Disrupting Class

A Review

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A Review of
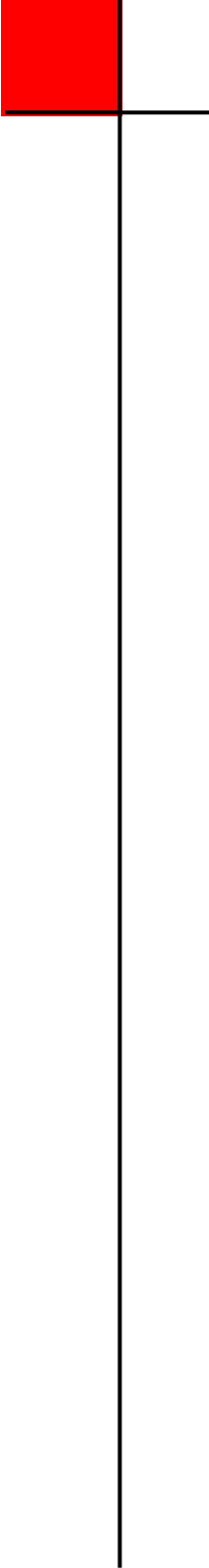# *Disrupting Class*

Charles Taylor Kerchner

November 21, 2008

Betting against History

Betting on technology to change teaching wagers against history, but that's what the authors of *Disrupting Class* do, and persuasively. Every technological tweak, from student workbooks in the 1920s to television in the 1950s was accompanied by the prediction that teaching would change. All these predictions proved wrong. But the Internet is different, and so are the times we live in.

Lead author Clayton Christensen, a professor at Harvard Business School and a student of change, along with Michael Horn and Curtis Johnson, assert that the Internet is an institutionally disruptive technology. By extending the adoption curve of on-line instruction, they predict a flip in instruction beginning only four years from now and "in the subsequent six years technology's market share will grow from five to 50 percent." (p. 100). Thus, by 2019 more than half of high school classes will be taught by individualized, Internet-linked computer software rather than live lecturing teachers with batch processing instructional packages. "Given how long some have been in the trenches of school reform, it will be a breathtaking flip" (p. 102). If the authors are only half right, their prediction is still a big deal.

Let's examine their argument. The prediction of rapid technological displacement, and a tipping point worthy of Malcolm Gladwell's notice, is based on the pattern of innovation that Christensen has observed in

other industries, mostly in hi-tech.[1] Substitution of new technology for old follows a familiar S-curve where adoption starts out slowly and then zooms vertically before leveling into a steady climb. The question he tries to answer is whether or not it is possible to predict the vertical takeoff when one is still on the initial flat portion of the curve.

To do that, he argues, one straightens out the curve by using a log scale and then plots the ratio of the new technology to the old. If the substitution of new for old follows a linear path, one can safely predict rapid substitution. Based on the history of on-line use—45,000 enrollments in 2000, 1-million by 2007—he concludes that teaching will soon flip from direct human instruction to computer mediated. It was possible for Christensen to predict the adoption pattern with other changes—the replacement of floppy disks and the decline in women wearing dresses in favor of pantsuits—and thus he and his colleagues maintain teaching will flip too.

Competing against Nothing

For this technological curve to work, however, the social and organizational process of disrupting the existing one has to take place. Where most attempts at school reform and past efforts at introducing computer technology into classrooms have been aimed squarely at changing behaviors in traditional classrooms, the authors maintain that truly disruptive change occurs when the new technology stakes out a use or a market that does not compete with the old one. The Apple 2e, they note, was seen largely as an educational toy for children and hobbyists, not as serious competition to mainframes or the extant generation of mini-computers, which were much more sophisticated machines. Existing firms did not rush to compete with Apple because there was no profit for them in doing so. Moreover, the new technology was markedly *worse* than existing state-of-the-art. Thus, the new technology was able to gain a foothold in a part of the market the big players considered irrelevant. This was the pattern with Kodak roll film cameras at the turn of the 20th Century, which were not nearly as sophisticated as the studio plate cameras of the day. It was also the case with advertising on Google, which was not

