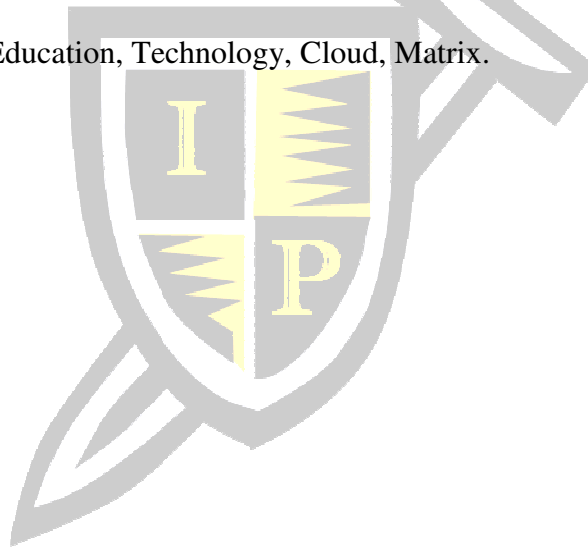# The digital future of education - the Cloud or the Matrix?

Ronald Saltinski
National University

ABSTRACT

Across the next 10 to 15 years, education, especially instructional pedagogies, and curriculum design, will be deeply impacted, as will all global society, by emerging technology. The most intense component of this emerging technology will be the cloud. An evolving and self-sustaining digital entity, the cloud provides a ubiquitous access to resources and relationships via the Internet that will change the nature of education and the role of educators. Technology will become more and more decentralized - the global network of information will be in the cloud profoundly affecting the way people learn, think, work, collaborate, and maintain a sense of wellbeing. That is the bright side. The cloud will hold information about everyone, their day-to-day activities, their thoughts, attitudes, and given the power for surveillance and analysis, even their future conduct can be foretold. That is the dark side -The Matrix.

Keywords: Future, Education, Technology, Cloud, Matrix.

INTRODUCTION

The digital future of education has been highlighted in recent years by the "infiltration" of "emerging" digital technology into the classroom (Cathy N. Davidson and David Theo Goldberg). It has been over thirty years since the first Apple II's showed up in classrooms and yet, despite the appearance of continuously advanced computer technology in schools, there is still no unified integration of that technology into the educational "system." For present-day education, technology is simply an "add-on" to the old way of doing business – the factory system of "cranking out" students by virtue of grade and age to a point where they either drop out, go to college, or go into the void of American society.

The time to integrate computer technology into the education system has passed and the time has come for the education system to be integrated into computer technology. Today and continuing into the far future the digital cloud will be the pathway to new horizons in education. The cloud is an evolving, self-sustaining, ubiquitous digital entity that will become as necessary to human survival as water, food, and shelter (Horizon Report, 2011). All things will exist in the cloud and all that humans will need to tap or even virtually live in the cloud will be a portal - any digital devise that allows access to the cloud via the Internet.

In a report from Envision Technologies, *Envisioning the Future of Technologies in Education*, a thirty-year timeline projection provides a "concise overview of technologies that have the potential to disrupt and improve teaching on all levels." The old model of education can be dispensed with and replaced by a cloud–driven system of education characterized by new, unique, and imaginative strategies for the future of learning, A new generation of educators is required that is capable of interweaving the neuro-sciences with cyber-technologies into a radically new cloud-based education system. Jenny M. Lane in an essay, "Developing The Vision: Preparing Teachers To Deliver A Digital World-Class Education System" argues that "we must first develop educational leaders by inspiring future teachers with a vision and by designing our teacher-education courses as technology-rich-learning-spaces." That crusade is the present and future mission of academic institutions – colleges and universities (7).

The traditional education system will "not go quietly into the night." The New Medium Consortium (NMC) *2012 Horizon Report* states "Institutional barriers present formidable challenges to moving forward in a constructive way with emerging technologies" (12). In the recent National School Boards Association study, it was concluded in part "that schools are, for the most part, limiting, rather than facilitating, students' use of the Internet." In the film, *The Matrix*, Morpheus tells Neo (paraphrasing) "You have to understand most of these people (educators) are not ready to be unplugged. And many of them are so inert, so hopelessly dependent on the system that they will fight to protect it."

