Watching young children "play" with information technology: Everyday life information seeking in the home

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ABSTRACT

Research on how young children use information to orient themselves in daily life and to solve problems (known as everyday life information seeking or ELIS) has not been conducted, in-depth, in information science. This exploratory observation study examines how 15 Australian preschool children (aged three to five) used information technologies in their homes to orient themselves in daily life and to solve problems. Children engaged in various ways with the digital technologies available to them and with parents and siblings during play activities. The results explore the value of artistic play, sociodramatic play, and early literacy and numeracy activities in shaping young children's 'way of life' and 'mastery of life' as outlined in Savolainen's (1995) ELIS model. Observed technology engagement provided an opportunity to explore children's social worlds and the ways that they gathered information during technology play that will inform future learning activities and support child development. By using ELIS theory as an analytic lens, the results demonstrate how children's developmental play with technology tools helps them to internalize social and cultural norms. The data also point to the type of capital available to children and how that capital contributes to children's emerging information practices.

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1. Introduction

Many studies in information science examine children and young people's information behaviors, including technology use (Bilal, 2005; Cooper, 2002; Spink, Danby, Mallan, & Butler, 2010; Dresang, 2005; Foss et al., 2012; Large, Nesset, & Beheshti, 2008). Similarly, many large-scale studies document the reach of technology in young people's lives, particularly for older children. The Pew Research Center in the United States found 93% of 12–17 year olds accessed the internet (Lenhart, Purcell, Smith, & Zickuhr, 2010) and 82% owned at least one mobile device (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). The Australian Kids Online project found that 96% of children aged 9–16 used the internet at home, with three in five having access to mobile devices (Green, Brady, Ólafsson, Hartley, & Lumby, 2011). However, very few large-scale studies focus on technology use in preschoolers' lives. Zevenbergen and Logan (2008) found that most Australian children aged four and five had access to computers in their homes or other locations. Vandewater et al. (2007) found that in homes of children aged 6 months to 6 years around 80% have computers (p. 1009). More recently, education researchers in Australia have examined young children's experiences with technology (Danby et al., 2013; Danby, Davidson, Ekberg, Breathnach & Thorpe, 2016; Davidson, 2010, 2012a, b; Davidson, Danby, Given, & Thorpe, 2014), demonstrating that this is a significant and growing area of study. One large-scale study in the United States found that 38% of children under age 2 have used a mobile device, compared to only 10% two years earlier (Common Sense Media, 2013, p. 9). Thus, despite the increasing ubiquity of digital technology in children's lives, current studies in information science provide few details as to how young children engage with technological tools.

This paper presents the results of a study that used video recordings to observe children's use of technology. By using Savolainen's (1995) everyday life information seeking (ELIS) theory as a frame for analysis, which examines how individuals gather and use information to orient them and solve problems in daily life, the data provide a glimpse into the technology-related activities shaping the everyday lives of young children. The paper presents a unique analytic approach to studying

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children's daily activities, and also extends the ELIS framework beyond an exploration of the "health issues, consumer problems, housing, and various kinds of hobbies" (Savolainen, 2004, p. 7) that have been the focus of myriad studies of adults and older children's everyday information needs for decades.

1.1. Problem statement

Within information science research, young children have received relatively little attention. Young children, aged three to five, are a challenging group to study, often due to their emerging literacy skills and the fact that their pre-school status may make this age group more difficult to access for research purposes. The everyday life information seeking of adolescents and pre-teens is an area of increasing study (Agosto & Hughes-Hassell, 2006; Lu, 2010; Meyers, Fisher, & Marcoux, 2009); however, this has not been the case with young children, until recently. While there is a dearth of research in this area, there is research that demonstrates this group is increasingly using digital technologies (Common Sense Media, 2013; Vandewater et al., 2007; Zevenbergen & Logan, 2008), including those designed for adults. At the same time, companies continue to develop technology specifically designed to target emergent literacy in young children and encourage parents to buy devices to help their children develop literacy skills (Marsh, Hannon, Lewis, & Ritchie, 2015). This exploratory research addresses the questions: How do young children use technology in their homes? and In what everyday life information seeking activities do young children engage when using digital technologies?

2. Literature review

This review of the literature covers everyday life information seeking (ELIS), children's information seeking, and children's use of technology. Although these studies do not take a child development perspective per se, child development—the physical, cognitive, emotional, and social growth and development an individual experiences (Levin, 2011)—is a part of how children interact with the world, including how they seek and use information and technology. The literature review begins with an exploration of research in the field of education to set the context for the more focused discussion of ELIS and specifically, children's information activities.