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[1] Malcolm Gladwell, *The Tipping Point: How Little Things Can Make A Big Difference* (Boston: Little, Brown & Co., 2000).

as effective at reaching advertisers as print newspapers, and so publishers largely ignored the Internet until it was too late.
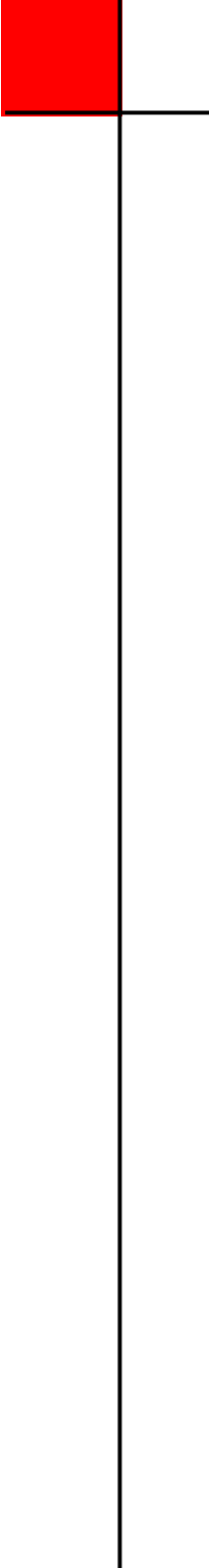
By engaging in "competing against non-competition," new technologies are able to take hold without directly challenging old ones. This is seen in education with the growth of computer courseware in the home school market, in early childhood education, tutoring, and in offering courses that would not otherwise be available. The growth is impressive. Enrollments in both public and privately offered Advanced Placement courses have skyrocketed. Apex Learning, a private company, had more than 30,000 enrollments in 2007. From a standing start a decade ago, more than 25 states now have virtual schools. Some, like Apex in Florida, have had very rapid growth. Since 2000, online courses or those that blend Internet and live instruction have multiplied 22 times.

A Prediction of Institutional Change

However, to consider *Disrupting Class* as a story of technological substitution is to miss the point. It is a prediction of institutional change. When considered in these terms, the authors' assertions are all the more breathtaking. The core assumption in their logic is that computer based learning will lead to a student centric technology that recognizes multiple intelligences and the vast variety of learning styles. For the first time, they argue, educators will have the capacity to respond to variation rather than to try to find a single best practice that works for a tolerable number of students.

Efforts to break down what the authors call "a monolithic batch mode system," have almost always failed. As the authors make clear, public schools in the United States have already spent $60-billion on computers and software, mostly by cramming them into existing modes of instruction. Schools divided by grade and progress according to seat time are normative parts of the "grammar of schooling," a phrase made famous by David Tyack and Larry Cuban.[2] It is not just that people have preferences about current practice; the institution of public education enshrines it in norms and formal rules.

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[2] David B. Tyack, "The Grammar of Schooling: Why Has It Been So Hard to Change?" *American Educational Research Journal* 31 (1994): 457-479.

Historically, efforts to build curriculum around multiple modes of learning—through project based learning, for example—or to decouple learning from a semester's seat time have been pushed to the periphery, criticized as flaky, and ultimately abandoned. Christensen and colleagues think that competing against non-competition will give computer-based learning the jumpstart it needs to reach a second stage of growth in which the core technology of instruction in regular public schools changes. And they just may be right.

