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Young children's use of touch screen tablets for writing and reading at home: Relationships with emergent literacy

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ABSTRACT

Young children's literacy experiences at home shape the development of emergent literacy skills. Due to the increasing use of touch screen tablets (e.g., iPads) in homes and early education settings it is important to investigate the relationship between digital tools and emergent literacy. The present study examined the relationships between children's ($N = 57$; aged 2–4 years) emergent literacy skills and home use of tablets for writing and reading. Correlational analysis showed a positive association between children's access to apps and print knowledge. A positive association was found between the frequency of writing with tablets and print awareness, print knowledge, and sound knowledge. No associations occurred between emergent literacy skills and frequency of e-book reading. Further research is needed to investigate the effects of tablet writing on emergent literacy development.

1. Introduction

The home literacy environment plays a key role in the development of young children's awareness, understanding, and knowledge of written language such as letters and words (Aram & Levin, 2011; Sylva et al., 2011; Teale & Sulzby, 1986). Through their explorations, young children actively construct their knowledge about reading and writing (Cooper, 2005; Ferreiro & Teberosky, 1982; Korat, Shamir, & Arbiv, 2011; Tolchinsky, 2003). It has been well established that children's early interactions with non-digital tools (e.g., paper-based story books, paper/crayons/paints) through home literacy activities such as writing (e.g., letter and name writing), storybook reading, and identifying environmental print (e.g., signs and labels) positively influences emergent literacy (Aram & Levin, 2011; Neumann, Hood, Ford, & Neumann, 2011; Purcell-Gates, 1996; Whitehurst & Lonigan, 1998). For example, children learn about print through reading and writing of words such as their names (Van der Kooy-Hofland, Kegel, & Bus, 2011). Such early home print experiences lay the foundational blocks for the emergence of literacy skills such as letter name and sound knowledge, emergent writing, print concepts, and phonological awareness that are strong predictors of conventional reading and writing ability (Sénéchal, Le Fevre, Smith-Chant, & Colton, 2001; Welsch, Sullivan, & Justice, 2003; Whitehurst & Lonigan, 1998).

Children's exploration of print via digital tools (e.g., desktop computers) in the home environment also has a positive influence on emergent literacy skills (Hillman & Marshall, 2009; Hisrich & Blanchard, 2009; McManis & Gunnewig, 2012; Van der Kooy-Hofland et al., 2011). For example, e-books can foster word recognition and writing (Shamir & Korat, 2007) and phonological awareness (Korat & Shamir, 2007). Computers have also been shown to be effective writing tools for pre-

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schoolers (Yost, 2003) and allow young children the opportunity to engage in writing, drawing, decorating texts, playing games, and searching for information (Downes, 2002). For example, Downes (2002) reports a pre-schooler saying, "I play typing games and I can play painting (p 192)." Digital tools with their multimodal features also enable young children to express themselves and represent their ideas through digital symbols, words, sounds, and images (Downes, 2002). Yost (2003) has shown how kindergarteners ($N = 8$) competently used both digital (desktop computer) and non-digital tools (e.g., crayons, pencils, paper) for a range of writing activities such as creating signs, messages, lists, signing in, and writing stories. Children were observed to transfer their developing knowledge of letter and sound relationships and word spacing between these tools. This illustrates that young children are capable of using digital and nondigital tools for literacy learning.

1.1 Touch screen tablets and apps

Due to the relatively recent release of touch screen tablets (e.g., iPads; Orrin & Olcese, 2011) and increasing home use of these popular digital tools by young children (Livingstone, Marsh, Plowman, Ottovordemgentschenfelde, & Fletcher-Watson, 2014; Ofcom, 2014; Rideout, 2011) little is known about the impact of these devices on children's early literacy learning (Neumann & Neumann, 2014c). Tablets are viewed as a potentially useful learning tool because they are highly intuitive, mobile, and their touch based features make them easy for children to use (Cooper, 2005; Tahnk, 2011). Children as young as two years independently use tablets and apps (downloadable software programs designed for mobile devices e.g., literacy, gaming, and e-book apps; Neumann, 2014a) for playing, creating, and solving problems (Tahnk, 2011).

From a Piagetian perspective, children learn to construct knowledge through their active explorations of reading and writing (Ferreiro, 1986; Sénéchal, 2011). Child tablet behaviours are suggested to reflect natural constructivist child learning (Michael Cohen Group & U.S. Department of Education, 2011). In the pre-school setting, Couse and Chen (2010) have shown how children (aged 3 to 6; $N = 41$) used tablets for drawing and creating a range of linear and circular digital marks. Children quickly learned how to use tablets with ease and were engaged and interested in these digital tools. A more recent observational study has shown that tablets can foster emergent writing experiences. Children ($N = 15$) aged 3–6 years used the iWrite app to create messages, write their name, and type messages on the pop-up keyboard through hunt and peck typing (Bigelow, 2013). Similarly, Beschorner and Hutchison (2013) showed how 4–5 year old children made messages using doodle and drawing apps and moved letters on the screen with their finger to forms words with a magnetic letter app. Two and three year old children ($N = 7$) have been observed in a nursery school to competently use iPads and apps for mark marking and pre-writing activities (e.g., Doodle Buddy and Colouring Zoo app; Price, Jewitt, & Crescenzi, 2015). Other types of literacy apps (e.g., Super Why, Martha Speaks Dog Party) may also foster emergent literacy skills such as letter sound knowledge (Chiong & Schuler, 2010).

While researchers have examined tablet use in the pre-school setting, fewer studies have examined how young children are using these devices for reading and writing in the home environment. One study ($N = 109$) has shown a positive association between home access to tablets and emergent literacy skills (e.g., letter sound and name writing; Neumann, 2014a). However, this study was limited because it only examined children's home access to tablets and not children's use of tablets for specific literacy activities such as reading and writing. A closer examination of home tablet activities will inform the design of further research on using tablets to foster literacy in the home environment.

The present study aimed to investigate types of tablet activities young children are engaging in at home and the associations these activities have with emergent literacy. In addition, relationships between emergent literacy skills and non-digital literacy activities were examined to obtain a broader view of the home literacy environment. Previous studies have emphasised the importance of examining both digital and non-digital home literacy activities (Downes, 2002; Grieshaber, Shield, Luke, & Macdonald, 2011). The research questions of this study were:

(1) What relationships exist between young children's home use of tablets (number of apps used, literacy and gaming app use, tablet typing and writing, and e-book reading) and emergent literacy skills (print awareness, print knowledge, sound knowledge).
(2) Do similar relationships exist between emergent literacy skills (print awareness, print knowledge, sound knowledge) and non-digital home literacy activities (writing, storybook reading)?

2. Method

2.1. Participants

English speaking children ($N = 57$; 29 girls, 28 boys) aged 2–4 years ($M = 42.4$ months; SD = 9.02 months; range = 24.10–55.83 months) from across six childcare centres in south-east Queensland, Australia participated. Ninety-three percent of parents were married and the majority were Australian (mothers 67%, fathers 79%). Most parents (70% mothers, 63% fathers) had gained specialised training (e.g., TAFE) or university degree qualifications. The mean socio-economic status (SES; $M = 45.5$; SD = 10.71; range = 14–63.50) of families was calculated using Hollingshead's index (1975) and fell within the middle SES range (8–66; Hollingshead, 1975).