

**TECHNOLOGY, URBAN SCHOOL REFORM,  
AND THE SCHIZOPHRENIC NATURE OF TEACHING<sup>1</sup>**

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As a consequence of a variety of federal and state initiatives, as well as the decreasing costs of computers, access to computers and to the Internet for all students has grown dramatically at both school and home. More than 70% of homes with school-age children contain a computer. And teachers, too, are very likely to own home computers—more than 80% do. As a result, access to technology is quite different than it was when we began to look seriously at the impact of technology on teaching and learning. The promises we made more than a decade ago seem a bit closer to being accomplished.

Teachers are increasingly knowledgeable about how to use technology effectively, especially in schools where resources are plentiful; and those educators who are not yet able to engage technology well have substantial access to professional development opportunities. When we look at how students and teachers use computers to accomplish their work, we can see major changes in what is done in school, how it is accomplished, and what skills and abilities are improved. At least this is the pattern in many of our suburban schools.

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<sup>1</sup> Rockman, S. (2000) Technology, Urban School Reform and the Schizophrenic Nature of Teaching. In *The Wingspread Conference on Technology's Role in Urban School Reform: Achieving Equity and Quality*. Funded by the Joyce Foundation and the Johnson Foundation.

Much of the work my group has been doing is in urban schools, places like Boston, Gary, Chicago, Detroit, Indianapolis, and Oakland. These are sites where technology and other resources are not plentiful, where the telecommunications infrastructure is still being put into place (along with upgrades in electrical systems), where working through the bureaucracy is often difficult, and where universities with little knowledge of the reality of urban schools often find themselves partners in school-reform efforts. These are school districts where a crisis mentality, high-stakes testing, and frequent changes in leadership may result in multiple, simultaneous initiatives for school improvement. These curriculum and pedagogical assignments to schools and teachers are often short-lived and inconsistent, occasionally conflicting, and almost always imposed from above. As a consequence, urban school districts have become schizophrenogenic, sending a variety of incompatible messages to teachers that result in confusion, misunderstandings, and often a return to earlier modes of behavior.

Among the conflicting and inconsistent messages that urban districts send to teachers are:

- We will prepare you to use constructivist approaches and provide you with instructional materials that call for this strategy, but expect you to cover the entire curriculum for the grade level and subject area so that students are prepared to take high-stakes tests (unrelated to what you have been teaching) that have serious consequences for promotion and graduation.
- We will judge you and your school based on the success of your students, regardless of your experience, the resources you have, the physical condition of your building, site leadership, and the background of your students. And, by the way, money has nothing to do with this (as if you don't know the truth).
- We know that students' motivation will increase when they are doing things that interest them, and that engaged learners produce better test scores. But project-based learning, while increasing interest, doesn't give rise to improved basic skills, and we are still using the same multiple-choice tests that have been turning off students and their parents for three generations.

- Along with constructivist instructional strategies, you might want to use alternative assessments, such as portfolios, performances, and problem-solving tests. But the results of these assessments won't count for students' passing a grade, graduating, or determining the quality of your success as a teacher.
- It is important to master technology and integrate it into your instruction in the range of curriculum you teach, but remember this year we are focusing on reading as the critical skill and that is the most important thing you can do. But don't forget last year's introduction of a new mathematics curriculum we're still trying to master, right? And, we are in the process of revising the social studies curriculum, but that won't appear until next year.
- Helping students learn to write using the computer to support the writing process is great, just the right tool for the task. Moreover, writing is such an important skill that we'll test students on it each year, but, we'll make students take the test with pencil and paper because we know they'll cheat by using a computer.

These discrepancies among the messages teachers receive are troublesome because they come from credible sources, such as universities and publishers, or from the power of the business community, or from federal programs and professional associations. Most often they come from state departments of education, where legislative initiatives have created multiple curriculum standards. These conflicts are particularly troublesome for teachers in urban schools because they come from the very groups, such as NSF, that have, with the best intentions, vowed to address inequities and redress the many social problems that plague urban schools.