FUTURE EDUCATION

One aspect of the traditional education system that must change is the nature and nurturing of the classroom teacher. For the time being traditional classroom teachers will be needed to meet the educational needs of an increasing student population and the

attrition of veteran classroom teachers. In the near future a new kind of teacher will be required to meet the demand of a technologically informed student. That new kind of teacher must be capable of managing learning not delivering learning. That kind of teacher must work with students to guide, not direct, their path to critical thinking via the cloud. Others would argue the final day of the teacher in the traditional sense is passing. There may well be no need for teachers at all in the future. David Gelernter, a Yale University researcher foresees a time in the near future when students will attend a neighborhood technology-based school site where students of grades 6-12 can assemble and call upon assistance from a new generation of educational mentors, not teachers. For Gelernter the challenges are the hardware, affordable and portable, like the iPad, and revolutionary software developments in curriculum packaging for online learning.

What is the benefit of the cloud for the future of education? First, the cloud will insure that that the present model of a "factory" style education system will gradually disappear. The assurance comes from the reality that the tools of traditional education – school buildings, classrooms, teachers, textbooks, administrators, etc., will not be necessary for people to be "educated." In the near future people will carry access to a classroom via their iPad for example anywhere in the world. Online teachers, real and virtual, will conduct classes. Digital textbooks, fiction, and nonfiction books, journals, and tutorial media like PowerPoint lectures will be will be available from *the cloud*. In addition, audio lectures, asynchronous and synchronous (audio and visual), pod casts, and an assortment of social media activities (casual and academic), blogs and chats, as well as immense storage capabilities for conversations, documents, images, and video. There will be access to mathematical, scientific, and social tools for analysis and model building. Most important, the cloud will have endless opportunities for people of all ages to personalize their learning individually and collaboratively.

One vision for the future digital world of learning is the Personalized Learning Environment (PLE). Graham Attwell views Personal Learning Environments in the context of ongoing lifelong learning that taps the cloud for the learning tools and resources to support that recognizes the role of the individual in organizing his or her own learning. "Moreover, the pressures for a PLE are based on the idea that learning will take place in different contexts and situations and will not be provided by a single learning provider. Linked to this is an increasing recognition of the importance of informal learning. For Attwell, the idea of the "PLE purports to include and bring together all learning (especially different learning styles), including informal learning, workplace learning, learning from the home, learning driven by problem solving and learning motivated by personal interest as well as learning through engagement in formal educational programs." The Horizon Report recognizes as well that the promise of PLEs is that they would "give students significant control over their education. The role of the teacher is seen primarily as a guide, helping students develop their lesson plans and tools" (30).

CONCLUSION

Given the bright outlook for education and learning via the cloud there is a potential dark side. *The cloud* has made the world "an open book" and governments (and other "parties") are very interested in that "book. John Villasenor in a study for the

Center for Technology Innovation at Brookings found that "For the first time ever, it will become technologically and financially feasible for governments to record nearly everything that is said or done within *the cloud* - every phone conversation, email, social media interaction, every click of the mouse, and the movements of nearly every person or object" (12). The "open book" provides a potent opportunity for controlling and manipulating the learning activities of all people. The cloud as a vast reservoir of learning opportunities could become a "world without boarders" envisioned by Neo in the film *The Matrix* or the cloud could become a "prison for your mind," a revelation made to Neo by Morpheus in *The Matrix*.

REFERENCES

Attwell, Graham. "Personal Learning Environments - The Future of eLearning?" *eLearning Papers.* 2, 1. January 2007.

Davidson, Cathy N. and Goldberg, David Theo. *The Future of Learning Institutions in a Digital Age*. Massachusetts Institute of Technology Press. 2009.

Envision Technologies: Envisioning *the Future of Technologies in Education* Retrieved from http://envisioningtech.com/education/

Gelernter, David. "We Don't Need Teachers." *The Wall Street Journal*. August 8, 2012.

Lane, Jenny M. "Developing The Vision: Preparing Teachers To Deliver A Digital World-Class Education System." *Australian Journal of Teacher Education*. 37, 4. April 2012. 59

National School Boards Association, "Creating & Connecting: Research and Guidelines on Online Social--and Educational--Networking,"

New Media Consortium. *The 2011 Horizon Report K-12*. Retrieved from http://www.nmc.org/pdf/2011-Horizon-Report-K12.pdf

Sandford, R and Facer, K. "The next 25 years? Future Scenarios and Future Directions for Education and Technology." *The Journal of Computer Assisted Learning*. February 2010. 26, 1. 74-93.

Villasenor, John. "Recording Everything: Digital Storage as an Enabler of Authoritarian Governments." *Center for Technology Innovation at Brookings*. 2011. Retrieved from fromhttp://www.Brookings.edu/papers/2011/1214 _digital_storage_villasenor.aspx

Wachowski, Andy and Wachowski, Larry (Lana). *The Matrix*. Warner Brothers. 1999.