Chapter 22

Teachers’ Professional Learning Focused on Designs for Early Learners and Technology

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ABSTRACT

In this chapter, the authors present and discuss findings from a two-year case study on teachers’ professional learning. This investigation built upon existing research on early learning and technology to study teachers’ professional learning in a community of practice, and the development of classroom-based learning designs and the ongoing inquiry of teachers from four school jurisdictions in the province of Alberta in Canada. Focus was on investigating ongoing continuous improvement of teacher design and assessment practices, to identify and share promising practices from the classroom, to capture teacher learning and engagement, to document the appropriate use of technology for learning and to identify and to understand system affordances and constraints for using technology with young learners.

INTRODUCTION

Young children are growing up in environments rich in mobile and gaming technologies and, as such, they enter school with diverse technological experiences. Educational research is needed to understand early childhood experiences with technology and how to leverage young children’s home and recreational technology use for meaningful learning in school. Research on professional learning for teachers that enables them to design appropriate learning experiences that use contemporary technologies at school is needed. Past research about youth media habits often warned about the perils for young learners using

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Technologies (Cordes & Miller, 2000; O’Reilly & O’Neill, 2008; Schmidt, Rich, Riffas-Shiman, Oken & Taveras, 2009) and shared fears about technology being misused (Conners-Burrow, McKelvey, & Fussell, 2011). Research has pondered the appropriate age for children to start using computers (Karuppiah, 2014). Early critiques tended to be based on one-way communication technologies, such as television use (Swinburn & Shelly, 2008; Wilson, 2008) and using computer-assisted instruction (Elkind, 1996; Haugland & Wright, 1997). More recent critiques focus on possible online dangers (O’Reilly & O’Neill, 2008) or issues with overall screen time (Ernest, Causey, Newton, Sharkins, Summerlin & Albaiz, 2014). In contrast, other researchers argue there are developmentally appropriate and beneficial ways for practitioners to employ technologies with early learners (Bers & Kazakoff, 2013; Clements & Sarama, 2003).

**BACKGROUND**

Contemporary research on the healthy development of young children in a digital age should guide teachers’ appropriate use of technology in pre-school and primary classrooms (Barron, Bofferding, Cayton-Hodges, Copple, Darling-Hammond & Levine, 2011). Neumann and Neumann (2014) argue that early literacy skills can be enhanced using newer technologies such as touch screen tablets (i.e. iPads, mobile devices) and appropriate applications, and with scaffolding by “providing prompts and hints that help learners figure it out on their own” (Sawyer, 2006, p.11). Similarly, other researchers maintain that using technology with early learners can expand learning opportunities for all students (Bers, 2008; Bers & Kazakoff, 2013; Plowman & McPake, 2013) including students with complex needs (Kucirkova, Messer, Critten & Harwood, 2014).

Effective use of technology with young children focuses on the thoughtful and strategic enhancement of social relations with peers and adults, fosters exploration and the manipulation of objects and the social construction of knowledge, the creation of representations, involves listening to and reading books, and children’s engagement in play (Barron, et al., 2011; Blackwell, Lauricella & Wartella, 2016; Neumann & Neumann, 2014). The learning potential of technology can best be realized when digital technologies are used by teachers for students’ powerful learning through creative design and expression, playful exploration, experimentation, design and invention versus information delivery (Singer, Golinkoff & Hirsh-Pasek, 2009). For example, Mitchell Resnick’s work focuses on using technologies to design, create and invent (Papert, 1980; Resnick, 2002). Resnick’s work on ScratchJr for young children, a modified version of the graphical programming language Scratch, focuses on providing appropriately designed and powerful digital creation and computer programming tools that align with early learner’s unique developmental and learning needs (Flannery, Kazakoff, Bonta, Silverman, Bers & Resnick, 2013).

Assisting and supporting teachers’ professional learning requires more than helping them to learn how to use technology. Teachers want and need professional learning that assists them in developing responsive instructional design practices and in learning about appropriate technologies for learning in and for the contexts in which they teach (Daniels, Friesen, Jacobsen, & Varnhagen, 2012; Voogt & McKenzie, 2017). Teacher’s professional learning within our study was supported through a community of practice (Lave, 2009; Lave & Wenger, 1991; Wenger, 2009). Communities of practice are guided by a social theory of learning that understands learning as a social phenomenon. Social participation is a primary focus of the community as the group of people come together through a shared concern for something they do and then they learn how to do it better as they interact with each other (Wenger & Wenger-Trayner, 2015). In the present study, the research community of practice provided participants...
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