Chapter Two: Children and Technology: What can research tell us?

Tess Prendergast, BA, MLIS; Doctoral Student, University of British Columbia

This chapter provides a brief summary of some of the existing and emerging research that librarians may wish to familiarize themselves with as they navigate the digital terrain of early childhood literacy. By pointing out key position statements, and summarizing some of the existing research about technology and childhood, this segment aims to lay some groundwork for library practitioners to build onto their current approaches to supporting early and family literacy, with the intentional and carefully planned integration of digital tools.

Key Position Statements

Any foray into the topic of children and media of any kind will quickly lead to a mention of the American Academy of Pediatrics (2013) position statement on media in childhood. Drawing on studies that correlate issues like obesity, sleep disturbances, and attention difficulties with children's media viewing, the AAP guidelines promote healthy child development by suggesting that adults limit children's exposure to screen media—particularly for those under the age of two years when media use is discouraged in favor of "unstructured, unplugged play" (Brown & Council on Communications and Media, 2011, p. 1043). The AAP guidelines notwithstanding, researchers in the general field of early childhood education have been studying the effects of technology and media, and most recently, interactive new media/touch technology, for several decades. Evidence from early childhood education literature suggests that, with appropriate scaffolding from adults, and for specific purposes, technological tools provide children with a range of learning resources in early childhood (McManis & Gunnewig, 2012; Northrop & Killeen, 2013).

Studies done in both homes and early childhood settings emphasize the role of interaction and the relevance of the resource to the child (Guernsey, 2012; Liebeskind, Piotrowski, Lapierre, & Linebarger, 2013). A position statement from the National Association for the Education of Young Children and the Fred Rogers Center (2012) provides early childhood professionals (including children's librarians) with a number of guidelines from which to build developmentally appropriate approaches to implementing technology into early childhood settings. In these guidelines, the focus remains on the child, with the aims of supporting child development across domains at the forefront.

Summary of Research about Children and Technology

Over a decade ago, literacy scholars Lankshear and Knobel (2003) reported on their extensive review of research concerned with new technologies and early literacy. While they concluded that the subject of new technologies in early literacy was thinly represented, they also determined that what did exist mainly emphasized "using these resources to promote abilities to handle conventional alphabetic print text rather than to generate multimodal text and to understand principles of multimodal meanings" (p.77). This trend, they believed, underestimated the power of new technologies to help to "orient children toward literacy futures that will be very different from the past" (p.77).

The U.K. early literacy scholar Marsh (2004) reported on her study of a group of young children's "techno-literacy" practices. From a stance that views children as "active meaning-makers," she described how her participants demonstrated varied avenues to learning literacy by their interaction and engagement with technology media such as television programs and video-games. Marsh identified and confronted the intense focus still placed on literacy as a mainly print-based concept. This focus has led to over-emphasizing formal, printed, and text-based reading and writing skills. Also discussed are the negative views of media in young children's lives that Marsh contends are largely unfounded. In her study, Marsh found that families valued the role that television played in their children's lives and that parents actively participated in their children's engagement with the media texts made available to them via shows such as *Bob the Builder*. Parents believed such television shows facilitated imaginative social and cognitive development. By exploring these families' encounters with media in early childhood, Marsh emphasized the importance of non-print media, such as television, computers, and mobile phones, that young children continue to encounter in their non-school lives.

In "A is for Avatar," early literacy scholar Karen Wohlwend (2010) echoes many of Marsh's sentiments as she discusses children's encounters with digital media by emphasizing the concept of play in early childhood: "Children pretend their way into literacies by 'playing at' using computers, iPads, or cell phones as they try on technologically savvy user identities" (p. 145). The so-called digital divide is also dealt with as she promotes the idea that the early childhood classroom is the ideal place for disadvantaged children to engage with the digital media that shapes communication in the world today. Wohlwend confronts the spectre of the "natural child" and discusses how this idealized notion of childhood distances young children from access to digital technologies that constitute our modern literacies (p. 146). She encourages the questioning of the commonplace and commonsensical so that practitioners are better able to see how our beliefs "keep us compliant and complicit" in maintaining the status quo (p. 149).

More recently, Alper (2013) discussed children and technology through a new media literacies framework drawing on the work of Jenkins (2009). Alper (2013) addressed the knowledge gaps that remain in our collective understanding of

how new media literacy develops across the years of early childhood. Specifically, Alper used Reggio Emilia-inspired teaching as the lens through which to explore the affordances of digital technology in the lives of today's young children. Said Alper: "We should conceptualize media literacy as thinking critically, becoming confident and expressive, and sharing ideas in different forms in order to add depth to children's understanding of representation and meaning making" (p. 189). Echoing many of the concerns that librarians have about children and technology, Alper concluded by saying that while children today may indeed be able to access ever more interactive technologies, they continue to have social, emotional, cultural, physical, and cognitive needs that still need to be met.

Building on these studies, it would seem that librarians should seek to strike a balance between the affordances of experiencing technology and the importance of meeting all of young children's other developmental needs. Understanding what children need to thrive should therefore guide librarians' approaches to integrating new media experiences into our existing developmentally beneficial programs, services, and collections.