We see a disconnect between state policy and teacher practice, between curriculum and pedagogical initiatives and perceived needs, or rather between the needs identified at the school site and state initiatives. Many of the schizophrenogenic messages build on the top-down structure of the educational system and the power relationships that sustain it. Why is it that the policymakers, in collaboration with universities and publishers, identify and make explicit the nature of classroom interventions? When do the teacher and the school determine the nature of the initiative? What happened to letting local

schools decide what is best for their students? Legislatures, business interests, and policymakers have made multiple standards and high-stakes tests the coin of the realm, and woe to those who don't strive to conform.

### **Schizophrenic teachers**

At a time of dramatic change, when inconsistent yet insistent messages are given, when teachers feel powerless to influence their world, a disconnect from reality may seem like a reasonable solution to the confusion. At a time of crisis, teachers are likely to become more conservative rather than take risks, regress to more traditional approaches to teaching rather than trying one of the many initiatives thrown at them. Teachers can still close their doors and do what they choose to do.

Building leaders in urban schools are in a worse bind and can't seem to lead their faculty effectively. They are the traditional middle managers in the fight for better schools, feeling the pressure from above and from below. Teachers want clear signals for the many choices they have to make—or they'll close their doors and do whatever they have been doing in the past. However, the increase in data-driven decision-making has meant that information is aggregated at the district and state levels, not at the schools where it is gathered and where it can be useful. Consequently, superintendents, not principals, know more about each school's progress and status based on test scores, student and teacher data, and demographic changes. Increasingly more granular data are available to make decisions about schools and their staff and students who inhabit them, but the data are available only at the highest levels and not accessible to principals. High-stakes test data are sometimes used by the district for punishment and control, and rarely to assist the schools in making better decisions about teaching and learning. While state education leaders and district superintendents assign responsibility to the school site, they don't back it up with budgetary authority and the information needed to succeed. And superintendents in urban districts seem to have a brief half-life; they want test scores—the only metric the politicians use—to go up. So why should they share with school sites, with teachers and building administrators? What's in it for them?

Teachers, on the other hand, are not part of the information chain, unless the principal lets them in. Test scores are usually not available for diagnostic or placement purposes because it takes so long to get the results. It can be months, or even a full school year, between gathering the data and providing useful information to the classroom teacher. Nevertheless, the data do get used to make building-level decisions, without conferring with the building staff about how to interpret it. Schools will be placed on probation solely on the basis of test scores without discussion of why the scores may have been so poor. In any one year, with relatively few students in any one grade, test data are not reliable indicators of how well the school as a whole can perform. The inclusion of a group of low or high performers at a grade level being tested can change the entire school's standings and lead to district or state intervention. With reason, teachers feel displaced and without control over their professional choices when decisions are made without their input, and troubled even more when the decisions are made at the state or district office.

Pressure from above means that principals have to lean on teachers to do what is necessary to raise test scores at all costs. You hear of cheating now and again, but much of the effort to raise test scores happens when teachers stop teaching their subject and start preparing students for the test. As people whose work takes them into schools to observe and gather data, we know better than to try to talk to teachers or visit classrooms for the two or three weeks prior to testing. While teaching about the test (or even to the test) would not be cheating on the test, we are cheating the children who should be doing other, more important learning instead of practicing for multiple-choice exams. We could extend the school year by several weeks just by putting a moratorium on testing, so that learning rather than preparing for exams can occupy students' and teachers' time.

### **What seems to make a difference**

Even though urban districts seem to be fostering schizophrenia, teachers don't necessarily succumb. We have learned a lot about how to make classrooms work. Just like the conditions that cause the problems, some of the solutions may be conflicting and contradictory, but by placing them in the hands of teachers, by making it their

responsibility, their choice, we can improve the mental health of the teaching professionals, and perhaps even change schooling.