I believe schools will embrace the diverse modes of teaching that technology offers because of the sea change in expectations that the standards movement represents. The Bell Curve of expectations is one of public education's deep structures. The Progressive Era design was for schools to be fitted to the needs of students with variations in instruction, and in particular in the length of time that pupils stayed in school. As Elwood Cubberly's 1916 text book makes clear, the system was built on the assumption of student exit beginning as early as grade three.[3] The expectation of high standards for all challenges this deep structure. The standards movement, now enshrined in the federal No Child Left Behind Act and scores of parallel state laws, recognizes the antiqueness of variable standard education. Whatever the manifold difficulties of NCLB, it is unlikely that the high standards for all expectation will be repealed. Similar time and variable outcome has been replaced by variable time and a common standard. Students who could have been ignored because their learning style was different than the norm, or different than the people who did well in school and thus went on to write curriculum, now are counted in the way schools are graded.

Even though it is possible to see momentum toward technology-based teaching, there are still huge institutional barriers, and the second half of *Disrupting Class* attempts to address them, but with only limited success. The authors recognize that most of what passes as school reform is disconnected from changing teaching and learning. In most school reform projects, either adult power and privilege are rearranged or the old institution's "one best system" practices are reintroduced and intensified with the belief that a set of best practices can be found that will meet the challenge of universal high standards.

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[3] Elwood P. Cubberly, *Public School Administration: A Statement of the Fundamental Principles Underlying the Organization and Administration of Public Education* (Boston: Houghton Mifflin, 1916).
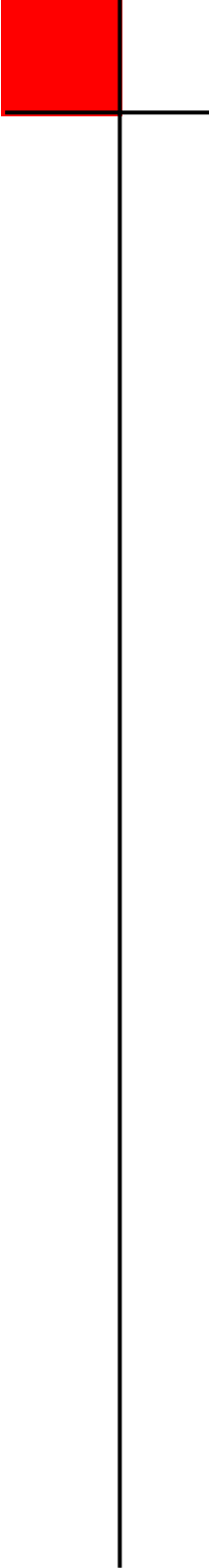
Innovation through *Separation*

Their solution to this locked down, hollowed out system is organizational *separation:* creating new organizations, designed differently for new processes of teaching and learning, specifically those involving computer technology. The only times industrial companies became the leader in a new wave of production was when they wielded the separation tool, the authors argue. "They established an independent business unit under the corporate umbrella and gave it unfettered freedom to pursue the disruptive opportunity with a unique business model." (p. 191)

In education reform terms, their prescription sounds like the "diverse provider model" founded by design in Philadelphia and through political incrementalism in Los Angeles.[4] In some quarters the words "diverse provider" are code for privatization and for bringing the market to bear in public schooling. In both cities, however, something more interesting is happening. In Philadelphia, then superintendent Paul Vallas made clear that the charter schools and those run in partnership arrangements were *its* schools, part of the system as much as those run by school district employees.[5] In Los Angeles, more than 130 charter schools, 150 magnet schools, and two nascent charter districts can be found within the geographic catchment of the Los Angeles Unified School District. The District has yet to claim all the diverse providers as its own, but political pressures—mostly from

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[4] Charles Taylor Kerchner, David Menefee-Libey, Laura Steen Mulfinger and Stephanie Clayton, *Learning from L.A.: Institutional Change in American Public Education* (Cambridge, MA: Harvard Education Press) 2008; and William Lowe Boyd, Charles Taylor Kerchner, and Mark Blyth (eds.) *The Transformation of Great American School Districts: How Big Cities are Reshaping Public Education* (Cambridge, MA: Harvard Education Press, 2008). Based on case studies in five cities and a four-year study of reform attempts in Los Angeles, my co-authors and I concluded that the institution bequeathed us by the Progressive Era reformers has become a shell of its former self. In cities across the country, school districts are auditioning new forms of governance and organization that challenge the four keystones of 20th Century Progressivism.

