

## Notes on 21<sup>st</sup> Century Learning

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*We must transform all formal institutions of learning... to insure that we are preparing students for their future, not for our past.*

David Thornburg<sup>i</sup>

The evidence of widespread change is all around us — from the influence of the Internet, to the global economic structure, to the astounding pace of technology development and information exchange. Education has responded to these changes in many ways: Raising standards, implementing high-stakes tests, adding computers to classrooms, providing professional development for educators, even offering online learning and other alternatives to traditional schools. We urge our educators to work harder. We expect more from students.

Sadly, these efforts fall short.

Too many young people are left out or left behind. At least 30 percent of Colorado's youth drop out before earning a high school diploma. Minority students bear the brunt of these dismal graduation facts. In 2004, only 56 percent of black students and 44 percent of Hispanics in Colorado graduated.<sup>ii</sup>

For those who succeed in school, too many are ill prepared for the challenges ahead. Americans are losing ground on international measures of academic excellence and workforce competitiveness. Employers and citizens agree that today's graduates lack the skills and content currently in demand.<sup>iii, iv</sup>

In truth, we cannot respond effectively to the sweeping changes of our times by patching and tweaking our grandparents' education system. We need a comprehensive plan to bring education into the 21<sup>st</sup> century.

**We need to define what it means to be well educated today, while looking forward, not in the rear view mirror.**

### A Metaphor

Will this car carry our children and their children along the information highway?

Our educational system, like the Ford Model T automobile, was designed for the Industrial Age. We have retrofitted this classic vehicle many times. It seemed to work for our grandparents, our parents, even for us, although not as well as we like to remember — and not well at all for many. We work hard and pay a high price to keep this increasingly antiquated machine working. And, though the Model T still chugs along, it can no longer take all its passengers, today's students, where they need to go.



We need to define what it means to be well educated today, while looking forward, not in the rear view mirror. We need a common understanding of literacy that goes beyond knowing numbers and letters. We need a cohesive, comprehensive vision for education that is aligned with the realities of life and work in the 21st century.

Now that we find ourselves solidly in the Digital Age, it is time upgrade the education machine to a model based on principles rooted in 21<sup>st</sup> century understanding of how the world — and the mind — works.

## Principles for 21<sup>st</sup> Century Learning

An education vision for the 21st century must embrace teaching and learning practices that help everyone prepare for a lifetime of active learning in a global, high-tech, information-rich society. As such, each of us must:

- Display a desire and capacity for learning anytime, anywhere;
- Achieve proficiency in learning and life skills, such as those identified by 2007 Navigator conference participants (see Vision Statement on page 4); and
- Cultivate the capacity to respond to rapid change.

The transformation to 21<sup>st</sup> century learning requires rethinking what students learn, how they learn it, and the learning environment itself. This means providing **curricula** that help students acquire skills and knowledge that will enable them to thrive in the 21st century; **instructional strategies** that include powerful experiences through which learners construct knowledge; and **learning communities** that involve learners both as individuals and collaborators. Each of these areas is discussed in more detail in the following sections.



## 21<sup>st</sup> Century Curricula

In addition to core subject knowledge, 21<sup>st</sup> century curricula attend to how people learn and get things done. Traditional education focuses on the recall of facts and concepts. A nationwide sampling of education standards found that roughly 80 percent of core content standards target factual and conceptual knowledge rather than skills or procedural knowledge.<sup>v</sup>

The Commission on the Skills of the American Workforce notes that state assessments do little to measure the qualities that “may spell the difference between success and failure for the students who will grow up to be the workers of 21<sup>st</sup> century America.” Such qualities include **creativity and innovation**, and facility with the **use of ideas and abstractions**. Also important are **self-discipline** and **organization**, ability to **manage and complete projects**, and the ability **work well in teams**.<sup>vi</sup>

Cultivation of these qualities is left to chance in the current education system. If they are taught, mastery of these skills does not “count” or get measured in any formal sense. States need to adopt standards aimed at mastery of essential skills, habits, and processes.

