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Deconstructing the Oracle ─ A Review of Disrupting Class[1]

The principle thesis of "Disrupting Class" is that the rise of e-learning changes education in much the same manner as the Apple computer did for mini/main frames in the business and home pc market we have today. Actually, the model being used in the book is supposed to follow Christensen's early writings on innovation and disruption in the business sector[2]. But, while his earlier writing, maps post secondary education into his model[3], this book focuses on the K-12 educational arena.

Christensen defines two methods for the entrance of a disruptive technology. Type 1 enters the market by meeting the needs of an under or non-served population. Type 2 enters the market place by providing a lower cost alternative which, initially, might prove to be an inferior but acceptable product or service. Because K-12 is compulsory, the marketplace is distorted. The K-12 market has a host of political pressures, such as teachers' unions and a variety of private pressure groups, and thus the system is highly constrained. Even so, there are currently a variety of options to the traditional public school system ranging from home-schools and charters to virtual courses within schools or packaged as entire programs.

Post secondary institutions are feeling fiscal pressure, while, the primary/secondary institutions have multiple problems ranging from finances to a high percentage of students failing to meet academic expectations. Additionally, there are external pressures as private/for-profit institutions are starting to compete by opening both brick-based and "click", or virtual campuses. Thus there seems to be other motivations, not really stated clearly, as to why Christensen felt compelled to try to fit the K-12 system into his innovation/disruption model, even if the focus is on the rise of e-courses and e- schools.

Education has always had competition between the public and private sectors, both non- and for-profit institutions. The expansion of all sectors into e-learning, different from traditional distance education, represents the equivalent of competitive enterprises entering new or expanding old markets. Some have seen the current e-learning technologies as being disruptive, causing a change by allowing the entrance of new competition, such as the emerging virtual universities. But careful examination shows that all parties are aware of, and have equal access to, the same technologies and like other enterprises, have chosen to selectively develop different markets

[1] Christensen, Clayton M., et. al., *Disrupting Class*, McGraw-Hill, New York, 2008.

[2] C.M. Christensen, *The Innovator's Dilemma*, Harvard Business School Press, Boston 1997.; C.M. Christensen, M. Raynor, The Innovator's Solution, Harvard Business School Press, Boston 2003.; C.M. Christensen, E.A. Roth, S.D. Anthony, *Seeing What's Next*, Harvard Business School Press, Boston 2004 .

[3] C.M. Christensen, et. al., *Disrupting Education*, in M. Devilin. et. al., *The Forum on The Internet & the University*, Educause, Boulder Colorado 2001.

using the same vehicles and methodologies. Competitive advantages include price, curriculum, schedules and similar traditional vehicles for institutional differentiation.

Since educational institutions at the post secondary level, equally, have access to similar facilities, be they a physical environment (the traditional campus) or the virtual environment (hardware and software), they can choose how they wish to compete. The balance between campus types becomes one of choice, such as whether to add apartments instead of dormitories, or to rebuild the sports complex on campus. Thus the idea that the introduction of e-learning as being disruptive to education seems to be a mis-direction as the technology competes more with the construction industry for a share of the education marketplace. Can the institution leverage faculty costs by hiring remotely or sharing faculty with institutions around the world? Can the campus reduce capital and concomitant overhead by offering virtual classes rather than building a new facility? Or, can an institution compete internationally without having to open physical campuses in other communities or countries?

Even at the primary and secondary institutions, the issue seems to be similar but has been reframed as an educational issue much as the airline pilot unions exhibited concerns about safety with the removal of a flight engineer from the cockpit of modern aircraft, or the railroad unions objected to the removal of the caboose and brakeman from freight trains as roller bearings and other safety features rendered the job obsolete. Unlike many disruptive technologies which lead to new competition, e-learning in its current embodiment of mapping bricks into clicks represents transformation within the existing educational system regardless of provider.

Clayton Christensen has written extensively about disruptive enterprises within the private sector and has developed his model which maps how these innovations have entered established markets, often becoming contributing factors in the demise of major, established, players. Disrupting Class is an effort to map the primary/secondary education system in the United States into his model. It is also his first effort to be undertaken with co-authors who are involved in both speculating about and advocating for change in the education system. Christensen and colleagues identify the introduction of computers into education as the innovative change, a technology which is believed to be one which will follow his disruptive model and establish a dominant or dominating presence in education's future.

The core of the book's argument rests on the standard sigmoid adoption curve which the authors re-plot on a log of the ratio of converted courses/standard courses versus time to determine that in about a decade about 50% of all courses will be taught virtually in the K-12 school systems. While the authors carefully make the argument as to why virtual conversion is compelling in order to reform the educational system, they fail to convince that this transformation will occur within that time frame, that it is disruptive and/or transformative. This does not say that individuals are not convinced of the merit of on-line learning, or that there will be growth in the education marketplace. Rather the arguments put forth in Christensen's earlier works which look at the business sector do not seem to map into the educational arena as the book attempts to present the scenario.

Part of this concern rests on the definition of "disruptive" which has within its definition a time-sensitive sensibility. To a Mayfly a decade may be an infinitely long time whereas to a

Galapagos tortoise, such a period is but an eye blink. The book, while suggesting some of the benefits for conversion, stayed at the meta-level, choosing to define how such conversions would cause transformational changes, and drive the change. There is no clear and compelling model which would back the naive prediction based on a linear, continuous change from brick to click based education.