[5] Eva Gold et al., "Blurring the Boundaries: Private Sector Involvement in Philadelphia Public Schools," (Philadelphia, PA: Research for Action, 2005).

the bottom up—are causing innovation on the fly, including turning one of the city's most troubled high schools over to a charter management organization run by a former community organizer and Democratic Party activist.[6]

In both these cities, separation illustrates the problems extrapolating from change in high technology industries to public education. The organizational learning disability that *Disrupting Class* ascribes to older successful technology firms (p.200) applies to the *whole institution of public education, not just to individual schools or districts.* Thus, teaching and learning in the "separated" charter schools usually looks very much like that in conventional public schools. As Don Shalvey, who left a public school superintendency to form Aspire charter schools, is fond of saying, they "do ordinary things extraordinarily well." In Philadelphia, instead of the head-to-head competition envisaged by advocates of market competition, the different sectors of schooling have started to collude and collaborate around elements of what is essentially the old production model. Clearly, something more than simple separation is necessary.

Institutional Infrastructure

I believe the *something more* is a new institutional infrastructure. Among the things we learned from studying Los Angeles is that the nascent network form of public education lacks the capacity to grow. The massive reform efforts of the 1990s lacked both a scorecard and a real time means that teachers could use to see if their efforts were paying off. Schools also lacked the capacity to create curriculum, assessments, and pedagogy all by themselves. And—more to the points made by Christensen and colleagues—there was no effective way that they could work with teachers and principals across town. If anything, the reforms illustrated how cumbersome and time consuming collaboration can be.

There are some surviving counterexamples that prove the point. Humanitas, an interdisciplinary humanities project founded in the 1980s still operates. It predated the large reforms, and it was from the start a network of teachers rather than part of the school district

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[6] Charles Taylor Kerchner et al., *Learning from L.A.: Institutional Change in American Education* (Cambridge, MA: Harvard Education Press, 2008).

hierarchy. It remains an intellectual producers cooperative that consciously sought not to be adopted as an official curriculum.

Thus, if the *Disrupting Class* model is to reach its second state of creating learner centered education instead of industrial batch processing, the design of public education has to change and that means that capacity has to be systematically built as well as existing institutional rigidities removed. Christensen likens public education to Microsoft and its proprietary operating system software and the disrupting technology to Linux, the more sophisticated open source operating system that is improved and revised weekly by thousands of contributors from all over the world. Linux may be cool, but 90 percent of personal computers still run Windows, just as nearly all schools follow the institution's methods of teaching and learning.

Still, there are signs of cracks in the monolithic curriculum design system in which a handful of states and even fewer publishers control both the textbooks and the underlying pedagogy, a centralization that makes a mockery of the historic belief that education is in the United States is controlled locally. Some school districts, in despair of escaping NCLB naming and shaming, are questioning their devotion to centralized curriculum mandates. Students and teachers complain about six-pound textbooks that don't have corresponding intellectual weight. Teachers, and their unions, are in revolt. There are already efforts at open-sourcing, notably those sponsored by the Hewlett Foundation.

A Old Modular Design

Disrupting Class urges that education be designed in a modular way so that many hands and minds can work on improving the bits and that they will still work together, and that this will lead us forward to learner centered education. But what *Disrupting Class* misses is that for 100 years public education has been designed around a modular concept, and that the modular concept itself has become perverse, outdated and organizationally monolithic. Public education is designed around modules called courses, and particularly in secondary schools these are independent parts whose design was explicitly Fordist, based on industrial design principals of the early 20th Century. Underneath the courses are lessons, and teachers throughout America know how to teach them in some combination of enactment, modification, and subversion of the official lesson plans. Lessons and courses aggregate to promotion and to counting up

toward graduation using Carnegie Units, perhaps the most universal and enduring artifact of the old institution.

