

Competence 2.0: An Affordable Innovation and A Global Imperative

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I. Changing to Meet the Needs of Work and Learning

For the past 15 years, higher education has been realigning itself to the globalized world of work and learning of the 21st Century. Global competition means U.S. education budgets must deliver more for less. We believe a new breed of fast, fluid, and flexible learning and work environments will emerge, utilizing Web 2.0-based experiences (and ultimately 3.0, 4.0 and beyond), focusing on emerging competencies for globally competitive workforces, and building on migration paths established by a variety of today's innovations. We call these new innovative environments "Competence 2.0".

Where Have the New Generation of Innovations Developed? Primary, secondary and tertiary education have all witnessed a groundswell of evolutionary innovations, across the globe. Many of these have marginally improved performance and reduced costs. But these evolutionary innovations have not been replicated in the sense of being scaled to enterprise-wide practices. And many of the innovations have been evolutionary, promulgated by current educational providers.

The Innovator's Dilemma. For a decade Clayton Christensen and his colleagues have articulated the innovator's dilemma: Disruptive innovations never come from an industry's market leaders. This is true in everything from education to health care to manufacturing. The market leaders are too dependent on the existing paradigm, too invested in existing concepts of quality and performance, and too preoccupied to create truly disruptive innovations. New competitors or existing, marginal competitors taking new approaches are the alchemists that create disruptive innovations.

The prime targets for disruptive educational innovations are underserved learners who are looking for solutions that are "good enough" for their needs but are deemed inferior by the market leaders. Adult learners looking for accelerated learning tailored to their needs have fueled the mercurial growth of for-profit learning providers like the University of Phoenix and even traditional institutions like Regis University that have been smart and supple enough to innovate their offerings. Community colleges and proprietary schools are growing as they strive to meet the needs of competency-focused learners. But even these institutions are having to reshape their core practices to meet learner demands for "good enough;" for example, rather than

pursuing a full associate-level degree, many learners want to take a cluster of several courses preparing them for a particular job in a hot new area.

The Educational World Is Awash in Innovation But Not the Right Kind. Most of higher education is a cottage industry, with courses crafted to suit by faculty. Innovation in industry has also proven to be a cottage industry as well. Unfortunately, most of these innovations are squandered because they fail to scale or do not deliver more value at less cost. Many educators have great ideas and foster innovation with a lower case “i.” This is like a thousand points of light, if you will. But the real payoff is in innovations that truly capture the imagination of practitioners, are scalable, and engage the energies of entire enterprises or communities or industries or even nations and societies. Innovation with a capital “I” is the new gold standard.

Lessons in Affordability in the U.S. In 1995 Baumol and Blackman wrote a seminal article, “How to Think About Rising College Costs.” They recounted how the cost of education had quadrupled in 42 years, rising much more rapidly than the cost of living. The reason was simple: other items in the cost-of-living market basket were undergoing dramatic productivity improvements, largely through the application of technology. On the other hand, education and health care, which are the “laying on of hands” professions were not using technology to fundamentally change their practice and enhance their productivity (in many cases technology in education and health care are add-ons that actually increase price). So as long as they continue to miss the opportunity to use technology to dramatically increase productivity education and health care will progressively increase in price relative to other goods and services.

In both health care and high education, the United States has “medallion” systems, offering the best education and health care that money can buy. This is an excellent system for those with means. But the educational attainment level and general health of the American population have been slipping relative to other developed nations. America used to be first among developed countries in the percentage of its young people attending college; now it is 14th. Similarly, the life span and general wellness of Americans is falling farther behind other developed countries. Our traditional educational model is too pricey and slow for the work and learning challenges of the global workforce.

