

## Chapter 119

# Moving from Professional Development to Real-Time Use: How are we Changing Students?

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### ABSTRACT

*This chapter demonstrates the importance of teacher training in the use of technology in literacy instruction by focusing on the need to update current teachers' skills and practice. In the setting described, the emphasis was on the transfer of Technological Pedagogical Content Knowledge (TPACK) strategies, learned via in-service professional development, to program classrooms supplied with twenty-first century technology in a high needs setting for at-risk students in grades 3-9. In addition to the general at-risk setting, specific literacy-related affective and cognitive learning outcomes are noted for students with disabilities and for English language learners. Program findings indicate the benefits of continuous professional development and embedded training along with embedded implementation of technology within pedagogical and content literacy instruction. Positive literacy-related cognitive results are noted for all students enrolled in the program classrooms; data for students with disabilities and English Language Learners (ELLs) also reveals potential benefits.*

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## INTRODUCTION

Learning in the 21<sup>st</sup> century is promoted through effective instruction grounded in and supported by literacy skills (Potts, Schlichting, Pridgen, & Hatch, 2010); characteristics of effective literacy instruction now, however, are different than those of instruction 50, 30, or even 10 years ago. For children, parents, and the community of the new millennium, there is an expectation, even a demand, for the inclusion of technology. This inclusion meets two needs: first, as a tool, technology will improve and extend instruction and learning within English Language Arts (ELA) and within other content areas; second, and equally as important, inclusion of technology also will support a new literacy–technology literacy—a need that meets the learning expectations of 21<sup>st</sup> century students (Gee, 2009). One of the major changes in literacy now is that competency in literacy is no longer limited to reading and writing print on paper in ELA classrooms; literacy has now been expanded to include digital formats, and literacy is now part of all content areas. The presence of digital format encompasses ever increasing mobile technology such as interactive text, electronic books, tablets, laptops, and cell phones (Alvermann, 2008; Coiro, 2011; Moje, Young, Readence, & Moore, 2000). Also, as noted, literacy content is not just ELA, but now includes reading and writing in all academic content areas; most notably those in Science, Technology, Engineering, and Mathematics (STEM) education (Johnson, Watson, Delahunty, McSwiggen, & Smith, 2011).

Research in K-12 settings indicates that the use of technology in the classroom is effective in assisting instruction and learning. For instance, appropriate use of technology is related to increases in concomitant affective indicators of learning (i.e., students' perceptions of interest, motivation, and confidence), as well as increases in both immediate cognitive gains and long-term problem-solving skills (Newman, Clure, Morris Deyoe & Connor, 2013; Newman, Reinhard, &

Clure, 2007). Although we know that learning to use technology is an important and necessary part of a child's education in today's classrooms (Carnegie Council on Advancing Adolescent Literacy, 2010), it is how that technology is used to support instruction that is fundamental in changing student learning. This is found to be especially true as grade level increases, especially beyond third grade; after grade three, students' ability to access technology as a resource for information and problem-solving increases (Carnegie Council on Advancing Adolescent Literacy, 2010). Today's students frequently come to the classroom already knowing a lot about technology, but they do not automatically know how to use it to support content learning, transfer, and assessment. Because teacher instructional practices impact student performance and knowledge gains (Knight, 2002; Newman & Gullie, 2009), it is vital that teachers, current and future, know not only how to use technology, but also how to teach with technology and how to use technology within content. For no group of students is this more important than for those who fall behind in reading and writing; students who lack basic literacy skills will have difficulty gaining content literacy. As a result of this link between teachers' use of instructional practices and student knowledge, and the new developments and increasing availability of technology, teacher preparation programs are looking at ways to increase and enhance pre-service and in-service teacher knowledge of and skills in integrating technology into literacy education.

This chapter demonstrates the importance of teacher training in the use of technology within literacy education by focusing on the need to update current teachers' skills and practice. In the setting described, the emphasis was on the transfer of integrated Technological Pedagogical Content Knowledge (TPACK) strategies, learned via in-service professional development, to program classrooms supplied with twenty-first century technology in a high needs setting for at-risk students in grades three through nine. In

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