Professional Development: Catalyst for Change?

Difficulty securing adequate professional development (PD) has long been a barrier to the effective implementation of educational technology. The authors of the first Office of Technology Assessment report on technology in the schools in 1988 applauded a marked increase in the number of computers that had been installed in school buildings but were disappointed with the limited amount of funding that had been spent to train teachers. When the 1995 report came out, concerns about the impact of limited teacher training had become serious. “Most teachers have not had adequate training to prepare them to use technology effectively in teaching,” the report stated. “Currently, most funds for technology are spent on hardware and software, but experienced technology-using sites advocate larger allocations for training and support. On average, districts devote no more than 15% of technology budgets to teacher training.” The report concluded that “a majority of teachers report feeling inadequately trained to use technology resources, particularly computer-based technologies.”

By 2000, things weren’t much better; a National Center for Educational Statistics (NCES) report confirmed that only 33% of surveyed teachers felt they were “well” or “very well” prepared to use technology with their students.

Unfortunately, concerns about the dearth of PD for helping teachers integrate technology into their instructional practices raised nearly 25 years ago appear to still hold true despite repeated calls for increased attention to PD for technology integration. A 2009 NCES report indicated that two-thirds of U.S. public school teachers in the sample had received less than eight hours of inservice training for using technology with their students, and 78% reported that a “moderate” or “major” extent of their training had been through “independent learning.”

Regardless of where the conversation takes place—in a classroom, conference hall, or coffee shop—when the word technology enters the dialogue, there is typically an immediate shift to thinking about the physical manifestations of technology. We eagerly show off our newest gadget, we extol the virtues of a new web 2.0 tool, or we lament when our “stuff” is not working. Implicit in these conversations is the cultural value that the technology of things takes precedence over the ways that technology can shift how we learn and teach. We, especially in education, look at technology largely to help us do the work we’ve always done in faster, more efficient, snappier ways. Yet it’s this mindset of using technology to perpetuate the status quo that the newest efforts for PD in technology are working to deconstruct and shift.

For models of PD in technology to become crucial to reform movements, teachers must first be seen as learners. In *Models of Information Technology Teacher Professional Development that Engage with Teachers’ Hearts and Minds*, Glenice Watson draws on the work of Everett Rogers to identify five types of teacher personalities in relation to change: the innovator, the early adopter, the early majority, the late majority, and the laggards. She points out that working with so many different types of teachers requires individualization and ongoing support. Whether that support comes from a “home-grown expert” or by supporting teachers as they create their own technology projects, Watson knows
that the pace of change in technology is swift and consistent. Without ongo-
ing support for all kinds of teacher-
learners, “only the innovators and the 
early adopters are able to keep pace 
with the changes.”

In school environments where this 
frantic change can seem overwhel-
ming and leave teachers feeling helpless, 
successful IT programs maintain a 
direct focus on the habits of mind and 
dispositions that drive paradigm shifts 
and cultural changes. Judi Harris, 
Punya Mishra, and Matthew Koehler 
recognize the less linear, more recur-
sive nature of such dispositions in the 
TPACK framework and knowledge 
components discussed in Teachers’ 
Technological Pedagogical Content 
Knowledge and Learning Activity 
Types: Curriculum-Based Technology 
Integration Reframed. They believe 
teachers must have technological 
knowledge, pedagogical knowledge, 
and content knowledge, all synchro-
nized in ways that support the teacher 
as a multifaceted learner. Thus, their 
PD models work to help teachers 
embrace “flexibility and fluency” as they 
implement new structures. When PD 
models focus on habits of mind versus 
“the machines,” it can entice learners 
to contend with the value system that 
seeks to simply automate or redress 
the activities that have been part of 
the classroom culture. Perhaps a focus 
on dispositions instead of learning 
the newest features of PowerPoint 
might inspire teachers to consider 
how PowerPoint influences a model 
of deductive thinking, whereas a pro-
gram like Prezi incites an inductive 
model of thinking. As Harris, Mishra, 
and Koehler reiterate, PD cannot be 
technocentric, but must also embrace 
pedagogy and content in a recursive 
process.

Similarly, D. Michele Jacobsen 
notes how crucial it is that stu-
dents and teachers alike shift from 
the idea that technology is about 
“hardware, software, and network 
connections” to a mindset in which 
technology is “thinking tools for 
teaching and learning.” In Building 
Different Bridges: Technology Inte-
gration, Engaged Student Learning, 
and New Approaches to Professional 
Development, she describes a highly 
successful program, the Galileo Net-
work, that implicitly addresses the 
importance of having a tight focus 
but also points out how essential it 
is to extend that focus to the entire 
culture of the school. In the schools 
Jacobsen followed, the Galileo Net-
work support team used relations-
ships to bring a “social and political 
culture of reform” to their school 
systems. Working with school district 
personnel, school administrators, 
teachers, students, and parents, the 
network successfully built a culture 
where thinking and learning drove 
the reform. This focus on addressing 
the entire school culture to promote 
educational reform is consistent with 
the professional learning community 
forms of professional development.

Yet knowing how to navigate such 
an intense cultural shift in school con-
texts is especially tenuous. In Address-
ning First- and Second-Order Barriers 
to Change; Strategies for Technology 
Integration, Peggy Ertmer addresses 
the differences between first- and 
second-order barriers to change and 
delves into how these barriers apply 
specifically to technology integration. 
As she notes, first-order barriers im-
pede integration because the “stuff” 
(hardware, software, bandwidth) 
aren’t available. She then describes 
the second-order barriers as cultural, 
pedagogical, or value-based: “They are 
intrinsic to teachers and include … 
established classroom practices and 
unwillingness to change.” As such, 
Ertmer offers ways to contend with 
such barriers when planning profes-
sional development: creating a vision, 
modeling, reflection, collaboration, 
and ongoing opportunities to shape 
the curriculum. Yet, perhaps most im-
portant, she reminds us that barriers 
often work in tandem and—consistent 
with the ideas of Harris, Mishra, and 
Koehler—addressing them requires 
a “simultaneous or at least recursive” 
approach to fully support reform in 
learning and teaching.

Just as students need to have mean-
ful and authentic work that drives 
them to inquiry, creativity, and intel-
lectual risk, so must teachers have 
those same kinds of learning environ-
ments. If we are asking teachers only 
to digitize their existing classroom 
practices, we weaken the potential 
for technology to reframe how and why 
we teach. Perhaps the discussion isn’t 
about professional development at all, 
but rather a discussion of professional 
learning opportunities.

Resources
Galileo Educational Network Association: 
www.galileo.org
Power On: New tools for teaching and learning: 
http://govinfo.library.unt.edu/ota/Ota_3/ 
DATA/1988/8831.PDF
Prezi: http://prezi.com
Professional learning communities: 
www.allthingsplc.info
Teachers and Technology: Making the 
Connection: www.princeton.edu/~ota/
disk1/1995/9541/9541.PDF
Teachers’ Tools for the 21st Century: A Report 
on Teachers’ Use of Technology: http://nnces. 
ed.gov/surveys/frss/publications/2000102/ 
Teachers’ Use of Educational Technology in 
U.S. Public Schools: http://nnces.ed.gov/ 
pubs2010/2010040.pdf

Dale Niederhauser is an asso-
ciate professor in the Center for 
Technology in Learning and 
Teaching at Iowa State Univer-
sity and a former Head Start 
teacher.

Sarah Wessling is the 2010 
National Teacher of the Year 
and a high school English 
teacher at Johnston High 
School in Johnston, Iowa.