and media violence; problematic internet use/ gaming addiction; digital media and developing bodies; impacts on cognition; cellphones in schools; privacy; and upcoming research questions.

The “Laps and apps” session with Rachel Barr, Sarah Coyne, Justine Cassell, and Kathryn Hirsh-Pasek emphasised that children learn best through personal interaction, and technology use should not be allowed to disrupt that: it should be a prompt not a partner for children. Hirsh-Pasek said “We are humans born to need humans”.

Referring to the lack of studies on some issues, Tom Robinson from Stanford Solutions Science Lab said that in areas where it would be unethical to do research to prove some media impacts are damaging, the demonstration of a successful intervention to reduce a problem is very useful.

Doug Gentile moderated, and Craig Anderson, Sandra Calvert and Tom Hummer contributed to, the panel session on modern methods in the study of media violence, and Brad Bushman gave a keynote “Is exposure to media violence linked to aggression and violence in the real world?”



Brad Bushman

The 4 speakers in the *Developing bodies* session (Carter, LeBourgeois, Robinson and Zadnik discussed the latest research in the fields of orthopaedics, sleep, obesity and vision. For better vision children should be exposed to natural light and spend time outside.

A stirring address was given by Tristan Harris of the Center for Humane Technology. Harris is critical of the race to the bottom to keep our attention in the digital world. For business models, maximising and keeping our attentions is vital. Their research showed that 70% of Google traffic was generated by algorithms not human choice. If we are to solve these issues, Harris says we have to recognise our vulnerabilities and stop companies exploiting our kids. He set out 4 remedies

<http://humanetech.com/problem/>

Equally challenging was the paper on the invasion of children’s privacy, given by Serge Egelman, Director of Useable Security and Privacy at the International Computer Science Institute (ICSI), an independent, non-profit research organization located in Berkeley, California, USA His research “Won’t somebody think of the children” Privacy Analysis at Scale: A Case Study With COPPA. Proceedings on Privacy Enhancing Technologies. (Reyes I, et al 2018.) showed that despite the protections of the US COPPA Act (and

Australia lacks similar legislation) some 57% of free apps designed for families (a sample of 5855) were in potential violation of the Act. He found the violations often arose from 3rd party services included with the apps, plus platform providers not enforcing their own terms. Many data brokers provided lists of children’s personal data to almost anyone without checks.

<https://content.sciendo.com/view/journals/popets/2018/3/article-p63.xml>

The Washington Post recently provided a good overview of Egelman’s findings in which he stated:

“Unlike most products, where consumer harms may be obvious to consumers, parents in most cases have no way of knowing whether their child’s data is being tracked or transmitted. Consumers can help by demanding more transparent disclosures from the app developers and third-party advertisers that help them generate income — and by deleting (and reporting) apps that do not comply.”

[https://www.washingtonpost.com/news/the-switch/wp/2017/07/27/we-tested-apps-for-children-half-failed-to-protect-their-data/?utm\\_term=.52443e6b6c26](https://www.washingtonpost.com/news/the-switch/wp/2017/07/27/we-tested-apps-for-children-half-failed-to-protect-their-data/?utm_term=.52443e6b6c26)



Serge Egelman



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**Editor:** Barbara Biggins OAM  
**Compiler:** Caroline Donald  
**Editorial Board:** Barbara Biggins, Judy Bundy, Elizabeth Handsley.

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**Australian Council on Children and the Media (ACCM)**  
PO Box 1240  
Glenelg South 5045  
South Australia  
info@childrenandmedia.org.au  
www.childrenandmedia.org.au  
Tel: +61 8 8376 2111  
Fax: +61 8 8376 2122

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## EDITORIAL

### The vexed question of mobile phones in schools

The NSW Government is conducting a review of the risks and benefits associated with the use of mobile digital devices, primarily smartphones. The review is examining the policies, practices and views of both government and non-government schools in NSW. Public submissions closed on October 19 and a report is expected towards the end of the year. ACCM made a submission which can be found on our website at

<https://childrenandmedia.org.au/taking-action/accm-submissions>

ACCM acknowledged the many facets of the issue. On the one hand, mobile phones are thought to distract students, have an impact on sleep and wellbeing, and harm relationships with family and friends; on the other, mobile phones are seen as an integral part of modern communication that can provide a valuable tool for supporting student learning.

