School 2.0 The Science Leadership

The questions below have guided a new public partnership school in Philadelphia that incorporates core values of inquiry, research, collaboration, presentation, and reflection.

Academy

By Christopher Lehmann

mean to lead?

How do we design a school for the future? We need to look at how we want our schools to function—for students, for teachers and administrators, and for parents. We need to look at how our society has changed. We need to look at the changes that are inescapable and how we want to incorporate them into our schools. And then we need to look at the tools at our disposal and ask ourselves "What is it that we want our schools to be?"

These were among the questions we asked at the Science Leadership Academy, a new public partnership school founded by the School District of Philadelphia and The Franklin Institute. SLA is one of four new partnership high schools that opened in September 2006 as part of the Secondary Education Movement—one of school district CEO Paul Vallas' major reform efforts. SLA is built on the notion that inquiry is the very first step in the process of learning. SLA provides a rigorous, college-preparatory curriculum with a focus on science, technology, mathematics, and entrepreneurship. Students at SLA learn in a project-based environment where the core values of inquiry, research, collaboration, presentation, and reflection are emphasized in all classes.

The structure of the Science Leadership Academy reflects its core values, with longer class periods to allow for more laboratory work in science classes and performance-based learning in all classes. In addition, students in the upper grades will have more flexible schedules to allow for opportunities for dual enrollment programs with area universities and career development internships in laboratory and business settings, as well as with The Franklin Institute.

At SLA, learning is not just something that happens from 8:30 A.M. to 3:00 P.M., but a continuous process that expands beyond the four walls of the classroom into every facet of our lives.

Defining ourselves as an inquiry-driven, project-based school, and creating a curriculum that stemmed from that ideal, set us up to then seek out the resources and tools that would allow us to reach that goal. It was only when we had that clear pedagogy in place that we could then ask how we could use the tools of the 21st century to achieve our goals.

What Is the New World We Are Facing?

For years, our high schools were black boxes. Parents could come in two days a year for Parent-Teacher Night, or go to a sporting event or performance. Any contact beyond that was either the notices sent home using the "sneaker-net"—a dubious information transportation system at best—or a call from a teacher or administrator that rarely signaled anything good. We need to recognize that, whether we like it or not, the walls have come down. Parents expect to be able to e-mail teachers—and they expect responses. Every school has a Web page, many schools send out e-mail announcements on a regular basis, and there are companies out there willing to sell districts software packages that allow parents to get student grade information online.

But the transparency runs deeper. If you haven't yet gone to YouTube and searched

for videos of your school, do so soon. When every cell phone can double as a camcorder and Wi-Fi device, we no longer can afford the easy assumption that our classrooms and our schools are closed to the world. Students are recording classes—the good and the bad—and we no longer can assume that we can control that. So we are faced with a choice: either attempt (in vain) to lock out the world and suspend every student who uploads a video to YouTube or open up our schools and teach students about the tools they have at their disposal.

What would happen if we worked under the assumption that our schools were transparent? What would we share with the world? What would we encourage our students to share? What happens when the work our students do is no longer merely a dialogue (at best) between teacher and student, but is now dialogue among all members of a class, of a school community, of the world? How would that change the way students viewed their work? How would it change the way we all viewed our schools?

And here's the thing—many of our students have made that transition already. The notes we used to pass in class are now comments on a MySpace page. The stories we used to tell about teachers' classes are now videos on YouTube. So what role do we as teachers have in this world where the students live differently, more transparently, more publicly than we ever did?

Now, more than ever, our job is harder. What is the role of the teacher in the age of Google and Wikipedia? Simple—our schools must teach wisdom as much as we must teach facts. It means understanding that facts, information, skills, meaning, and wisdom are different, and that each one is valuable. But it also means understanding that facts and information used to be the top of the hierarchy, whereas now skills, meaning, and wisdom need to be. And it means that we as educators have to understand that meaning and wisdom are co-created. Twenty years ago, few students questioned the authority of the textbook (although perhaps they should have). Today, a large part of learning is learning to judge the sources of information in front of you.

