

# Theory of Disruption Applied to K-12 Doesn't Compute

A REVIEW OF *DISRUPTING CLASS: HOW DISRUPTIVE INNOVATION WILL CHANGE THE WAY THE WORLD LEARNS*

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In Christensen and colleagues' vision of education, students learn from individualized computer instruction based on individual learning styles. The teacher provides coaching and technical support. A computer program provides instruction. Students, on their computers, are tested on what they already know, then complete the lessons to master the content, measured by a standardized test.

*Disrupting Class* uses the nature of delivery model used by some U.S. virtual schools, along with the growth of K-12 online learning in general, to illustrate how the theory of disruption already occurs in K-12 education, and will become the dominant form of delivery in the next decade. The authors believe this change will happen because K-12 education is a dynamic organization that reacts to change in systematic and substantial ways. There are problems with this vision, from the kind of knowledge the educational delivery model privileges (i.e., lower level facts and figures as opposed to higher order thinking skills) to the underlying assumptions this vision of instruction is based on. Let's examine two of these assumptions.

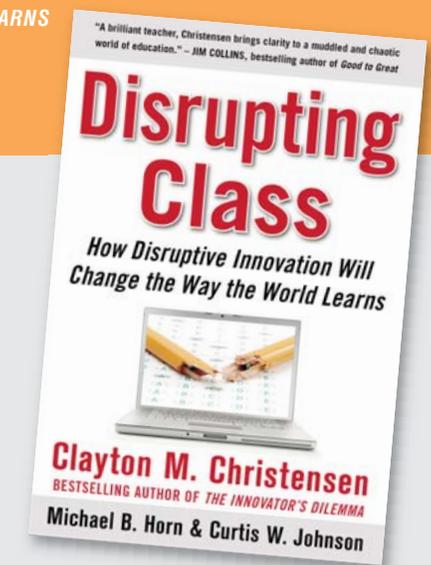
*Disrupting Class* maintains education is dynamic and has undergone dramatic changes over the past two centuries. Here are some of those changes, summarized by Todd Oppenheimer in *Atlantic Monthly*:<sup>1</sup>

In 1922 Thomas Edison predicted that "the motion picture is destined to revolutionize our educational system and ... in a few years it will supplant largely, if not entirely, the use of textbooks." Twenty-three years later, in 1945, William Levenson, the director of the Cleveland public schools' radio station, claimed that "the time may come when a portable radio receiver will be as common in the classroom as is the blackboard." Forty years after that the noted psychologist B.F. Skinner, referring to the first days of his "teaching machines," in the late 1950s and early 1960s, wrote, "I was soon saying that, with the help of teaching machines and programmed instruction, students could learn twice as much in the same time and with the same effort as in a standard classroom."

Ten years after Skinner's recollections were published, President Bill Clinton campaigned for "a bridge to the twenty-first century ... where computers are as much a part of the classroom as blackboards." (Oppenheimer, 1997, p. 45)

Today Oppenheimer could add, "In 2008, Christensen, Horn, and Johnson wrote that disruptive technology would change the way the world learns" to his list of failed promises offered by technology. In the list, Oppenheimer included Skinner's teaching machine which was designed to test students on what they knew, provide instruction in the areas they tested poorly, and then re-test them to see if they achieved mastery. Essentially, the vision of the future of education presented by Christensen and his colleagues is that computers have become the Skinnerian boxes of the 21<sup>st</sup> century, and the only difference is that the instruction is customized to the individual students' learning style.

This second assumption of basing instruction on students' individual learning styles is problematic. Learning styles (including multiple intelligences), and the research it is based upon, is flawed because it is not reliable or valid.<sup>2</sup> If you were to test students on their individual learning style on Monday and test them again under the same conditions a day or a week later it would not yield the same result. The reliability of the data refers to the ability to reproduce the same or similar results under the same conditions. If learning styles tests were reliable they would produce similar results. The validity of the data refers to the degree to which the test actually measures what it was designed to measure. If learning styles tests were measuring the students' actual learning style the results would not change from one administration of the test to the next. The main reason for these methodological problems is that learning style tests are a collection of statements that students respond to based on their own perception of how they feel and what they enjoy. And these self-report instruments are generally poor data collection methods.<sup>3</sup>



Beyond these two issues, K-12 education does not react in the same manner as the private sector that Christensen, Horn and Johnson are much more familiar with. Instead of reading *Disrupting Class*, first read the review of the book presented in Zucker (2008).<sup>4</sup> If you still wish to pick up *Disrupting Class* at least it will be viewed with a more critical eye. |

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## Notes

- 1 Oppenheimer, T. (1997). The computer delusion. *The Atlantic Monthly*. 80(1), 45-62. Retrieved September 25, 2009 from <http://www.theatlantic.com/issues/97jul/computer.htm>
- 2 Coffield, F., Moseley, D., Hall, E., & Ecclestone, K. (2004). *Learning styles and pedagogy in post-16 learning: A systematic and critical review*. London: Learning and Skills Research Centre. Retrieved February 2, 2006, from <http://www.lsda.org.uk/files/pdf/1543.pdf>
- 3 Barber, L. (1990). Self-assessment. In J. Milman & L. Darling-Hammond (Eds.), *The new handbook of teacher evaluation: Assessing elementary and secondary school teachers* (pp. 216-228). Newbury Park, CA: Sage.
- 4 Zucker, A. (2008). *Lost in cyberspace: A review of Disrupting Class*. Concord, MA: The Concord Consortium. Retrieved February 2, 2009 from [http://www.concord.org/publications/detail/2008\\_DisruptingClass\\_WhitePaper.pdf](http://www.concord.org/publications/detail/2008_DisruptingClass_WhitePaper.pdf)