Phones also have a role to play in family and social relationships. At a time when parents are increasingly concerned with their children's welfare, mobile phones provide a ready means to communicate. Many parents are comforted in the knowledge they can be easily reached and can readily respond. Phones also allow monitoring of a child's health issues.

Questions arise, however, as to whether the corresponding instant availability of parents to their children inhibits the potential for a child to develop personal responsibility and decision-making skills, resilience in the face of danger and confidence to operate in the world

Mobile devices also raise a risk of harm to children's healthy development from social media, in which many children, unable to self-regulate, engage relentlessly. Some kinds of content, such as gaming and gambling, raise real risks of an addiction-like effect. The impact of this is significant, with studies showing increased depression, mood swings, loss of self-esteem and reduced personal empathy

There may also be risks to children's development associated with electromagnetic radiation from mobile devices. This is a controversial field and varying views are held in the scientific community.

As to the education of children more generally, mobile phones have numerous benefits. As a teaching tool mobile phones are effective, efficient and available. In addition, they allow for the student voice to be heard. In a classroom where the teacher manages activities with clear direction and sound expectations, individual lessons can be enhanced. However, the opposite is true where this does not happen.

There is little doubt that time on phones has an

impact on learning opportunity. Phones can distract from the task at hand. There is also the propensity for children to spend too much time on their phone at home, thereby influencing study habits, play time and, most significantly, sleep habits.



Barbara Biggins  
OAM  
Hon CEO

There are multiple considerations that need to be taken into account in determining the appropriate position on mobile phone use and availability in schools. These considerations will be due different weight in different schools at different times, and talk of a total ban on mobiles in schools across the State fails to recognise this need for contextuality.

Other Australian bodies have commented on the issues, with the Centre for Independent Studies arguing that several factors are likely to contribute to the negative educational impact of phones and other personal electronic devices in classrooms. One of the most powerful is distraction, both for the student and for their classmates. But even if phones, tablets or laptops are being used for educational purposes such as note-taking, there is substantial evidence this is not optimal for learning, with numerous studies showing that writing notes by hand leads to better comprehension and retention of information than typing. There is also emerging evidence that reading on screens is different in quality to reading on paper.

The issue was the subject of a lively panel at the *US Digital Media, Developing Minds* conference in October (see P1). Arnold Glass, Professor of Psychology at Rutgers University has, for the past 10 years, collected detailed information about how cellphone, social media and search engine use has affected college and homework behaviour, and hence academic performance. He found that when students divide their attention between an electronic device and the instructor in a lecture, it ultimately results in a decline in performance on the final exam from 87% to 80% correct. The use of search engines has made it possible for students to improve homework performance, but because this involves much copying, this increase is correlated with a decline in exam performance.

More info about the NSW review, please email:

[review-mobiledevices@det.nsw.edu.au](mailto:review-mobiledevices@det.nsw.edu.au)

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## NEW PUBLICATIONS

## ADVERTISING

Buchanan, L., et al. 2018.  
**Digital promotion of energy drinks to young adults is more strongly linked to consumption than other media.**  
*Journal of Nutrition Education and Behavior*, 50(9), pp.888-895

Meyer, M., et al. 2018.  
**Advertising in young children's apps: a content analysis.**  
*Journal of Developmental and Behavioral Pediatrics*: DOI: 10.1097/DBP.0000000000000622

Sartori, A., Stoneham, M., Edmunds, M., 2018.  
**Unhealthy sponsorship in sport: a case study of the AFL.**  
*Australian and New Zealand Journal of Public Health*, 42(5), pp.474-479.

Thomas, S.L., et al.2018.  
**Young people's awareness of the timing and placement of gambling advertising on traditional and social media platforms: a study of 11–16-year-olds in Australia.**  
*Harm Reduction Journal*, 15(1), p.51.

Vasiljevic, M., et al. 2018.  
**E-cigarette adverts and children's perceptions of tobacco smoking harms: an experimental study and meta-analysis.**  
*BMJ open*, 8(7), pe020247.

## CHILD DEVELOPMENT

Antrilli, N.K., Wang, S.H., 2018.  
**Toddlers on touchscreens: immediate effects of gaming and physical activity on cognitive flexibility of 2.5-year-olds in the US.**  
*Journal of Children and Media*, 12(4), pp.496-513.