For *Disrupting Class* to work, the existing module system has to be broken apart and reconstructed. Given the technological infrastructure, teachers can collaborate in creating and modifying existing course and lesson modules. Teacher networks throughout the country already are doing this. But if school districts and students are to have an incentive to change, the relationship between the number of hours a student must spend being instructed and the learning they are credited for needs to change. Students need to be able to learn at their own pace, and many of them need to be able to finish faster. Course or module completion needs to be decoupled from calendar and subjected to independent evaluation, which, of course, the technologies that *Disrupting Class* predicts will make more practical.

College and university admissions and placement in classes—a system rigidity of the first order—will have to accept new ways of progressing through school and the results certified by the technologically based teaching and so will the agencies that accredit high schools based on existing teaching norms.

Changing the Politics

None of these changes will be possible without changes in the politics of education. As much as Christensen might wish for a power strategy that would allow individual school district leaders to blast through opposition and institute technologically enabled learner centered schooling, recent history suggests that is unlikely. New York, Chicago, Philadelphia, and New Orleans represent the leading cases of state and local political leverage over the old education establishment.[7] None of these coalitions has survived a regime change in the sponsoring political coalition. Philadelphians are restive with the non-elected control board. New Yorkers await Michael Bloomberg's departure and actively resist his interest in a third term. Meanwhile, the landscape of urban districts is littered with the failures

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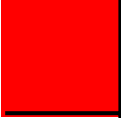[7] Charles Taylor Kerchner et al., *Learning from L.A.*

of other carry-a-big-stick regimes and efforts to build unitary "big tent" coalitions.

There's no getting around the fact that education is chock full of interest groups. That's one reason that separation is such a popular strategy and that charter schools continue to draw support, whether or not they work much better than the conventional public schools they seek to supplant. But in the end, there is no getting around the need to restructure politics by changing how and over what interests operate.

The best place to start is by activating the interests of students and their families directly. Much of educational politics constitutes a proxy battle over who legitimately represents the interests of students, and many of these battles would be subordinated if students were to increasingly speak for themselves as they grew older. Both direct incentives for students and student based finances would help bring about the learner centered education that Christensen and colleagues advocate. Students who had an incentive to study hard and engage challenging material would be more likely to do so.

Then, the political system needs to engage the interests of teachers, who in most districts are unionized. Unless a new labor-management relationship can be found, Christensen's new era will be seen as yet another example of technological displacement of workers, and it will be opposed as trivializing teaching. In fact, there are the seeds of increasing the craft and artistic qualities of teaching in *Disrupting Class* that would make teaching more interesting and exciting. But, unless but teachers and their unions are engaged in the redesign process, they are unlikely to see beyond the threats to their existing jobs.

The technological future is likely to change the nature and duration of jobs in education. Historically, teaching has been a flat occupation, largely undifferentiated except by grade level and subject matter specialization. The world of *Disrupting Class* will open the possibility of teachers as curriculum developers, of teachers serving students at a distance, or at least at several schools. It will usher in a more fluid employment pattern that is seen already in other industries. To accommodate this, the political system in education will need to

decouple social security from security in a single job or position and with a single school district.   Practically, this invites portable pension and benefit schemes instead of the existing district-based ones.[8]

Finally, policy entrepreneurs need to sell the potential productivity gains in public education by decoupling certification of learning from seat time. Only if a quality and quantity case can be made are legislatures likely to invest in the technological infrastructure and access necessary to move beyond the first stage when technology is adopted at the periphery of public schooling.

Disrupting Class is an important book, but it's not really about technology.   It's a book about institutional change, and it needs to be read as such.

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[8] Charles Kerchner, Julia Koppich, and Joseph Weeres, *United Mind Workers* (San Francisco: Jossey-Bass, 1997).