

The Influence of Electronic Media on Young Children's Cognitive Development

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Electronic media incorporated motion pictures, animation and sound attracts and excites children. Research found that children below 1 year old exposed to electronic media averaged 2 hours daily in America and the total media exposure time increased with age (Rideout & Hamel, 2005; Roberts, Foehr & Rideout, 1999; Roberts, Foehr, & Rideout, 2004). Nevertheless, electronic media have often been considered to have negative impacts on children's health (Klesges, Shelton, & Klesges, 1993; Morgan, 1993; Owens, Maxim, McGuinn, Nobile, Msall, & Alario, 1999; Shochat, Flint-Bretler, & Tzischinsky, 2010; Thompson & Christakis, 2005) and increased aggressive behaviors (Browne & Hamilton-Giachritsis, 2005; Milavsky, Kessler, & Stipp, 1982). Children's cognitive development, including reading comprehension, math ability, memory for digit span, problem-solving, vocabulary size, attention were also examined (Anderson, Huston, Schmitt, Linebarger, & Wright, 2001; Christakis, Zimmerman, DiGiuseppe, & McCarty, 2004; Foster & Watkins, 2010; Greenfield, Camaioni, Ercolani, Weiss, Lauber, & Perucchini, 1984; Linebarger & Piotrowski, 2009; Linebarger & Walker, 2005; Rice, 1984; Rice, Huston, Truglio, & Wright, 1990; Rice & Woodsmall, 1988; Subrahmanyam & Greenfield, 1994; Wright et al., 2001; Zimmermann & Christakis, 2005; Zimmermann & Christakis, 2007). However, the orientation of research design and content type were varied, the impact of media on cognitive development is still to be clarified.

The purposes of this study were to explore the young children's performance on using Readers and examine systematically the overall influence of electronic media on young children's cognitive development. Due to the negative media impact on children younger than two (American Academy of Pediatrics, 2001) and the fine muscle control of computer mouse for younger children, the age of participants in this study was four to six.

Computer and iPad Readers were used in this study. In order to study the influence of electronic media on young children's cognitive development, young children's family socioeconomic status and early media exposure experience were investigated. Parental questionnaire was adopted to look into the family socioeconomic status, media used in the house, and children's early media exposure experience. Children's cognitive ability was measured by Attention Network Task,

working memory task, number line task, Peabody Picture Vocabulary Test, and Raven's Progressive Matrices.

The primarily results revealed approximately 80 percent of children began to watch TV, video or DVD around one year old. 57 percent of children aged four used computer to play games. When children younger than four navigated the web page, they were not aware of the function of the buttons on the page. The reading behavior of young children on the iPad was the same as that of reading a book, that is, they held the iPad like holding a book and turned page after pages. However, the iPad Reader with excessive pressure sensitivity and heaviness led to reading interruption for young children.

Implication of the results will be elaborated in the presentation.

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