Christensen, in this and earlier works, suggests that these disruptive technologies address a market with unmet needs at a price/performance point that comes under the current, dominant market in price. In education, with its great concern for cost, there is a reach for any cost cutting opportunity, including e-learning, where e-delivery, today, is basically a mapping of bricks into clicks and thus competes with current infrastructure rather than with the concept of a competitive educational model. As suggested, above, K-12 has not been averse to adopting technology provided it offered a pedagogical advantage. Thus e-learning competes with alternative delivery systems from textbooks to classrooms and faces barriers couched in educational terms only when it affects the current economic structure such as teacher job security.

Many in the education field see e-learning as another tool which complements current models; and the technology itself is seen as an alternative to computer delivered systems such as power point, word processing and didactic material delivery much as overheads, e-books, white boards, video cameras and two way audio/video delivery such as closed circuit TV. They do see that it has advantages and problems.

If Christensen and colleagues had gotten down to the ground level to better define the disruptive computer-based technology, they might have skipped over the dominant brick-to-click systems such as Blackboard or Adobe Connect and similar systems and gone straight to the emerging domain of virtual worlds. Like the Apple computer that Christensen has pointed out in many of his writings, the early example of these worlds has been in the game and entertainment arena as we have seen in the Massive Multiplayer On-line Games (MMORPG) such as World of Warcraft with its millions of global players. From this genre has arisen the user created environments such as Kids/Tweens (KT) worlds, e.g. Whyville, Club Penguin and Habbo Hotel or both the adult and teen worlds exemplified by Second Life (SL). Current estimates are that registered users of virtual worlds, internationally, are about 300 million with about 10% as active users.

The modern internet is only about 15 years old and virtual worlds only about 7 years in age. Steve Prentice, fellow of the Garner Group, estimates that 80% of active Internet users will be in non-gaming virtual worlds. . .by the end of 2011[4]. This seems to imply that as more people become internet users, more will become part of the application defined as virtual worlds, probably the specific "disruptive" e-technology. Since education is a lagging indicator, it will follow close behind. As suggested above, this seems to imply that the competitive disruption lies more with the providers of space and place, the construction industry which has provided, from the beginning, the evolving "little red school house".

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[4] A. Gronstedt, Be First in Second Life, "e>training", September 2008, page 29

The disruption is the virtual world, not just the internet and not just in education. Already several social scientists have issued major studies of the cultures emerging in these worlds. This includes economists and anthropologists of various specialties[5].

Dizzywood, a KT social networking world of about 500,000 registered users, recently teamed with a public school as a demonstration that cyber-space activities, including simple e-mails, have consequences in the "outer world". Already these virtual worlds have created cultures so that travel between all worlds, including this "outer world" and multiple virtual worlds is more like traveling between countries with their own customs. What happens to education when life-styles and habits learned in cyber space, including collaborative learning and sharing start to appear as disruptive in traditional classroom settings?

Virtual worlds, unlike the "disruption" postulated in Christensen's model, where bricks map to clicks, become the true disruption as cultures come in conflict much like the models described in Christensen's earlier work. As was pointed out above, the transition postulated by Christensen is based on a pseudo-trend. And, as suggested, the virtual worlds have caused what is labeled in complexity theory as a bifurcation, or what Christensen labels a disruption. This implies that the authors need to take a second look at the entire domain of e-education in light of virtual worlds designed exclusively for education but founded on the early game-based virtual worlds.

Disrupting Class selectively sets forth the standard litany of problems in the K-12 system but recasts them in a manner to show that e-learning, particularly when asynchronous, could accommodate students, as individuals rather than age-defined cohorts, allowing more opportunity for personalized learning- home schooling on steroids. Unfortunately the current models for e-learning whether synchronous or asynchronous are still treated by Christensen as class-based. This is clearly seen when one recognizes that the projected rate of adoption is measured using the ratio of classes converted to conventional classes. The entire "disruption" idea is modeled in a non-disruptive manner either through technology conversion or introduction of competitors into the current education system. "Virtual Schools" are not seen as the emergent "Virtual Worlds" but rather as packaged "click space" courses or courses delivered electronically instead of presented synchronously in a traditional classroom. Florida Virtual, K12.com, Advanced Academics and others provide packaged courses or, even 24X7 on-line tutoring which fit within the traditional academic pattern.

The rise of true virtual worlds with their emergent cultures that impact the traditional schools by their very presence and the fact that students do not leave their avatars when they travel back to the physical world represents the disruptive technology which awaits the second edition and rewrite of this volume. But then Christensen, coming from a business school, need also include the impact of these worlds on the larger economy and culture, globally including the expanding arena of corporate education and, in particular, corporate universities. This is a major shift that breaks the barrier between education and the enterprise/cultural worlds outside of the protected boundaries of the education system, K to 20.

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[5] T. Boellstorff, *Coming of Age in Second Life*, Princeton University Press, Princeton 2008.; Gronstedt, ibidem; E. Castronova, *Synthetic Worlds*, University of Chicago Press, Chicago 2006.

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