Lessons in Affordability, Globally. Across the world, there is a shortage of talent in key professions and trades. Even more troubling, in both the developed and developing world, many educational institutions are turning out graduates that are poorly matched with the competency and employment needs of their economies. Lefrere points out that *job shortage* is “perhaps the single most important underlying threat to peace and stability around the world today.” But the real challenge is not just to prepare graduates meaningful employment today. The real quest of graduates is for learning that leads to the competencies necessary for what Lefrere refers to as “golden future” jobs. This will require foresight and adaptability in learning programs, and a perpetual refreshment of competencies.

Across the globe, the talent gap is growing between rich and poor is growing. Emerging economies like those in the Gulf Region and South Asia are encountering great difficulties in capacity building to close this gap. These emerging areas need to leap to higher planes of performance. There is a compelling need for new competency building approaches that reach all levels of the workforce and learning force and at dramatically lower price points.

Innovations to Nurture Tomorrow's Competencies 2.0 Environments. Put simply, primary, secondary, tertiary, and workforce education should experience a full spectrum of innovations to meet the needs of the global work and learning environment. These will require the emergence of new innovations that blend the capabilities of Web 2.0, the fusion of learning and work, the need for foresight in determining the competencies of the future, and the capacity for perpetual competency refreshment and enhancement. And these innovations must be far more affordable than mere extensions of today's modes of learning and training delivery.

II. Migration Paths to Competence 2.0

We suggest the following families of innovations, summarized in **Exhibit 1**, will be part of the migration paths to Competencies 2.0:

- Competency-Focused, Reduced Cost, "Good Enough" Learning
- Immersive Environments for Millennial Learners
- Open Learning and Work Environments
- PreK-20 Learning and Work Initiatives
- Perpetual Learning Needs of the Global Workforce
- Open-Architecture Knowledge Tools

Consider the following real innovations that are emerging today. Some are evolutionary while others have the potential to be disruptive; all can be part of tomorrow's emerging work and learning environments and paver the way for Competencies 2.0.

Competency-Focused, Reduced-Cost, "Good Enough" Learning

For-profit learning enterprises (e.g., University of Phoenix, Capella University, and the like) and not-for-profits that act like the for-profits (e.g., Regis University) have introduced learning experiences focusing on the needs of working adults for accelerated learning in high-demand professional areas. Among these providers, Capella University is a leader in structuring its offerings around competencies rather than course. By creating templates and rubrics focusing on demonstrable, replicable competencies and recognizing competencies acquired through prior learning, Capella is deconstructing formal degree-based and certificate-based learning.

Other learning providers from around the world using new delivery mechanisms, knowledge management tools, and different staffing structures to deliver and certify learning. "Good enough," competency-focused alternatives begin to appeal to learners finding current offerings

unsatisfactory, unaffordable, or both. For example, an entrepreneurial university from Malaysia recently opened an operation in the United Kingdom. Already, online offerings being developed in the United States, Asia, and other settings are arising to challenge market leaders, who often scoff at their offerings. Over time, a broad portfolio of more affordable, bundled learning options will present the learner with many choices.

Immersive Learning Environments for Millennial Learners.

Many institutions are experimenting with new learning environments and practices that appeal to millennial learners. Chris Dede and his colleagues at Harvard have been experimenting with environments for neo-millennial learners that provide: 1) fluency in multiple media, simulation-based virtual settings, 2) communal learning, involving diverse, tacit, situated experience; 3) balance between experiential learning, guided mentoring, and collective reflection; 4) expression through non-linear, associational webs of representations; and 5) personalized experiences, co-designed. Through immersion in educational virtual environments and immersion in educational augmented realities, these environments are being test driven today. They may feature prominently in learning environments in the near future.

Building on pilot projects such as those undertaken by Dede, many institutions will create immersive, virtual environments and augmented reality environments as part of their offering to learners. But the truly disruptive impact of such environments will come if they are packaged by aggressive, multi-partner ventures as more amenable, more affordable alternatives to traditional higher education. As an early signal of those changes, Richard Katz presented a video at Campus of the Future Conference in 2006 that posited the possible partnering of major enterprises from the education, entertainment, and technology industries – Microsoft, Google, Disney, and for-profit learning companies, for example. Their offering: a new generation of affordable, amenable, avatar-driven, and competency-based learning experiences that would be dramatically more affordable and attractive to millennial learners. Such offerings could compete effectively for market share with traditional institutions and existing for-profit market leaders.