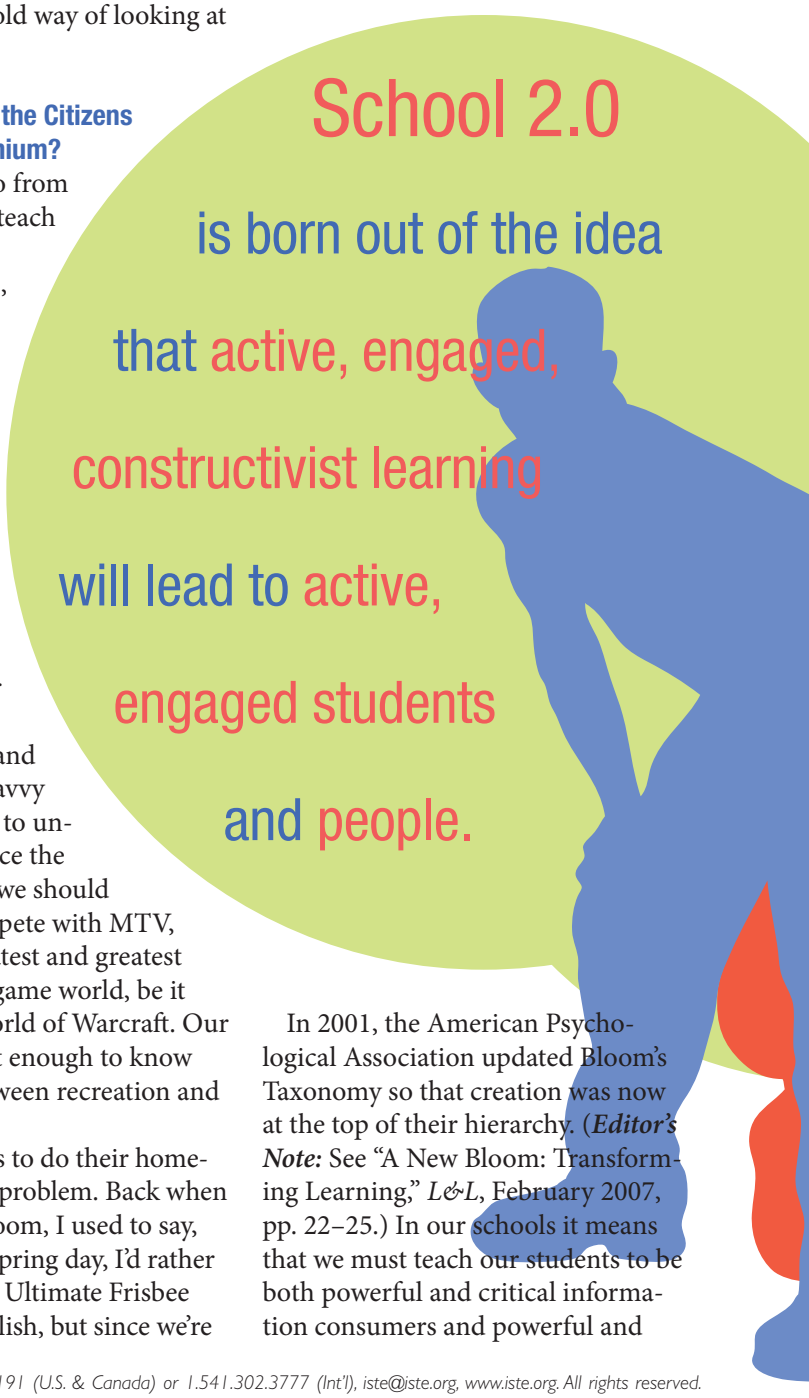
As we move forward, our schools must embrace not only the new technologies of our world, but a different way of teaching. Fortunately, it is both a new and a very old way of looking at our schools.

How Do We Teach the Citizens of the New Millennium?

So where do we go from here? How do we teach students who are online all the time, who have more stimuli than any of their teachers could ever have imagined as teenagers? How does the periodic table compete with a PSP? First, let's dispense with some of the myths—our students can and will function on- and offline. They are savvy about their ability to unplug and experience the world. Moreover, we should not expect to compete with MTV, YouTube, or the latest and greatest Internet-enabled game world, be it Second Life or World of Warcraft. Our students are smart enough to know the difference between recreation and schoolwork.

