

## **“Beyond Competition—Innovation for a Sustainable Future”**

In his January 2006 State of the Union address, President Bush said: “To keep America competitive, one commitment is necessary above all: We must continue to lead the world in human talent and creativity.”

Early this spring a colleague and I spoke at an event sponsored by the Chicago Council for Global Affairs. The question that framed the conversation and expressed the growing concerns of many Americans was: **“Can the U.S. education system provide the tools for us to be competitive in the era of globalization, or are we too far behind?”**

It’s a good question, but it’s not the fundamental question. The question for us is not “can we provide…” but rather, “what will it take to ignite and nurture the creative and imaginative potentials of each child, so she/he develops the knowledge, skills, and habits of mind essential for success and contribution in our innovation-driven, knowledge-based, intricately networked and possibility-abundant world?”

We know what it takes to develop expertise and support and sustain innovation; yet the vibrant, dynamic and collaborative practice fields so essential for innovation are not found in most schools.

Innovation happens at the edges and intersections of disciplines. It happens when new and irreverent questions are asked and when conventional wisdom is challenged. It happens when disruptive hypotheses are courageously voiced and it happens when we are captivated by possibilities of “what if” or “what might be.”

Innovation also happens when we feel safe enough to risk, to dare, and to venture into unexplored territory. It is a messy, unpredictable, and nonlinear process; and it requires an environment that invites experimentation and encourages the passionate pursuit of often absurd questions wherever they may lead.

It is my belief that the current context and conditions of schooling are far too constrained, prescribed and risk-averse for our children’s imagination, and as a result, actually mitigate against innovative thinking and creative and collaborative problem-solving. Authentic learning is a live encounter. We cannot mandate, punish or test our children into greatness.

Ironically, the very system that is supposed to “pump” students into the innovation and talent “pipeline,” is actually filtering them out. In fact, I believe the metaphor itself—“pipeline”—is part of the problem. Pipelines imply limited access, competition, a narrow trajectory, and an inability to get out or in if you change your mind.

Today’s internet learners don’t like or even see pipelines. Theirs is a webbed world of global connections, integrated and collaborative technologies, and social and entrepreneurial networks. Pipelines are completely irrelevant to them; they slow things down, and get in the way. “Internet kids” not only want to change the rules, they want to radically change the game and pipelines don’t lend themselves to game changing.

As human beings we are born inventors and explorers. It is who we are. It is what we do. We are driven by perplexity, captivated by anomalies, intrigued by complexity and paradox and drawn to the novel and the impossible and the more impossible, the better. But there is a huge disconnect between our potentials for innovation and the current culture, climate, and conditions of schooling.

Mind shaping is world shaping. Our work is not to find the future, but to create it. Our habits of mind and ways of thinking and acting are shaped and developed through experience and practice, so how we ask students to learn matters profoundly.

When children engage in imaginative inquiry, they learn to explore and inquire; when they practice solving messy, real world problems, they learn to resolve complexity, and when they learn to collaboratively wrestle with ethical dilemmas, they learn to creatively grapple with issues of the human heart.

To educate our children as innovators and change makers requires their immersion in meaning, not memory; engagement, not transmission; inquiry, not compliance; exploration, not acquisition; personalization, not uniformity; interdependence, not independence; collaboration, not competition and trust, not fear.

**Our future will belong to a very different kind of mind. This whole new mind is the new breed of talent.** It is globally networked, agile, intuitive, pattern, risk and novelty-seeking, playful, collaborative, not traumatized by failure, curious, analytical, and context and problem-focused. In this “Age of Innovation,” our mind is our brand—how we think and what we think about is the new currency for sustainable innovation.

So what will it take to ensure this whole new mind is ignited and nurtured, by design?

I believe it will take three commitments among multiple stakeholders:

1. **We must design innovative landscapes that enable our children’s inventive genius to flourish, through immersion and intensive and sustained practice in challenging, complex, multidisciplinary, real-world problems.** Such a landscape is competency-driven, inquiry-based, problem-centered, integrative, and play-full!
2. **We must transform—not reform—our system of schooling and STEM education by design—and what that design is, matters profoundly.** We get what we design for. Every school must become a center of imagination, collaborative inquiry, and innovation, and every community must see its role as identifying, igniting, and nurturing the creative talents and minds of its children.
3. **We must create a vibrant and sustainable social and technological innovation culture.** This requires the generation of dynamic and vibrant innovation networks that stimulate the emergence of an innovation ecosystem sustained through robust technology, seamless infrastructure, investment in research and development, and a P-20 system designed to develop talent.

For over two decades, the Illinois Mathematics and Science Academy has been internationally recognized as an exemplary environment for imagination and inquiry, not only for our over 3,500 graduates, but also for the over 30,000 Illinois students and 11,000 Illinois teachers who have participated in our external programs. Now in our third decade, we continue to aggressively develop the innovation capacity of students and teachers in Illinois and beyond, helping to create an innovation ecosystem in our State—a real and virtual STEM Innovation Hub and a network of STEM innovation centers that will attract and develop talent and stimulate, support, scale and sustain innovation in STEM teaching and learning.

To learn more about IMSA and how you can connect to our teaching and learning laboratory for imagination and inquiry, please contact Kristin Ciesemeier, Vice President for External Programs at [kciesem@imsa.edu](mailto:kciesem@imsa.edu).

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