A growing body of research and practice points the way to teaching and assessing essential skills for the 21<sup>st</sup> century. For example, the literature on effort-based learning and learnable intelligence offers tremendous insight into the growth mind-set, in which students learn to embrace challenges and persist in the face of setbacks, resulting in higher levels of student achievement.<sup>vii, viii</sup> Another beacon is the CES Network of schools, which holds as its first principle “learning to use one’s mind well” and calls on teachers “to provoke students to learn how to learn, and thus to teach themselves.”<sup>ix</sup> In this model, engaging students in authentic, in-depth learning experiences and coaching them to master content replaces covering broad content areas superficially.<sup>x</sup>

## 21<sup>st</sup> Century Instructional Strategies

Research on how people learn demonstrates that the learner needs meaning and context — tangible connections between the learning task or goal and the learner’s existing patterns of experience or knowledge.<sup>xi</sup> These connections occur when learning is embedded in circumstances or purposes that feel *intrinsically* important to each learner. Strategies for meaningful learning experiences include:

- Providing a structured inquiry process in which students construct new knowledge through the exploration of ideas, information, and phenomena;
- Emphasizing “real” work that has explicit and direct meaning for the learner (through contexts or purposes that feel personally important);
- Using digital tools and media to empower each person’s learning by supporting knowledge production, providing authentic audiences, linking multiple communities, and facilitating equity;
- Incorporating assessments that authentically report on what students know and can do, and which are used primarily to guide instructional and learning decisions rather than to evaluate learners.

Examples of such learning strategies include both recent innovations (e.g., Journey North<sup>xii</sup>, and Urban Plan<sup>xiii</sup>, and Fremont Business Academy<sup>xiv</sup>) and longstanding practices (e.g., school plays, newspapers, and athletics). We know how to create powerful learning; we just need to align it with skills-focused curricula and implement it within 21<sup>st</sup> century learning communities.

## 21<sup>st</sup> Century Learning Communities

*“[T]o think about creating sustainable learning communities... understand the creative dynamics and flexible organization of one of life’s natural learning communities — an ecosystem.”*  
Stephanie Pace Marshall<sup>xv</sup>

Perhaps the most challenging and essential element of educational transformation relates to organizational culture: thinking of schools as learning communities. The deeply embedded Industrial Age culture of schooling relies on hierarchical authority, teachers producing knowledge that students consume, and rigidly maintained patterns and structures. “Built on the factory model,” observes Alvin Toffler, schools provide “a ‘covert curriculum’ ...of three courses: one in punctuality, one in obedience, and one in rote, repetitive work.”<sup>xvi</sup>

In marked contrast, learning communities are dynamic living systems identified by the premise that *all* members of the community are engaged in the lifelong work of constructing knowledge. The community promotes abundant, multi-directional flows of information, the fundamental source of system energy. The community assures equity and embraces diversity, and its rich interconnection of relationships makes each individual as well as the overall community more vibrant and resilient.<sup>xvii</sup>

To cultivate true learning communities, each school, district and agency must conceive anew how it undertakes the enterprise of learning. It will require questioning long-held notions, and brushing aside how-we’ve-always-done-it mind-sets. Each community will create its own learner-centered culture that seeks to help students find their way to success.

“In all living systems (which includes us humans), change always happens through emergence. Large-scale changes that have great impact do not originate in plans or strategies from on high. Instead, they begin as small, local actions. While they remain separate and apart, they have no influence beyond their locale. However, if they become connected, exchanging information and learning, their separate efforts can suddenly emerge as very powerful changes, able to influence a large system.”

Margaret Wheatley Ed.D. and Deborah Frieze, “How Large-Scale Change Really Happens — Working With Emergence.” *The School Administrator*, Spring 2007.

“Instead of focusing on broad, shallow factual knowledge, we need to prepare kids with deep-thinking skills, with the ability to be flexible and creative, with a love of learning that will sustain them as we move through all these periods of social change.”

Chris Dede, quoted in “FETC theme: Schools must change,” *eSchool News*, Mar 31, 2006.

<http://www.eschoolnews.com/news/top-news/index.cfm?i=36907&page=4>

“Considering that kids would be lost without their iPods and TiVo, it’s understandable that the way students consume content and expect to be educated is different from the way things were done in the past. And as each generation becomes more technically savvy, this new breed of students has come to expect a learning environment where content is accessible anytime, anywhere, at the click of a button.”

Matt Miller, "Learning On Demand," T.H.E. Journal, 6/1/2006,

<http://www.thejournal.com/articles/18626>

## **VISION STATEMENT**

### **Colorado Navigator Conference\***

All students in Colorado, as a result of their public education experiences...