Open Learning and Work Environments

John Seely Brown (2008) describes new approaches to e-knowing in his article, “Minds on Fire: Open Education, the Long Tail, and Learning 2.0,” in which learning, work, and application come together. Brown cites the confluence of: 1) the Open Educational Resource Movement (OER), 2) current examples of eSciences and eHumanities communities, 3) the maturation of Web 2.0 and beyond, 4) the emergence of Open Participatory Learning Ecosystems, and 5) the importance of “learning to be” as well as “learning about,” that will be a characteristic of these new ecologies. Over time, these environments will be able to explore work, learning, and competency development in “long-tail” niches that elude current learning offerings. In time, these new environments will discover new relationships between work, learning, and perpetual competency development.

PreK-20 Work and Learning Initiatives

Across the world, developed and developing countries are reinventing their PreK-12 education systems and their relation to tertiary education and the workforce. In the United States, the high level of remedial learning required by community and technical college students testifies to the need for PK-12 transformation. Virtually every state in the United States is trying to reinvent K-12 education and school-to-work transitions, supported by a constellation of government agencies, corporations and non-profits organizations such as the Bill and Melinda Gates Foundation, the Lumina Foundation, the Business Higher Education Forum, the National Fund for Workforce Solutions, and many more.

Over the next decade, K-12 education must be reformed if the United States is to maintain its competitive edge. As Duderstadt (2008) recently pointed out, when the U.S. responded to the Sputnik challenge, it required investment at the top of the educational and professional pyramid. In a globally competitive world competitive nations must succeed at all levels of the workforce, and the U.S. (and other developed countries as well) is getting hammered at the second and third quartile of it education/workforce. Reformation of K-12 will have many more high school learners pursuing college-level work and emerging with the equivalent of associate degrees or more. But middle and high school students must also be exposed to immersive, active, contextual learning that enables them to acquire demonstrable competencies that tie to real world skill requirements and give a sense of accomplishment and possibility. The real reformation in K-12 will involve building competencies and life skills that link work and learning, using Web 2.0-based experiences

Perpetual Learning for the Global Workforce

The emerging combinations of skills required for the Global workforce will follow a new model. They will be like those described by Thomas Friedman in *The World is Flat (2007)*, Diana Oblinger in "Education in Exponential Times" 2007, and David Grevel in *Network Power: The Social Dynamics of Globalization (2008)*. Rather than focusing on disciplinary-based content, the new skills will focus on the capacity to perpetually learn in contextualized networks. They will involve new roles of collaborators and orchestrators, synthesizers, explainers, leveragers, adapters, "green" people, passionate personalizers, and localizers. A critical element will be experience on diverse, cross-disciplinary, transnational teams. Moreover, each individual's ever-expanding body of knowledge and know-how will be like an expanding galaxy of specific, contextualized learnings, interconnections with other knowledge, and globalized, shared sociability skills that will affect commerce, culture, ideas, and manners.

As was stated in *Shift Happens (2008)*, "We are educating students for jobs that don't exist, using technology that hasn't been invented, to solve problems that haven't been identified." The only way to approach that challenge is through Web 2.0-based capabilities. As posited by Lefrere (2007), "The social networking features are critical because it is only by being part of a

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professional community that students, their advisors, and their instructors can be sure of keeping up with changes in that community.”