2.1. Studies of young children and technology in education

For decades, education researchers have explored preschoolers' experiences with technology, focusing on pedagogy and/or curriculum in school environments (Burnett & Merchant, 2014; Clements & Sarama, 2007; Gimbert & Cristol, 2004; Kalogiannakis & Zaranis, 2012; Theobald et al., 2016; Willett, Robinson, & Marsh, 2009). Using computers to teach literacy skills to young children is one key area of this research (Burnett, 2010; Labbo & Reinking, 2003; Lankshear & Knobel, 2003; Plowman, Stephen, & McPake, 2010a, 2010b; Stephen, McPake, Plowman, & Berch-Heyman, 2008). Most studies of early literacy and technology focus on skills instruction in formal childcare environments, with technology employed as the "deliverer of literacy" rather than a tool used to make connections between different areas of children's lives (Burnett, 2010, p. 258). Education researchers also note a rise in marketing (and purchasing) of educational media devices and programs designed for home use (Buckingham & Scanlon, 2001; Dhingra, Sharma, & Kour, 2009). Gutnick et al. (2011) posit that the media habits of young children, which often involve watching online videos, may be due to the hours young children spend at home and the lack of age-appropriate content available on over-the-air television in some countries. Researchers have debated the merits and value of media viewing by young children, particularly from a developmental standpoint (Desmond & Bagli, 2008; Ellis & Blashki, 2004; Marsh & Bishop, 2012; Schlembach, 2012).

2.2. Young children, information seeking and the use of technology in everyday life

Recent studies on children and teen's access to and use of technology have focused predominantly on older children. For example, 18% of 8–11 year-olds in the United Kingdom have their own tablet computers, and tablet use among 5–15 year-olds has dramatically increased from 14% to 41% between 2012 and 2013 (Ofcom, 2013). While many studies do not have data on young children, the Ofcom study found that 28% of 3–4 year-olds use a tablet at home, with 12% using a tablet to go online. Holloway, Green, and Livingstone (2013) found that, worldwide, children are going online at younger ages; 25% of 3-year-olds and 50% of 5-year-olds in the United States go online daily, while 70% of 3–4 year olds go online "sometimes" in Sweden. Recent studies by education researchers in Australia also explore young children's practices using technology, including their online searching (Danby et al., 2013, 2016; Davidson, 2010, 2012a, b; Davidson et al., 2014; Ekberg, Danby, Davidson, & Thorpe, 2016). In information science, however, few studies explore very young children's technology practices. Although some research includes the experiences of four and five-year-olds in the home (McKechnie, 2004), the primary focus is on older children (Foss et al., 2012) and is typically related to school-based activities (Bilal, 2002; Large, Beheshti, & Rahman, 2002). Spink and Heinström (2011) note that three-year-olds are not believed to engage in information behavior beyond the immediate moment in time they are experiencing. Although four and five year old children are shown to search the web, type words, browse results, complete web queries, and make relevancy judgments (Spink et al., 2010), this area of research is quite nascent in the field. Technology companies may recognize the growing importance of this age group, and work with young children to create new tools (Barack, 2013); however, more research in information science is needed to explore the roles of digital technologies in young children's daily experiences.

Although studies of adults' ELIS (i.e., information seeking for non-occupational tasks, such as health or hobbies) are prevalent (e.g., Connaway, Dickey, & Radford, 2011; Given, 2002; McKenzie, 2003; Park & Lee, 2013; Westbrook, 2009), very few studies explore children's ELIS activities. Todd (2003) noted that teens did not use libraries or other information agencies for ELIS and often did not know where to seek help for ELIS needs. Agosto and Hughes-Hassell (2006) examined inner-city teens' information needs through the lens of ELIS, with a focus on the transition to adulthood. The study showed the need for linking information seeking research to adolescent developmental theory (Agosto & Hughes-Hassell, 2006). Meyers et al. (2009) studied children aged 9–12 and found their information needs were concrete and focused on short-term activities, such as school, relationships, sports and hobbies. Lu (2010) surveyed 11 and 12 year old children and found that they engaged in five types of information seeking behavior to cope with daily life: to solve problems, for escape, for transition, to change mood, and, for information avoidance. As information science researchers are only beginning to explore children's ELIS activities, it is not surprising that the experiences of very young children have not yet been examined in this context. This research addresses this gap by exploring technology use data drawn from the home environments of preschool-aged children.

2.3. Everyday life information seeking (ELIS): a brief overview

Before discussing the results of the study, it is important to outline specific elements of the theory of everyday life information seeking as it has emerged in information science, which informed the analysis. ELIS involves the "acquisition of various informational (both cognitive and expressive) elements which people employ to orient them in daily life or to solve problems not directly connected with the performances of occupational tasks" (Savolainen, 1995, pp. 266–267). Meyers et al. (2009) describe the ELIS of children as concerning "how