- Are self-directed learners who can be productive contributors to their communities within the 21<sup>st</sup> century context;
- Are skilled in critical thinking, information and communication technologies, and collaboration;
- Are ethically sound;
- Are contributing global and local citizens;
- Possess healthy life skills;
- Can adeptly manage information (gather, evaluate, synthesize, communicate)
- Are consumers and producers of learning (supporting the learning of others);
- Can adapt and thrive in a rapidly changing global context.

\* Drafted in Colorado Springs July 2007.

## Readings in 21st Century Learning

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*How People Learn: Bridging Research and Practice, Committee on Learning Research and Educational Practice*, M. S. Donovan, J. D. Bransford, and J. W. Pellegrino (ed.s). National Research Council, (1999).

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*The Power to Transform* (2006), by Stephanie Pace Marshall

“Preparing Students for Work in a Computer-Filled Economy,” by Frank Levy & Richard Murnane, in *Education Week* (9/1/04). Accessed at [www.edweek.org/ew/index.html](http://www.edweek.org/ew/index.html)

*Social Impact Games — Entertaining Games with Non-Entertainment Goals*, [www.socialimpactgames.com](http://www.socialimpactgames.com) (accessed 11/28/07).

“Soft Skills in Big Demand: Interest in teaching students habits of mind for success in life is on the rise,” in *Education Week*, June 12, 2007, by Catherine Gewertz. Accessed at [www.edweek.org/ew/index.html](http://www.edweek.org/ew/index.html)

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“Taking McLuhan and ‘Medium Theory’ Seriously: Technological Change and the Evolution of Education,” by Joshua Meyrowitz (in *Technology and the Future of Schooling*, 1996, Stephen Kerr, ed.)

“Teaching and Learning in the Educational Communities of the Future,” by Margaret Riel (in *Yearbook of the Association for Supervision and Curriculum Development*, 1998, Chris Dede, ed.)

*The Third Wave* (1980), by Alvin Toffler

*Tough Choices or Tough Times: The report of the new commission on the skills of the American workforce*, by Marc Tucker, et al. (2007).

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- <sup>iii</sup> “Are They Really Ready to Work?” Workforce Readiness Survey, Partnership for 21<sup>st</sup> Century Skills (2006).
- <sup>iv</sup> *Beyond the Three Rs: Voter Attitudes Toward 21<sup>st</sup> Century Skills*, Public Opinion Strategies and Peter D. Hart Research Associates (2007).
- <sup>v</sup> “Content Knowledge: The Process of This Work,” by McREL, [www.mcrel.org/standards-benchmarks/docs/process.asp](http://www.mcrel.org/standards-benchmarks/docs/process.asp) (accessed 1-12-08).
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- <sup>x</sup> The CES Common Principles. CES National Web. [http://www.essentialschools.org/pub/ces\\_docs/about/phil/10cps/10cps.html](http://www.essentialschools.org/pub/ces_docs/about/phil/10cps/10cps.html)
- <sup>xi</sup> National Research Council, *How People Learn: Brain, Mind, Experience, and School* (2000).
- <sup>xii</sup> <http://www.learner.org/jnorth/>.
- <sup>xiii</sup> Burr Snider, “Building Blocks: Fighting Urban Blight With Teenage Might”; *Edutopia*, February 2006.
- <sup>xiv</sup> “School and Community—Partners for Learning,” [http://ali.apple.com/ali\\_sites/glefli/exhibits/1000976/Fremont\\_Business\\_Academy.html](http://ali.apple.com/ali_sites/glefli/exhibits/1000976/Fremont_Business_Academy.html)
- <sup>xv</sup> *The Power to Transform* (2006), p. 23.
- <sup>xvi</sup> *The Third Wave* (1980), p. 29.
- <sup>xvii</sup> See: “Creating Sustainable Learning Communities for the 21<sup>st</sup> Century,” by Stephanie Pace Marshall, in *The Organization of the Future* (1997).

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## The Council on 21<sup>st</sup> Century Learning

The Council on 21<sup>st</sup> Century Learning (C21L) works to shape and accelerate the transformation towards 21<sup>st</sup> century learning. Since 2005, C21L has been providing Coloradans information about what 21<sup>st</sup> century learning looks like and how it helps learners thrive in a changing world.

C21L is assembling promising 21<sup>st</sup> century learning practices Colorado can integrate into sensible education policy. C21L facilitates conversations across Colorado to help determine what it will take statewide and locally to create 21<sup>st</sup> century learning in public schools.

C21L is also developing guidelines that educators can use to plan and implement 21<sup>st</sup> century learning practices.



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