Open-Architecture Knowledge Tools

A new generation of open architecture knowledge tools are emerging to support tomorrow’s work and learning environments. These tools will support learners, workers, educators, human resource professionals, public policy makers, and others in:

- Maintaining personal portfolios demonstrating competencies and achievements;
- Supporting individual learning and development and measuring and improving performance for individuals, teams, and organizations;
- Providing “feedback loops” on the performance of recent graduates and refreshing existing programs to achieve better performance and new competencies; and
- Scanning, tracking, and sharing emerging competencies and new practices, serving as a *competency observatory* for individuals, teams, organizations/enterprises, communities, and even industries.

First generation examples of these applications are appearing today.

III. Today’s Vision of Tomorrow’s Competencies 2.0 Environment

What could a mature Competencies 2.0 environment look like? An appealing innovation is the emergence of Competence Development Environments, CDEs, with input from corporations coming not from their Human Resource departments but from their near-to-market groups and their strategists. Taking emerging experience in Europe as a guide, a typical CDE will provide peer-to-peer support that links learners with mentors, “competency observatories” that memorialize emerging competency requirements, and organizational interfaces that articulate the needs of employers. These environments are being nurtured through a variety of strategies, beginning with small clusters and eventually expanding as they attract new members and combine with like-minded communities.

Exhibits 2 and 3 portray the nature of these open competency environments and the sort of phased strategy that would enable their development. Over the next decade, the evolution of these sorts of environments will define “Competencies 2.0.” Such new approaches to competency building are likely to create the “killer app” of 21st century learning. They will shift the balance of power away from traditional learning providers and toward new constellations of participants

Open competency development environments, As portrayed in **Exhibit 2**, demonstrate the core principles of “Competency 2.0:”

Competence 2.0

- Active, peer-to-peer engagement involving learners, mentors, and individuals from employers, learning, and/or workforce organizations;
- A social network orientation to competency development;
- Perpetual, organic feedback loops and the capacity to respond continuously and rapidly change both competency targets for the future and current offerings;
- Knowledge management and artificial intelligence systems to extend the capacity of individuals and organizations; and
- Commitment of individuals to perpetual learning and competency building.

The leading edges of these sorts of networks are being demonstrated in networks being piloted today by multi-national corporations, workforce entities, and other learning enterprises in Europe, North America, and other global places.

Such networks will emerge over time, evolving from internal, closed networks to become open networks. As portrayed in **Exhibit 3**, many will start as individual competency development efforts within organizations – corporations, colleges and universities, professional and trade organizations. They will expand from individuals to groups, eventually becoming communities of interest and learning. Over time, they will expand their scope, use of memory tools, and use of networks of mentors to become full-fledged communities of practice and knowledge.

If this social networking model emerges as the prevailing model for Competencies 2.0, it will dramatically affect the patterns and cadences of learners throughout their careers. This will affect traditional learning providers, including colleges and universities, in several ways. Open competency networks will require speed of response that is impossible to achieve in a curriculum committee-driven culture or in a professional society standards-and-certification model. Open competency networks will require participation and support of a wide range of individual competency builders, mentors, practitioners, and organizations, but will not follow traditional tuition-and-fees models of learning. It will also be affected by the affordability crisis which will become more and more limiting.

The challenge for America's leaders is to recognize that our competitiveness is under assault at all levels, but especially at the middle and lower segments of the workforce, who can least afford high-touch, high-fee, traditional education. Solutions based on Competencies 2.0 are needed to create work and learning experiences that can prepare our citizens for their future of perpetual learning that will lead to golden futures jobs and perpetual personal development. Achieving Competencies 2.0 will require nurturing and leveraging the migration paths identified in this article. It will require reinventing time honored practices and changing organizational cultures and behaviors.