Christakis, D.A., et al. 2018.  
**How early media exposure may affect cognitive function: A review of results from observations in humans and experiments in mice.**  
*Proceedings of the National Academy of Sciences*, 115(40), pp.9851-9858.

Fridberg, M., Thulin, S., Redfors, A., 2018.  
**Preschool children's collaborative science learning scaffolded by tablets.**  
*Research in Science Education*, 48(5), pp.1007-1026.

Lee, Y., et al. 2018.  
**Impact of exposure to media devices in early childhood on the later language development: cohort study.**  
*Communication Sciences & Disorders*, 23(3), pp.549-559.

Lytle, S.R., Garcia-Sierra, A., Kuhl, P.K., 2018.  
**Two are better than one: Infant language learning from video improves in the presence of peers.**  
*Proceedings of the National Academy of Sciences*, 115(40), pp.9859-9866.

Twenge, J.M., Campbell, W.K., 2018.  
**Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study.**  
*Preventive Medicine Reports*. V 12, Pp271-283

Walsh, J.J., et al.2018.  
**Associations between 24 hour movement behaviours and global cognition in US children: a cross-sectional observational study.**  
*The Lancet Child & Adolescent Health*, 2(11), pp.783-791.

Yurika, N.U., et al. 2018.  
**Attachment disorder and early media exposure: Neurobehavioral symptoms mimicking autism spectrum disorder.**  
*The Journal of Medical Investigation*, 65(3.4), pp.280-282.

## HEALTH

Beyens, I., Valkenburg, P.M., Piotrowski, J.T., 2018.  
**Screen media use and ADHD-related behaviors: Four decades of research.**  
*Proceedings of the National Academy of Sciences*, 115(40), pp.9875-9881.

O'Brien, W., Issartel, J., Belton, S., 2018.  
**Relationship between physical activity, screen time and weight status among young adolescents.**  
*Sports*, 6(3), p.57.

O'Reilly, M., et al.2018.  
**Is social media bad for mental health and wellbeing? Exploring the perspectives of adolescents.**  
*Clinical Child Psychology and Psychiatry*, p.1359104518775154.

Parkes, A.M., Pearce, A., Green, M., 2018.  
**OP9 Do mealtime interactions, mealtime setting and bedroom TV shape different trajectories of overweight during middle childhood? research using the Growing up in Scotland Study.**  
*Journal of Epidemiology and Community Health*. V 72 Supplement: 1 Pp: A5-A5

Paulus, F.W., et al. 2018.  
**Computer gaming disorder and ADHD in young children—a population-based study.**  
*International Journal of Mental Health and Addiction*, 16(5), pp.1193-1207.

van den Eijnden, R., et al. 2018.  
**The impact of heavy and disordered use of games and social media on adolescents' psychological, social, and school functioning.**  
*Journal of Behavioral Addictions*, 7(3), pp.697-706.

## MEDIA CONTENT

Lazar, A., Litvak Hirsch, T., 2018.  
**Year's best movies for US and British children through the lenses of film advisory boards.**  
*Journal of Children and Media*, pp.1-12.

## MEDIATION

Al-Ali, N.M., et al. 2018.  
**Parents' knowledge and beliefs about the impact of exposure to media violence on children's aggression.**  
*Issues in Mental Health Nursing*, pp.1-8.

Mesch, G.S., 2018.  
**Parent-child connections on social networking sites and cyberbullying.**  
*Youth & Society*, 50(8), pp.1145-1162.

Shin, W., 2018.  
**Empowered parents: the role of self-efficacy in parental mediation of children's smartphone use in the United States.**  
*Journal of Children and Media*, 12(4), pp.465-477.

## MOBILE PHONES

Fernández, C., et al. 2018.  
**Absorption of wireless radiation in the child versus adult brain and eye from cell phone conversation or virtual reality.**  
*Environmental Research*. V 167, Dec, Pp 694-699

Nikolopoulou, K., Gialamas, V., 2018.  
**Mobile phone dependence: Secondary school pupils' attitudes.**  
*Education and Information Technologies*, pp.1-19.

Symons, K., et al. 2018.  
**Sexting scripts in adolescent relationships: Is sexting becoming the norm?**  
*New Media & Society*, Vol 20, Issue 10, p.1461444818761869.