And getting kids to do their homework is not a new problem. Back when I was in the classroom, I used to say, "Hey, on a warm spring day, I'd rather be outside playing Ultimate Frisbee than teaching English, but since we're here, let's make it worth our while." But that's the problem: In too many classrooms, the kids just can't understand why it is worth their while.

This is why it is of the utmost importance that we return to—and update—the best ideas of our past. School 2.0 is the tradition of Dewey. School 2.0 is born out of the idea that active, engaged, constructivist learning will lead to active, engaged students and people.



In 2001, the American Psychological Association updated Bloom's Taxonomy so that creation was now at the top of their hierarchy. (***Editor's Note:*** See "A New Bloom: Transforming Learning," *L&L*, February 2007, pp. 22–25.) In our schools it means that we must teach our students to be both powerful and critical information consumers and powerful and

critical information producers. It is not enough that our students can publish and create—because they are, in record numbers outside of school. We must now ask them to consider what it is they publish, how they publish it, and now more than ever, they must understand the power of the post-modern aphorism, "We are the stories we tell." We must help students to understand what it means to have a voice in the world. We must help them to understand that what they say, what they create, and what they learn can be made stronger, deeper, and more powerful by the influence of collaborators both in their classroom and around the world.

One School's Attempt to Build a 21st-century Curriculum

But what does all this look like in practice? At SLA, we are in our first year of working toward this vision of what a school can look like, and both in the structure of our assessment model and in the work of the students, we are moving toward what this can be.

Although we made the decision to keep the traditional subject-area classes, we built our curriculum around essential questions that serve to center the instruction around questions that tie together the learning in meaningful ways. For our ninth graders, those questions are:

- Who am I?
- What influences my identity?
- How do I influence my world?

Those questions form the framework for the way we look at our subjects. That may mean using nutrition as a launching point for the study of biochemistry, or it may mean putting ourselves in the place of a farmer in an African culture and asking the hard questions about the assumptions we make about our own lives.

Our assessments then must match our inquiry-driven, project-based pedagogy. Therefore, our students do quarterly benchmark projects in each subject, creating work that allows them to demonstrate what they know and what they can create, and those projects become a major way in which we assess both their learning and our teaching. Benchmark projects can range from the classic literary essay to student-designed lab experiments around the topics covered in the previous quarter to a piece of historical analysis that must demonstrate knowledge of the event and culture to an analysis of alternative fuel source efficiencies using skills learned in an algebra class and using data collected in both science and math.

And for all of these projects, process is as important as product. Students collaborate online using our Moodle site. Teachers and students post research and critique each other's rough drafts. Students work on group projects both in class and at home by instant message. And final presentations are podcasted, blogged about, and presented orally and digitally. Students reflect on their work as blog entries, looking back at what they did, how they did it, and what it means that they made the learning decisions they made.

Perhaps most important, all members of our community, teachers, and students are learning more every day as we keep finding new ways to create, new ways to challenge ourselves, and new ways to use the tools at our disposal. At first glance, when you walk into our building, you see classrooms and students and teachers, much like the schools we're all accustomed to. Within a moment or two, however, you notice the teachers and students collaborating, you notice laptops out and conversations happening, and you see more and more students every day pushing themselves and us to redefine what we mean when we think about schools. It's not just that the kids have a laptop in their hands or even that they have blogs, it's that we use those tools to allow students to think more critically than ever before. Our world is changing and the changes don't make school easier. If anything, it makes it harder, because we can't pretend there's a clear-cut roadmap. There is no cookie cutter. Our schools must be personal, they must be community-based—however we choose to define our community. They must be relevant, and they must be willing to change.

Our students, the citizens of this new century, deserve nothing less.

Resources

The Franklin Institute: http://www2.fi.edu
School District of Philadelphia: http://www.phila.k12.pa.us
Science Leadership Academy: http://www.scienceleadership.org
Second Life: http://slurl.com/secondlife/Eduisland/37/195/22/
YouTube: http://www.youtube.com

Chris Lehmann is the founding principal of the Science Leadership Academy, a progressive science and technology high school in Philadelphia. He has returned to his hometown after nine years as the technology coordinator at the Beacon School in New York City. In 2006, the National School Board Association named Lehmann one of "20 to Watch" American administrators. He is the author of Practical Theory (http://www.practicaltheory.org), an education blog.

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