If you ask teachers, most of them did not go into their profession because they wanted to manage student learning or facilitate the use of technology; they got in because they wanted to teach. They didn't plan on a career where they would oversee students working individually or in small groups using computers; they planned to teach these students. We've long acknowledged that teachers teach the way they have been taught, and since most have gone from 16 or 17 years of school right back to the classroom, in the front of the room rather than in a seat, they know best only one way of teaching. The teacher stands in the front of the students dispensing information, and walks around, peering at student work, as children individually complete their worksheets or write their essays. If the computer doesn't fit into this plan, then using computers may not be teaching. So why should teachers want to use computers to teach, when *they* want to do the teaching?

Larry Cuban has been outspoken about the fact that teachers know how to use technology themselves—to create lesson plans and instructional materials—but that they do not know how to use it to teach. Consequently, he says, teachers use computers at home to accomplish their work but don't use computers in schools to teach. Teachers aren't technophobes, he states, just unfamiliar with ways to teach with computers.

I think Cuban is right—as far as he goes. Teachers have computers at home and use them to accomplish their work. But they have yet to see a reason to use them in school primarily because they see computers and other technologies as teaching devices, not learning tools. Unless and until teachers believe that students also have work to accomplish and need the kinds of contemporary tools that will assist their efforts, why should they promote something that will teach?

Cuban is not alone in his thinking about technology for teaching rather than for learning—in the belief that teaching results in learning. Many technology enthusiasts

also operate under this perception of the world. They propose creating marvelous multimedia instructional materials that will teach important concepts in engaging ways. These teaching efforts may be simulations or activities using virtual reality that sweep students along in a challenging problem. These teaching approaches call for a change in pedagogy, a change that may not be welcomed by teachers. The proposed ideas for new teaching solutions merely take control away from the teachers.

Changing pedagogy to use technology well requires a shift in the power balance of the classroom. It means focusing on learning, not teaching; it means providing opportunities, not information. It means teachers relinquishing control over students who have access to computers and the Internet. Students may produce reports that take different forms to portray their knowledge, using software or strategies that aren't traditional. For example, a group report may include a written text by one member of the team, visuals secured by another, and the findings of online research conducted by a third. How does that report get graded? How does a teacher assess the validity of the online citations that go beyond the range that the teacher has experienced? That is difficult in the teacher-centric world that Cuban and others see.

I believe that Cuban's model of learning, not his perception of teachers and classrooms, is faulty. Learners can learn, even if teachers aren't doing traditional teaching; they learn out of school all of the time. Their learning is not often under our control, but they are learning new and important concepts and skills that will help them succeed in the workplace. Students learn to communicate and collaborate with their peers online at home; they learn new technologies and software outside of schools, at community technology centers or Girls, Inc. or by exploring with their friends; they master concepts of visual literacy that are not even considered at school, learning to make digital videos and manipulating existing visual images to create new ones. We're just not party to it.

In Cuban's world, it is an issue of power and control. We ask that all practicing teachers master technology and apply it in the classroom, and that all preservice teachers

learn it, too. We set comprehensive standards, not only for students, but for teachers, too. Most professionals learn enough about computers to get their work done, but they don't need to learn more than that. For example, physicians may master a piece of extraordinarily complex software needed for the diagnosis of disease, but not know how to access the Internet. Teachers don't need to master all the software tools to get the best from their students, yet we insist they learn them. Most preservice and in-service technology classes cover the range of standard office software and teach hardware troubleshooting. New national technology standards ask even more. There may be a few second-grade teachers who use Excel in their classes every day, but I'd guess they would be considered unusual.

Students who have access to computers, on the other hand, do learn a lot of applications and a range of technologies. They have become masters of the new, but we often look at their skills as not appropriate for schoolwork, since it isn't anything we've taught them. We haven't accepted a shift in power and control. I'd rather teachers learn to say "yes" when students want to try out a new tool and then teach others what they have learned. Too often we hear, "No, you can't use that because I don't know how to use it yet." Or "It isn't something we're teaching in school this year." I think students, if given permission, could master and apply technology in amazing ways. When offered challenges and given powerful technology tools, our students can do marvelous things. But how do we get educators to give permission and get out of their way?