Overview of Touch Screen Studies

In 2010, the iPad's arrival in the marketplace brought with it a new kind of touch screen experience. It was soon discovered that children's little hands and fingers were much better at swiping, clicking and generally manipulating these devices as compared to smaller touch-screens, such as iPod Touches

and iPhones. Tablets are also easier for young children to master from a motor skill perspective than the traditional computer mouse. YouTube videos of babies and young children appearing to interact with tablets and smart phones can now be found in abundance (Teichert & Anderson, 2014).

Despite the overwhelming popularity of tablets (including those designed specifically for young children, e.g., LeapPads) not much is known about how or what children are actually able to learn from their experiences using new technology. A whole new chapter of the screen-time debate is being written right now as educators (including librarians), researchers, and policy-makers ponder what the differences are between passive screen technology (i.e., television) and interactive screen technology (i.e., an app). Meanwhile, tablets are now on the top of many parents' gifts lists for their children, and ownership of tablets by even very young children continues to climb.

A recent study about parent perceptions of their children's digital media use suggests that parents generally are in favor of their children's use of technology for both learning and fun, and they are sure that their children are benefiting from the time they spend using them (Vittrup, Snider, Rose, & Rippy, 2014). Furthermore, the majority of the parents surveyed in this study believe that children who are not familiar with modern technology will be at a distinct disadvantage when they enter school. The researchers also noted that the majority of parents in their study hold opinions about children and technology that contrast sharply with the recommendations of the American

Academy of Pediatrics (Vittrup et al., 2014).

Another study, by Danby et al. (2013), used conversation analysis to explore how one father and his two children actually interacted with iPads and iPhone apps in their home. The researchers found, among other things, that the father oriented his talk towards his children's level of competence and individual interests when interacting with various apps. This behavior resembles the types of conversations that librarians and early childhood educators have long been encouraging families to have when engaging in activities together (Copple & Bredekamp, 2012).

Finally, a large UK study (Formby, 2014) suggested that parents have positive attitudes about the time their children spend with a range of technology. Most interestingly, this study suggests that having digital technology in the home might offer "a route into reading" for children of lower socioeconomic status. The study found that economically disadvantaged three- to five-year-olds who had touch screens at home were twice as likely to look at stories daily compared to similar status children without touch screens at home. Furthermore, disadvantaged children who had access to *both* traditional and digital stories fared better on early literacy measures than their counterparts who had only interacted with traditional print stories.

Digital Technology, Children and Libraries: What do we know?

An action research study conducted in Taiwan reports on a series of parent-child digital technology workshops held at public libraries. A range of positive outcomes were noted, including intergenerational learning, providing parents and caregivers with the skills needed to find and download appropriate apps for their children, and children interacting and collaborating on digital creations together (Sung & Siraj-Blatchford, 2014). Prior long-term studies about technology in libraries also suggest that an important role can be played by libraries to help mitigate the effects of the digital divide (Neuman & Celano, 2012).

Additionally, professional children's librarianship literature indicates broad update of this topic and these tools in the day-to-day work of children's librarians in communities (Campbell, 2013; Campbell & Koester, 2014; Graves, 2012). This emerging work within the field of children's librarianship points out the importance of maintaining our collective early literacy expertise and our abilities to support diverse family literacy practices. By modeling appropriate and healthy use of digital resources as well as providing readers' advisory services for digital material, librarians can act as media mentors for parents and caregivers of young children in their communities as they seek to learn about and use digital tools. While it is critical that librarians take up this role, it is equally critical that public libraries are included in research about digital tools and early literacy. Now more than ever, librarians need library-based research to help guide and mold practices in the digital age.

The Librarian's Interpretation of the Literature

Just as effective teachers must continually question the status quo, professional librarians need to question the way we support early childhood literacy now. We must go beyond the traditional role of being about the best books for children. Contemporary children's librarians concern themselves with the quality of *content*, regardless of platform or media on which that content is currently delivered. The librarian's role is to learn how to evaluate all kinds of content; curate it appropriately; and promote the best content among all that is available to families that seek our input on the content present in their children's lives. By drawing on research studies that emphasize the importance of acknowledging children's actual lives across settings, librarians can continue to provide the best services to families in our communities with regards to new media of all kinds.

As many librarians who have already ventured into the digital realm have discovered in too many blog posts to mention—and, it should be noted, a substantial portion of the library conversation around young children and new media is taking place online and on blogs—one of the biggest barriers to address is the negative attitude about children and so-called screens. Critical educators, including librarians who work with young children and their caregivers, must be able to cope with the ambiguity that is inherent in a society that does not know quite what it thinks about children and technology. We need to be able to respond to our community's needs, interests, and concerns and move forward with curricular and pedagogical choices that provide a range of early literacy experiences and support early literacy skill development without being detrimental to young children's social and physical domains.

Conclusion

Although there remains of great deal of important research that needs to be done in this area, the preponderance of evidence supports a view that the provision of developmentally appropriate, intentional, and interactive experiences with digital technology, including iPads, apps, and so forth, can support early literacy development in young children. While this book gives practitioners the tools of the "digital storytime" trade, this chapter specifically aims to provide a solid research foundation for why this work is important and, moreover, why it is critical that the library's different ways and contexts of "doing" new media in early childhood are included in future research in this area.

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