

2015  
Research  
Question

HUMAN  
EARLY LEARNING  
PARTNERSHIP



# DOES SCREEN TIME HAVE AN INFLUENCE OR IMPACT ON CHILD DEVELOPMENT?



HUMAN EARLY LEARNING PARTNERSHIP

School of Population and Public Health  
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RESEARCH QUESTION 2015 APRIL

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## Research Question

Does screen time (e.g., use of technology, media/computer/tv/dvd/tablet exposure) influence or have an impact on children's development? If so, what are the impacts/influences, specifically for those aged 0-5?

## Search Details

Please see Appendix 1

## Literature Search Results

What evidence is available? What does the evidence say?<sup>1</sup>

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<sup>1</sup> An initial scoping review was conducted; listed publications provide an overview of research on this topic; critical appraisal has not been completed and evidence has not been summarized.

### Socio-emotional, Cognitive Development, Cognition, Self-regulation, Executive Control

1. Andelic S, Cekerevac Z, Dragovic N. **The impact of information technologies on preschool child development.** Croatian Journal of Education-Hrvatski Casopis Za Odgoj I Obrazovanje. 2014;16(1):259-87. Available from: [http://hrcak.srce.hr/index.php?show=clanak&id\\_clanak\\_jezik=177821&lang=en](http://hrcak.srce.hr/index.php?show=clanak&id_clanak_jezik=177821&lang=en).
2. Duch H, Fisher EM, Ensari I, Harrington A. **Screen time use in children under 3 years old: a systematic review of correlates.** International Journal of Behavioral Nutrition & Physical Activity. 2013;10(1):102-11. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23967799>.
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4. Hinkley T, Verbestel V, Ahrens W, Lissner L, Molnar D, Moreno LA, et al. **Early childhood electronic media use as a predictor of poorer well-being: a prospective cohort study.** JAMA Pediatr. 2014;168(5):485-92. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24639016>.
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6. Lillard AS, Peterson J. **The immediate impact of different types of television on young children's executive function.** Pediatrics. 2011;128(4):644-9. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21911349>.
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9. O'Connor BD. **Childhood development and media use: a literature review of the effects of media on children's physical and psychosocial development.** Spokane, WA: Washington State University; 2011. Available from: [https://research.wsulibs.wsu.edu/xmlui/bitstream/handle/2376/3093/B\\_O'Connor\\_011104299.pdf?sequence=1](https://research.wsulibs.wsu.edu/xmlui/bitstream/handle/2376/3093/B_O'Connor_011104299.pdf?sequence=1).
10. Radesky JS, Schumacher J, Zuckerman B. **Mobile and interactive media use by young children: the good, the bad, and the unknown.** Pediatrics. 2015;135(1):1-3. Available from: <http://pediatrics.aappublications.org/content/135/1/1.short>.
11. Radesky JS, Silverstein M, Zuckerman B, Christakis DA. **Infant self-regulation and early childhood media exposure.** Pediatrics. 2014;133(5):e1172-8. Available from: <http://pediatrics.aappublications.org/content/early/2014/04/09/peds.2013-2367>.
12. Rowan C. **A research review regarding the impact of technology on child development, behavior, and academic performance** [grey literature – School District 23, British Columbia]. Available from: <http://www.sd23.bc.ca/ProgramsServices/earlylearning/parentinformation/Documents/Impact%20of%20Technology%20on%20Young%20Children's%20Development.pdf>.
13. Schmidt ME, Rich M, Rifas-Shiman SL, Oken E, Taveras EM. **Television viewing in infancy and child cognition at 3 years of age in a US cohort.** Pediatrics. 2009;123(3):e370-5. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19254972>.
14. Subrahmanyam K, Greenfield P, Kraut R, Gross E. **The impact of computer use on children's and adolescents' development.** J Appl Dev Psychol. 2001;22(1):7-30. Available from: [http://www.cdmc.ucla.edu/Published\\_Research\\_files/spkg-2001.pdf](http://www.cdmc.ucla.edu/Published_Research_files/spkg-2001.pdf).
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### Physical Development (cardiovascular, activity/inactivity/sedentary/obesity)

1. Barr-Anderson DJ, Fulkerson JA, Smyth M, Himes JH, Hannan PJ, Holy Rock B, et al. **Associations of American Indian children's screen-time behavior with parental television behavior, parental perceptions of children's screen time, and media-related resources in the home.** *Prev Chronic Dis.* 2011;8(5):A105. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21843408>.
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1. Garrison MM, Christakis DA. **The impact of a healthy media use intervention on sleep in preschool children.** *Pediatrics.* 2012. Available from: <http://pediatrics.aappublications.org/content/early/2012/08/01/peds.2011-3153.abstract>.
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1. Duch H, Fisher EM, Ensari I, Font M, Harrington A, Taromino C, et al. **Association of screen time use and language development in Hispanic toddlers: a cross-sectional and longitudinal study.** Clin Pediatr (Phila). 2013;52(9):857-65. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23820003>.
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3. emeeyou. **Should parents expect more? Making the case for evidence-based early childhood education mobile applications.** Educate Me Educate You; 2012. Available from: [http://www.emeeyou.com/wp-content/uploads/2012/11/emeeyou\\_white\\_paper\\_04112012.pdf](http://www.emeeyou.com/wp-content/uploads/2012/11/emeeyou_white_paper_04112012.pdf).
4. Kirkorian HL, Wartella EA, Anderson DR. **Media and young children's learning.** Future Child. 2008;18(1):39-61. Available from: [http://www.princeton.edu/futureofchildren/publications/docs/18\\_01\\_03.pdf](http://www.princeton.edu/futureofchildren/publications/docs/18_01_03.pdf).
5. National Association for the Education of Young Children and the Fred Rogers Center for Early Learning and Children's Media at Saint Vincent College. **Technology and interactive media as tools in early childhood programs serving children from birth through age 8.** Washington, DC: National Association for the Education of Young Children; 2012. Available from: [http://www.naeyc.org/files/naeyc/file/positions/PS\\_technology\\_WEB2.pdf](http://www.naeyc.org/files/naeyc/file/positions/PS_technology_WEB2.pdf).