We need to free our children from the constraints that teachers impose when they don't know a technology. We need to give them permission to try—and occasionally to fail—rather than preventing them from gaining access to skills and ideas and information that will help them decide what work they want to do and how they want to do it. In our study of schools and classrooms where everyone had a laptop, we found dramatic and significant amounts of role switching. Teachers became students and students became teachers, all with the goal of developing new skills and acquiring knowledge. This is what we, as educators, like to see. Or at least that's what we like to talk about.



### **Changes in the classroom with high access**

Technology can be a powerful intervention to change the way teaching and learning take place in urban schools. But we need sufficient amounts of it and sufficient access to telecommunications to make it most useful.

We have been looking at classrooms where everyone has a laptop computer, where computing is ubiquitous at home and in school. What we have seen is a dramatic change in teaching and learning when computing is always available. The change in teaching practice has been a move toward constructivist ideals and pedagogy. Moreover, these changes appear to be coming from teachers' evolving views of how teaching and learning should take place, how resources should be used, and how classrooms should be organized. The presence of ubiquitous computing has been a catalyst for this change, providing a hard-to-ignore stimulus for modifying traditional behavior and for exploring options for new teaching-learning paradigms. Our studies have found increases in independent student work, more collaborative work, more project-based learning, and significantly less direct instruction in laptop classrooms from the very beginning of our three years of research.

While all students have greater exposure to computers than ever before, computer use is significantly more intense for laptop students, most noticeably in school. Students who have a computer all the time have changed the way they work, where they work, and often the kind of work they do. Students now teach other students more frequently than before, and they review and revise their own work more often. But perhaps the most dramatic change, other than the significant shift towards constructivist teaching and learning, is in how often teachers allow themselves to be taught by their students.

What we haven't seen are the substantial gains on standardized assessment measures that many policymakers, legislators, parents, and critics of technology in school are seeking.

One might think that students with ubiquitous access to computers are learning additional content and learning it better, but that may be more a condition of what the teachers are asking of their charges and what the students are bringing to the classroom in terms of previous experiences and family background. Project learning may be increasing in classrooms where everyone has a laptop, but that doesn't necessarily lead to broader student knowledge that might yield results on standardized tests. Writing skills may be improving, but yet we ask students who consistently write, rewrite, and edit on the computer to write in longhand, constraining their opportunity to write the way we teach them to write.

Ubiquitous technology may not be an immediate opportunity for most urban schools. The costs may be well beyond what urban school systems can now afford (even though New York City thinks otherwise). However, the multiple conflicting initiatives that plague urban systems pose additional barriers beyond just adding technology.

These urban systems have tried technology solutions in the past by bringing in full curriculum solutions in the form of integrated learning systems. These short-term solutions to improving test scores, however, bring in problems of their own, adding to the schizophrenia of the schools. Teachers must learn to be diagnosticians and read statistical reports to assign students to the most effective instructional treatment. To most, that's not teaching. Moreover, the teaching itself is assigned to the technology, a double whammy for the teachers.

The thinking behind the changes that ubiquitous computing engenders, the strong stimulus for change that technology offers, can be a critical component of school improvement. By bringing teachers into the decision-making about technology (and curriculum and school-change initiatives), we can strengthen the opportunities that current support for technology offers schools. If teachers can be our partners, just as business and industry can, then technology will not be seen as a threat or as a personal productivity tool for teachers and not for students.

School administrators often perceive and talk about technology as a tool to support and extend teaching, or even to replace teaching staff. Teachers, justifiably, are disturbed that technology is thought of as something that can replace them or alter their role as teachers; they thought their part of the system was sacrosanct and protected. We need to convert this opportunity to inform administrators and policymakers that technology is not only a teaching tool, but, more important, a powerful learning tool that can change classroom culture. As such it requires different ways of thinking about the classroom and its organization, about pedagogy, and about control. These are highly emotional issues for all concerned, but such is the power of the technology to support changes in teaching and learning.