

Transforming Schools: Is It Rocket Science? *

Andy Zucker, Ed.D.
Senior Research Scientist, The Concord Consortium

In 1959 the Postmaster General of the United States, Arthur Summerfield, declared “We stand on the threshold of rocket mail.” The idea of delivering mail by rockets was a dream as early as 1929—but, of course, it never happened. Are educators in danger of accepting ideas about transforming schools with technology that are as unlikely to happen as delivering postal mail by rocket ship? Even if you and I are not, some of our colleagues are—and their beliefs are creating unrealistic expectations affecting all of us.

For example, online courses and schools are wildly popular. One book published in 2008, whose lead author is at the Harvard Business School, confidently predicted that by 2018 half of all high school courses in the United States would be taught online.¹ The book won several awards, and articles based on it appeared in the *Wall Street Journal*, *Business Week*, and other publications—even though the authors seem to think that online high school courses are taught automatically by computers rather than by human teachers, which is not true! One wishes that were the only serious error in the book. Unfortunately these are not the first authors who find it appealing to identify a “silver bullet” that will, they believe, “fix” public schools.

You can place your own bet on what the future holds, but mine does not include either rocket mail or the idea that half of all high school courses will be taught online eight years from now. Nonetheless, many of us—probably including you, given that you are reading *on Cue*—believe that technology is *helping* to transform schools into more effective, responsive institutions. Sorting reasonable from unreasonable claims is important if we want others to understand our vision, share it, and support it with resources.

There is plenty of evidence that schools are being transformed, but these changes are happening incrementally, bit by bit. There were no charter schools in the United States in 1990 and now there are more than 4,000. One to two million students in the nation are home schooled,

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¹ Christensen et al., p. 98. For a substantive review of the book see *Lost in Cyberspace* at http://www.concord.org/publications/detail/2008_DisruptingClass_WhitePaper.pdf

a vast increase from 20 years ago. More than 40 states support online schools, including the Alabama Online School, the Florida Virtual School, the Massachusetts Virtual Academy at Greenfield, and one of the earliest of them all, the Virtual High School based in Maynard, Massachusetts, which serves students in dozens of states and nations.

New “models” of school are being explored in many places, including High Tech High in San Diego, the Denver School of Science and Technology, Philadelphia’s School for the Future, New York City’s School of One and Quest to Learn (“a school for digital kids”), KIPP schools, expeditionary schools, and others. Some of these new models use computer-based technology intensively; others do not.

Science fiction author William Gibson, who coined the term cyberspace, once said “The future is already here; it’s just not evenly distributed.” If you look at the many changes taking place in schools it seems clear that tomorrow’s school systems will allow greater options for parents and students than ever before. But don’t expect any one approach to become the norm, let alone the salvation of public schools, even if that approach is technology-based. Human beings and schools are so diverse, with such varied needs, that one size will never fit all.

In my book *Transforming schools with technology: How smart use of digital tools helps achieve six key education goals* I discuss dozens of ways that technology is being used to transform and improve schools, from word processors, to clickers, to blogs, to online courses. Yet technology is not a “silver bullet.” Instead, teachers, students, and parents are exploring hundreds of ways that technology helps us meet our education goals, whether the goal is to make schools more accessible to students with disabilities, or to provide better communication with parents and the public, or to better engage at-risk students in school and thereby reduce the shocking dropout rates in so many school districts. No one technology helps a school achieve all its goals. People who believe in a “silver bullet” support false idols and waste our time. It would be so much simpler for everyone if a single technology could do it all—but that is not going to happen.

I work at the Concord Consortium, a nonprofit formed in 1994 and located in Concord, Massachusetts, which is dedicated to creating interactive digital materials for schools with the primary goal of improving learning for all students. My colleagues created the Virtual High School more than a decade ago; developed probes and sensors that students use to watch and

record motion, temperature, and other scientific data; and invented Molecular Workbench software (which is free online) so users can interact with and observe atoms and molecules accurately simulated on their computers. One of our current projects is developing SmartGraphs, which will also be free, open source software, and that will help students to understand graphs of all kinds and the concepts represented in graphs. Graphs are important to dozens of topics learned in school but are a challenge to many students. You can find many free activities on our new and improved website, <http://www.concord.org>.

Despite the fact that the Concord Consortium helped invent the concept of online schools, my colleagues and I believe that teachers are still the most vital ingredient in good schools. Good digital tools should be easy for teachers and students to use. There are already many such tools available. We are not seeking a technological “silver bullet,” nor should you.

For better or for worse, improving education is not rocket science—it’s unfortunately much *harder* than rocket science. The difficulty and slow pace of transforming schools lead many people to adopt wishful thinking and to imagine silver bullets. The reality is that computers, the Internet, and other digital tools have given us powerful new options. We know that schools would be foolish not to use these new tools—and most schools do use them, often creatively.

But don’t look for the educational equivalent of rocket mail, a gee-whiz innovation that some believed would suddenly and radically supersede conventional means of transporting letters and packages. Although there will be no technology-based panacea for the challenges we face to make schools more effective in the twenty-first century, digital tools are becoming more useful to educators every year. Look around and you will see that dozens of incremental changes are beginning to add up to a significant transformation of schools. There’s much more work to do and it will take thousands of us to do it—but the benefits to students make our efforts worthwhile.

References

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Author Notes

Andy Zucker is a Senior Research Scientist at the Concord Consortium. He is the author of several books and dozens of articles in publications as varied as *Education Week*, *The Mathematics Teacher*, *Science* magazine, and the *Journal of Science Education and Technology*. Andy is a frequent speaker at educational conferences. His email is azucker@concord.org.