

*How It Can Transform Teaching  
and Student Learning Today*

# TECHNOLOGY IN SCHOOL CLASSROOMS

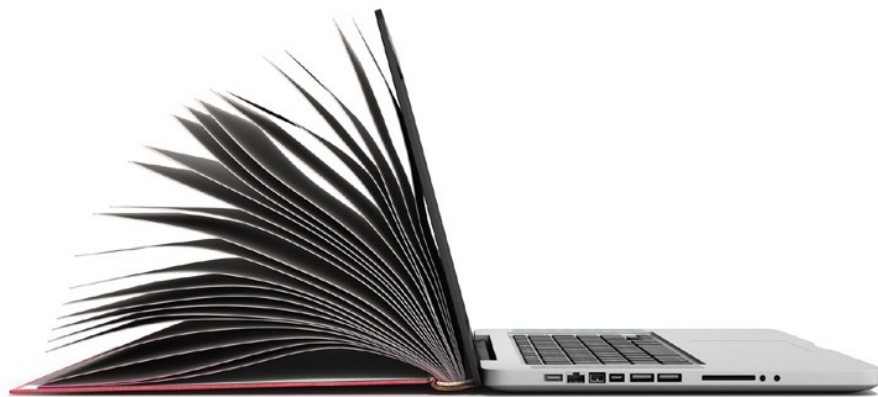


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*Foreword by* Chris Dede

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# Foreword

## **NEXT GENERATION LEARNING IN SCHOOL**

This book provides an excellent analysis of whether and how digital technologies can transform teaching and learning in classroom settings. The authors collectively provide a multidimensional perspective on how and under what conditions technology can be productively employed by teachers to more effectively meet the challenges presented by a rapidly evolving world.

Civilization today presents a landscape deeply shaped by technologies—transportation, communications, and computing—that place new demands on schooling to prepare today’s students with knowledge and skills not necessary for prior generations (Fishman & Dede, 2016). This challenge has profound implications for teachers and the work of teaching, in terms of both what it means to teach and how one teaches.

I agree with the editors’ stance that the important issue is not the value of digital tools and media as an educational innovation for industrial-era schooling, but their potential role in the emergence of an alternative, next-generation educational model well suited to preparing students for a future quite different than the immediate past.

Recently, in many types of work, advances in computing and in artificial intelligence (AI) have driven shifts in the “division of labor” between technology and people, as new types of tools have taken over the tasks people



used to do (Levy & Murnane, 2013). As the chapters in *Technology in School Classrooms* discuss, these technological advances provide a useful lens for examining how job roles are changing in teaching, as well as how teachers can model for students the division of intellectual labor with technology that they, in turn, will experience when entering the workplace.

The fundamental impact potentially is not technology taking over teaching via AI, but intelligence amplification: technology providing a classroom infrastructure that enables teachers to direct their attention toward the students who need it the most, while supporting more proficient students to continue making progress on their own (Dede & Richards, 2012). Digital technologies can help teachers learn to shift their practice toward this new division of labor, so their classrooms center on “deeper learning” that prepares students for a global, knowledge-based, innovation-centered civilization (National Research Council, 2012; Dede, 2014).

Innovative approaches to teacher learning are important because the failure to provide universal, high-quality professional development in education is in sharp contrast to other professions, such as attorneys and physicians (Dede, Eisenkraft, Frumin, & Hartley, 2016). This shortfall is, in part, responsible for continuing difficulties both in attracting strong people to teaching and in keeping them in classroom instruction more than a few years (Mehta, 2013). Moreover, a few forms of professional development have been studied using strong methods of evaluation and research, so improvement is difficult, given a lack of findings about what strategies are working well and why (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009).

*Technology in School Classrooms*' chapters highlight the central role of teachers in classroom learning and also emphasize that using digital media to automate conventional models of professional development cannot be successful in fostering transformations in instruction. Ultimately, shifts in teachers' practice require professional capacity building in which participants not only learn new skills but also “unlearn” almost unconscious beliefs, assumptions, and values about the nature of teaching, learning, and schooling (Dede & Frumin, 2014).

Professional development that requires unlearning necessitates high levels of emotional/social support in addition to mastering the intellectual/technical dimensions involved. In order for teachers of education to transform from