## VIOLENCE

Prescott, A.T., et al. 2018.  
**Meta-analysis of the relationship between violent video game play and physical aggression over time.**  
*Proceedings of the National Academy of Sciences*, 115(40), pp.9882-9888.

## WORLD NEWS

### Young people's awareness of gambling advertising

Research has demonstrated that the promotion of gambling, particularly in association with sport, may have a significant impact on shaping young people's attitudes towards gambling. However, few studies have investigated where young people recall seeing gambling advertising, and whether they perceive that advertising restrictions have gone far enough in reducing exposure to these promotions.

New Australian research has shown that young people are heavily exposed to gambling advertising and promotion across a wide range of media platforms, including social media. Young people themselves are aware and critical of the extent, intent and impact of gambling promotion, and their exposure to this promotion. They are aware that gambling promotion brings financial benefits to both sports and media organisations, but believe that more should be done to protect them from this form of promotion.

The authors of the study conclude that 'there is now a clear body of evidence confirming that the current regulatory systems for gambling advertising are ineffective'.

Thomas, Samantha L., et al. "Young people's awareness of the timing and placement of gambling advertising on traditional and social media platforms: a study of 11-16-year-olds in Australia." *Harm Reduction Journal* 15.1 (2018): 51.

### Screen time and child development

Two US studies have added to evidence on the effects of screentime on child development.

A study recently published in *The Lancet* looked at the relationship between cognition in 8-11 years olds and their daily recreation screen time, sleep duration, and physical activity. Using data from a 10-year longitudinal study involving 4524 children, the authors found that children meeting recommendations for limited screen time (<2 hours per day) and those meeting recommendations for both screen time and sleep duration performed better on measures of global cognition. The researchers suggest that although these correlations do not prove a causal direction, the data add to an emerging picture that too much screen time disrupts and/or displaces the normal social interactions (e.g. from parents) on which normal human development relies.

Walsh, J.J., et al. 2018. "Associations between 24 hour movement behaviours and global cognition in US children: a cross-sectional observational study." *The Lancet Child & Adolescent Health*, 2(11), pp.783-791.

Another US study examined a large national random sample of 40,337 two to 17-year-old children and adolescents, looking at comprehensive measures of screen time (including cell phones, computers, electronic devices, electronic games, and TV) and an array of psychological well-being measures.

Above one hour per day, more hours of screen time were associated with lower psychological well-being, including less curiosity, lower self-control, more distractibility, more difficulty making friends, less emotional stability, being more difficult to care for, and inability to finish tasks. Among 14- to 17-year-olds, high users of screens were more than twice as likely to ever have been diagnosed with depression, treated by a mental health professional or have taken medication for a psychological or behavioral issue in the last 12 months. Associations between screen time and lower psychological well-being were larger among adolescents than younger children.

Twenge, J.M., Campbell, W.K., 2018. "Associations between screen time and lower psychological well-being among children and adolescents: Evidence from a population-based study." *Preventive Medicine Reports*. V 12, Pp271-283

### Advertising everywhere in apps for children

In a new study of the most downloaded apps for children ages 5 and younger, researchers from the University of Michigan Medical School spent hundreds of hours playing 135 different games and found advertising in almost all of them

Of the 135 apps reviewed, 129 (95%) contained at least 1 type of advertising. These included use of commercial characters (42%); full-app teasers (46%); advertising videos interrupting play (e.g., pop-ups [35%] or to unlock play items [16%]); in-app purchases (30%); prompts to rate the app (28%) or share on social media (14%); distracting ads such as banners across the screen (17%) or hidden ads with misleading symbols such as "\$" or camouflaged as gameplay items (7%). The researchers concluded many of these examples seemed to violate US rules around unfair and deceptive advertising.

Advertising was significantly more prevalent in free apps (100% vs 88% of paid apps), but occurred at similar rates in apps labelled as "educational" versus other categories.

Meyer, M., et al. 2018. Advertising in young children's apps: a content analysis. *Journal of Developmental and Behavioral Pediatrics*: DOI: 10.1097/DBP.0000000000000622

## EVENTS

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**frsa.org.au/frsa-national-  
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**aas.kidscreen.com/2018/**

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