Teaching in a Digital Age: How Educators Use Technology to Improve Student Learning

Executive Summary

This study examined the "black box" of K-12 technology initiatives to understand how educators are using technology to enhance learning, the supports that are needed to integrate technology effectively, and the impact technology has on the education system.

The past decade has seen a strong focus by the U.S. government on increasing the use of technology in the nation's schools, to spur innovation in education that will foster global economic competitiveness. However, studies comparing the effects of digital learning to traditional classroom instruction have yet to consistently show a significant advantage for digital learning.

A successful digital transformation of the classroom is not determined by technology alone—but how technology enables teaching and learning. In collaboration with Digital Promise and the National Network of State Teachers of the Year (NNSTOY), we at Pearson undertook a study **focusing on how teachers use technology to enhance instruction and improve learning.**
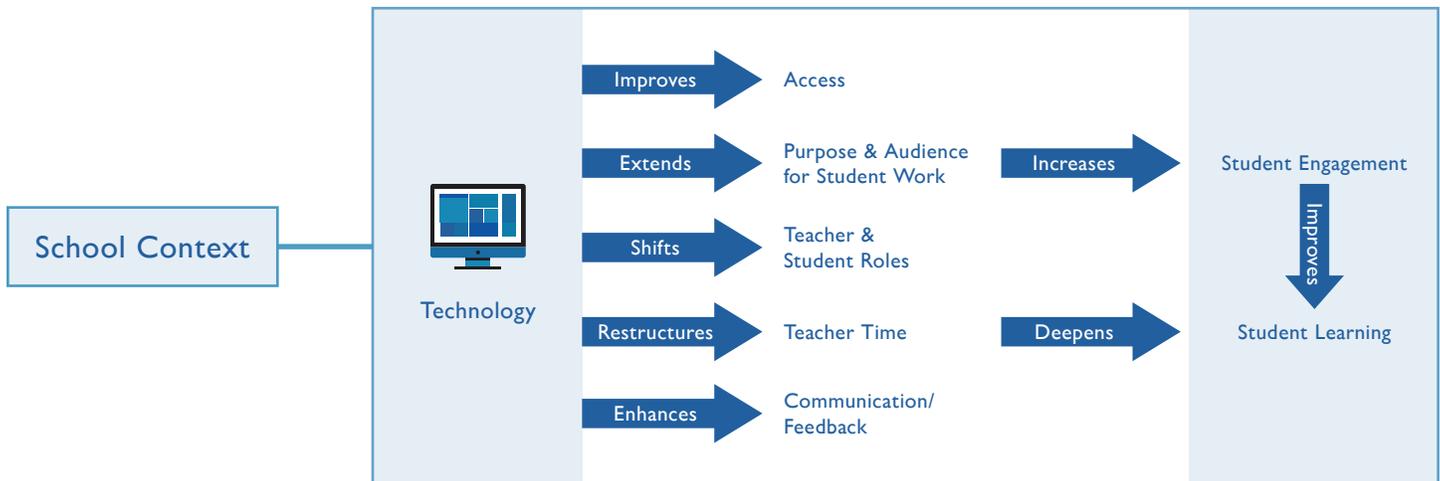
The first phase of this study documented how teachers are integrating technology effectively to enhance student learning. In seven districts across the U.S., we conducted focus groups, interviews, and observed classrooms to identify digital instructional strategies that teachers were using to enable and enhance student learning. Participating educators had experience teaching in a variety of technology contexts including 1:1 laptops/tablets; Bring Your Own Devices/Technology; Blended Learning; Flipped Learning; and Virtual Education. Through a structured interview process, teachers and administrators described the technology-enabled strategies they use to improve student outcomes.

What Digital Classrooms Look Like

We found that teachers deploy digital instructional strategies in creative ways that enhance what educators report as best practices for learning. The pedagogical approaches the study teachers used have been around for a long time, such as purposeful grouping of students, active learning tasks, ongoing formative assessment, or peer collaboration. However, in many ways, the teachers' tactical use of technology enabled or enhanced these teaching strategies. When used effectively, technology can enable and/or enhance student learning, teaching, and the work environment and school culture for staff and students.

We identified five general themes for how teachers used technology, and how that use has the potential to transform teaching and learning in K-12 schools. The themes include:

1. **increasing** access to learning resources;
2. **enhancing** communication and feedback;
3. **restructuring** teacher time;
4. **extending** the purpose and audience for student work; and
5. **shifting** teacher and student roles.

School Context → Technology

Improves → Access
Extends → Purpose & Audience for Student Work → Increases → Student Engagement
Shifts → Teacher & Student Roles
Restructures → Teacher Time → Deepens → Student Learning
Enhances → Communication/ Feedback

Improves (Student Engagement → Student Learning)

Supporting Digital Classrooms

The context in which the integration of technology for learning occurs is critical. Within each of the seven different school districts, context had a strong influence in teacher perspectives on the use of technology and how to integrate it best for learning purposes. Digital conversions require leadership and community support through vision and resources as well as an environment that can adapt to change. Digital classrooms also inherently change the school context. Educators noted leadership shifts among educators, greater collaboration among teachers, and enhanced work environments.

As other researchers and practitioners have noted, merely putting tools in classrooms is not enough to drive rapid and meaningful change in teaching and learning. We need to equip teachers with strategies that are known to improve student learning. To keep pace with technology innovations, we need research about what works, in order to spark rapid changes in learning inside and outside of the classroom, as well as to guide training for our pre- and in-service educators.

Next Phase of the Research: Which digital teaching strategies improve student performance and engagement?

ABOUT THE RESEARCH & INNOVATION NETWORK

To help address the most pressing questions facing teachers and students, Pearson brought together top education experts in the Research & Innovation Network with the mission to research and invent capabilities and tools educators need to create engaging, meaningful, and personalized learning that leads to student and educator success. The Network is led by Dr. Kimberly O'Malley, Senior Vice President of Research, and supports five centers: the Center for Digital Data, Analytics & Adaptive Learning; the Center for College & Career Success; the Center for NextGen Learning & Assessment; the Center for Online Learning; and the Center for Educator Effectiveness. Learn more at researchnetwork.pearson.com

ABOUT DIGITAL PROMISE

Digital Promise is an independent, bipartisan 501(c)(3) nonprofit organization authorized by Congress to spur innovation in education. Through its work with educators, technologists, researchers, and leading thinkers, Digital Promise supports comprehensive research and development to benefit lifelong learners and provide Americans with the knowledge and skills needed to compete in the global economy. Learn more at http://www.digitalpromise.org/

ABOUT NNSTOY

NNSTOY is a non-profit organization serving as a professional home to State Teachers of the Year in their years of service, following their Year of Recognition when they serve as their State Teacher of the Year. Its focus is on providing active and meaningful roles for its members, in furthering great teaching and strengthening student learning. NNSTOY does this through three critical vehicles: policy, practice, and advocacy. Learn more at www.nnstoy.org