Exhibit 1: Migration Paths to Competency 2.0

| Contributing Factor | Description | Examples |
|---|--|---|
| Competency-Focused, Reduced Cost, "Good Enough" Learning | Convenient, accelerated learning for adults focused on competencies and giving credit for prior learning. Non-prestigious brand – initially. | University of Phoenix, Capella University, and other for-profit enterprises. International universities breaking into markets in developed countries (reversing the trend of institutions from developed countries breaking into underdeveloped markets). |
| Immersive Environments for Millennial Learners | Pilot projects demonstrate immersive, collaborative environments. | Chris Dede at Harvard, Second Life demonstration projects at many universities, virtual and augmented reality learning environments. |
| Open Learning and Work Environments | Peer-to-peer and social networking platforms exposing participants to learning to know, to do, and to be in particular areas of interest. | Open Educational Resources movement in e-Science and e-Humanities . Faulkes Telescope Project, Decameron Web, online Teaching and Learning Commons, other communities of interest and practice. |
| Pre-K-20 Learning and Work Initiatives | Reinvention of PK-20 education, focus on active learning, linkages between learning and real life, accelerated HS completion, real-world standards of competence. | Projects funded by Lumina Foundation, Bill and Melinda Gates Foundation, and National Fund for Workforce Solutions. Bridging and concurrent enrollment initiatives from PSE into K-12. |
| Perpetual Learning for the Global Workforce | Workplace-centered, perpetual learning experiences that build multi-faceted, transdisciplinary skills needed for success in golden future jobs. | Communities of practice in education, nursing, and similar fields (e.g. masters programs in reflective practice) Cross-disciplinary, transnational teams in major organizations and bridging between individual organizations. Perpetual expansion of personal bodies of knowledge and know-how and sociability skills. |
| Open-Architecture Knowledge Tools | Personal and enterprise knowledge-sharing tools and capabilities that support individuals, teams, organizations, and industry-wide communities of practice. Also, knowledge scanning and interpretive tools for new competences. | Feedback networks on experiences of recent graduates and mechanisms for changing curricula. New generation of personal knowledge management tools and e-portfolios, deployed in industries/trades (e.g. plumbing in the UK) or individually. "Competency observatories" to capture and share emerging competences. New generation of learning support tools and networks to automatically generate learning objects and experiences based on emerging competences. |