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### Articles related to aspects of parenting, parental/environmental influences and screen time/media use

1. Birken CS, Maguire J, Mekky M, Manhiot C, Beck CE, Jacobson S, et al. **Parental factors associated with screen time in pre-school children in primary-care practice: a TARGet Kids! study.** Public Health Nutr. 2011;14(12):2134-8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21466741>.
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3. Carson V, Rosu A, Janssen I. **A cross-sectional study of the environment, physical activity, and screen time among young children and their parents.** BMC Public Health. 2014;14:61. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24447532>.
4. Carson V, Spence JC, Cutumisu N, Cargill L. **Association between neighborhood socioeconomic status and screen time among pre-school children: a cross-sectional study.** BMC Public Health. 2010;10:367. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/20573262>.

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9. Xu H, Wen LM, Rissel C. **Associations of maternal influences with outdoor play and screen time of two-year-olds: Findings from the Healthy Beginnings Trial.** *J Paediatr Child Health.* 2014;50(9):680-6. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24893682>.
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#### Articles related to media use in general

1. Holloway D, Green L, Livingstone S. **Zero to eight. Young children and their internet use.** London, UK: EU Kids Online, London School of Economics and Political Science; 2013 Aug. Available from: [http://eprints.lse.ac.uk/52630/1/Zero\\_to\\_eight.pdf](http://eprints.lse.ac.uk/52630/1/Zero_to_eight.pdf).
2. Rideout V. **Zero to eight. Children's media use in America 2013.** Washington, DC: Common Sense Media; 2013 Fall. Available from: <https://www.commonsensemedia.org/research/zero-to-eight-childrens-media-use-in-america-2013>.
3. Rideout V. **Learning at home: Families' educational media use in America.** New York, NY: Joan Ganz Cooney Center at Sesame Workshop; 2014. Available from: [www.joanganzcooneycenter.org/wp-content/uploads/2014/01/jgcc\\_learningathome.pdf](http://www.joanganzcooneycenter.org/wp-content/uploads/2014/01/jgcc_learningathome.pdf).
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7. Wartella EA, Lauricella AR. **Should babies be watching television and DVDs?** *Pediatr Clin North Am.* 2012;59(3):613-21, vii. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/22643168>.

#### Articles related to reducing screen time (guidelines, interventions)

1. Birken CS, Maguire J, Mekky M, Manlhiot C, Beck CE, Degroot J, et al. **Office-based randomized controlled trial to reduce screen time in preschool children.** *Pediatrics.* 2012;130(6):1110-5. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/23129085>.

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13. Lerner C, Barr R. **Screen sense: setting the record straight research-based guidelines for screen use for children under 3 years old.** Washington, DC: Zero to Three; 2014. Available from: [http://www.zerotothree.org/parenting-resources/screen-sense/screen-sense\\_key-research-finds\\_final3.pdf](http://www.zerotothree.org/parenting-resources/screen-sense/screen-sense_key-research-finds_final3.pdf).
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21. Wahi G, Parkin PC, Beyene J, Uleryk EM, Birken CS. **Effectiveness of interventions aimed at reducing screen time in children: a systematic review and meta-analysis of randomized controlled trials.** Arch Pediatr Adolesc Med. 2011;165(11):979-86. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/21727260>.
22. Yilmaz G, Demirli Caylan N, Karacan CD. **An intervention to preschool children for reducing screen time: a randomized controlled trial.** Child Care Health Dev. 2015;41(3):443-9. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24571538>.

## APPENDIX 1

### Research Question:

Does screen time (e.g., use of technology, media/computer/tv/dvd/tablet exposure) influence or have an impact on children's development? If so, what are the impacts/influences, specifically for those aged 0-5?

### Details:

Date: April 28, 2015 (received); April 29, 2014 (lit search results provided)  
 Goal: To provide a select listing of literature on the topic of interest  
 Team: HELP (Michele Wiens)  
 Tasks: Rapid literature search (PDF retrieval on request)

### Search Context:

Literature scan to determine whether children's screen time has any negative impact, in particular. The focus is on pre-school children (ages 0-5).

### Literature search objective:

To conduct a rapid literature search for articles related to children's screen time/media use and any potential impact on them, focusing on evidence-based literature. Articles were identified using several databases hosted through Ebsco (UBC Library). Emphasis was placed on scientific literature. Google was searched for additional articles and grey literature of interest.

Date parameter: 2011-2015, although select, earlier studies were included.

### PDFS:

PDFs will be sent if requested.

### Search Terms:

Key search terms with Boolean operators:  
 (computer OR laptop OR iPad OR "screen time") AND use AND (child\* OR boy OR girl OR infant OR toddler)  
 ("screen time" OR "media use") AND "early child\* development" filetype:pdf

### Limitations:

Challenges lay in separating papers in relation to: duration of exposure; media content; media use.  
 Age ranges overlapped in some papers so some findings relate to age groups 3-10, for example.  
 This serves as an overview of research on this topic; critical appraisal has not been completed and evidence has not been summarized.



**Next Steps:**

This search may be refined to capture more literature related to this topic. If additional specific information is of interest, further scientific and grey literature searching may be scoped using various databases. Bibliographies can be reviewed (snowballing).

An annotated bibliography of the citations listed will be provided if requested.