Chapter 18
Teacher Assessment in Technology:
Integrated Early Childhood Classrooms

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ABSTRACT

Technology integration in the early childhood curriculum has seen some improvement. Many teachers now report using technology in instruction and providing young children the opportunity to use technology as a learning resource or tool in the classroom. While there has been some development in providing children with technological tools, research shows very little is known about teacher assessment of what young students know and can do with technology. This chapter a) discusses the literature on the role of assessment in education, particularly in technology-integrated early childhood classrooms, b) reveals results from a study that details the extent to which early childhood teachers assess young children's developmental gains in technology-integrated classrooms, and c) presents recommendations for teacher use of assessment strategies or approaches to document information regarding learning among young children as evidenced by technology use in early childhood education.

INTRODUCTION

Considering the fact that assessment affects students' progress in meeting curricula goals, it is surprising that very little research focuses on exploring early childhood teacher assessment of student learning in technology-integrated classrooms. The role of technology in student learning, especially among young children, has received much attention. However, there is one more area that needs documentation: Assessment of young children's learning with technology. There is a need to document such data and where possible, highlight the barriers or challenges teachers face in assessing the influence of technology in their classrooms.

The main objective of this chapter is three-fold: a) discuss the literature on the role of assessment in education, particularly in technology-integrated early childhood classrooms; b) reveal results from a study that details the extent to which early child-

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hood teachers assess young children's developmental gains in technology-integrated classrooms, and c) present recommendations for teacher use of assessment strategies or approaches to document information regarding learning among young children as evidenced by technology use in early childhood education.

BACKGROUND

The research on technology use in early childhood classrooms is often centered on the important aspects of child social-emotional, language, physical, and cognitive development (Scoter, Ellis, & Railsback, 2001). Regarding social-emotional development, there have been concerns that computer use may cause social isolation or impede social development (Cordes & Miller, 2000). Current studies indicate that when the software is developmentally appropriate and the technology is used appropriately it can serve as a catalyst for social interaction and conversations among children (Clements & Natsasi, 1993; Lee & O'Rourke, 2006; Nikolopoulou, 2007).

In the case of language development, there are critics such as Cordes and Miller (2000) who do not agree on the importance of technology in oral and written language in early childhood. On the contrary, a 2001 Northwest Regional Education Laboratory (NWREL) report suggests that technology has a place in this environment; language and literacy development are major strengths of technology use with young children through the opportunities and motivation it provides. In terms of physical well-being and motor development, proponents argue that the use of technology allows children to compose and revise text without being distracted by the fine motor aspects of letter formation (Davis & Shade, 1999). Though this is positive, there are concerns that emphasizing the "use of computers in childhood can place children at increased risk for repetitive stress injuries, visual strain, …given the hours they already sit in front of televisions and video games, may contribute to developmental delays in children's ability to coordinate sensory impressions and movement…" (Cordes & Miller, 2000, p. 20). Data gathered by the Henry Kaiser Family Foundation as part of the Foundation's program on the entertainment media and public health found that on a typical day children ages two to seven years spend an average of 11 minutes using a computer and more than three hours watching television and videos (Roberts, Foehr, Rideout, & Brodien, 1999). However, acknowledging the potential dangers to physical well-being and motor development does not lead Clement and Samara (2003) to discredit the use of computers in early childhood education. Instead they note that the total time spent in front of the screen should be limited.

Finally, on the topic of cognition and general knowledge, research supports the fact that technology offers unique intellectual experiences and opportunities for young children. Computers allow representation and actions not possible in the physical world (NWREL, 2001; Haugland & Wright, 1997). Research points to the positive effects of technology use on cognitive and social learning and development (Clements, 1994; Haugland & Shade, 1994). A study by Haughland (1992) finds that three and four year old children who used computers along with supporting activities (e.g., manipulatives, objects that children use to help them understand concepts) had significantly greater developmental gains compared to children in a similar classroom without computer experiences. Gains made included: verbal and nonverbal skills, problem solving, abstraction, long-term memory, and conceptual skills. Similarly, third-grade children who used both manipulatives and computer programs showed more sophistication in classification and logical thinking than children who only used manipulatives (Clements & Nastasi, 1993). Jewitt (2006) emphasizes that through multimodal experiences with computers, that include images, visual layout, color, sound, and movement, children develop understandings of