Exhibit 2

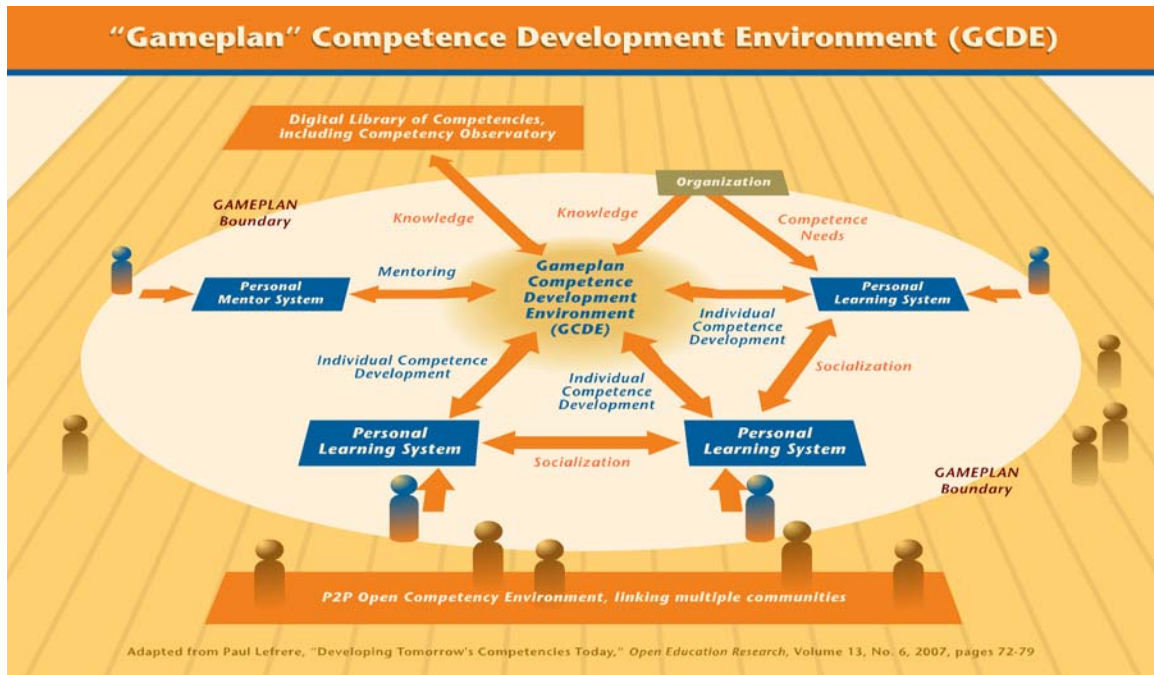
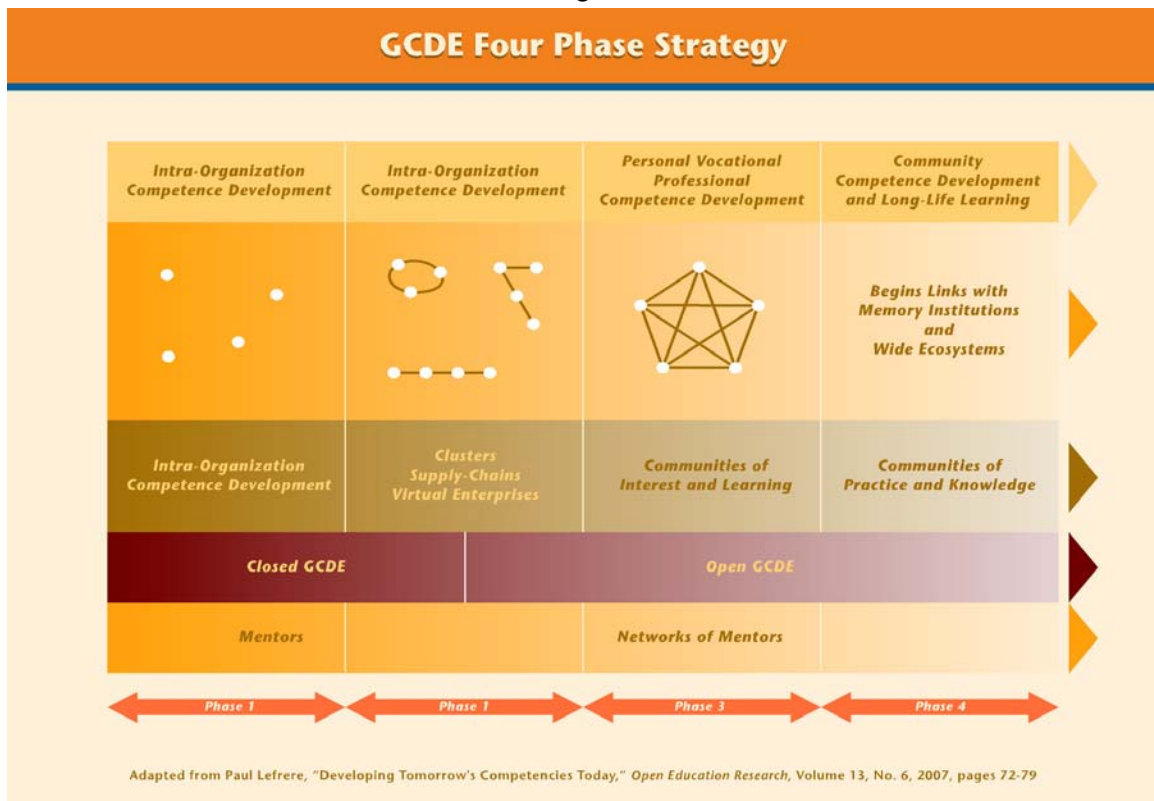


Exhibit 3



Resources on Affordable Innovation

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