

Excellence Redefined for the 21st Century

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Abstract Based on the perspectives of our symposium contributors, certain twenty-first century themes have become increasingly important in a global economy: 1) individuality; 2) connectedness; and 3) non-cognitive attributes. Individuals are asserting their influence in ways never seen before, thanks in part to technology and democracy. The innovators aren't doing it alone ironically; they are collaborating, or connecting, with like-minded peers and thinking across disciplines. They also possess certain non-cognitive attributes like motivation, perseverance, and adaptability that employers are increasingly looking for. Recognizing these three themes and their place in education is, therefore, critical to twenty-first century excellence. In this concluding article, the author illuminates each theme and offers a more fitting education approach that hopefully reflects an evolved perspective since *A Nation at Risk* was first published.

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Since the *Nation at Risk* report over 30 years ago, the United States education system has focused on standards and tests that mainly measure academic, and often low-level, knowledge. According to our contributors, such policies will not lead to twenty-first century excellence. International tests do not indicate real-world abilities. Not only do they correlate modestly with work productivity and global skills, they correlate inversely with innovation and entrepreneurialism. Current test-based systems simply do not match the way we

live and work and, therefore, may not likely produce qualified job candidates, innovators, or even “better” adults.

Schools need a broader approach that aligns with 21st century life. However, they must *first* recognize what defines present and future society. Based on our contributors' essays, three themes clearly emerged: 1) *individuality*; 2) *connectedness*; and 3) *non-cognitive attributes*. Each one is inextricably linked with the 21st century way we live and work. Understanding and acknowledging them is critical to education reform. Without that, education policy will not align with the innovation goal—a problem we are seeing now.

This wrap-up article examines each theme separately, including its role in the 21st century and its relevance to education. Examples will illustrate how our contributors and others have successfully leveraged these elements to improve success. Combined, these themes build the case for a broader education approach aimed to help *all students* maximize their potential so they can achieve 21st century excellence.

Individuality

Power resides within the hands of individuals, particularly in the global age. We consume content the way we want, not the way institutions and companies want. We watch on-demand via *Hulu*, we curate content via *Flipboard*, and we create and share them through social media. In this issue, Robert Yager referred to this process as negotiating the “landscape of information, while at the same time becoming a part of it.” A company's success, therefore, depends on its ability to align with the way individuals operate. By the same token, individuals now also compete with companies—to sell content, products, and services, thanks to globalization and the internet. The primacy of the individual in the 21st century demands we cultivate each child's individual abilities and interests at an early age.

Yet the current emphasis on high-stakes testing, standards, and accountability do not align with or facilitate this perspective. New programs like Houghton Mifflin Harcourt's *Go Math!* and *Math in Focus* (i.e., “Singapore Math”), for instance, provide

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tightly scripted lessons aimed more at the new Common Core State Standards (CCSS) than at students' aptitude, despite their sections on guided practice, differentiated instruction, and investigation. Yong Zhao, in Part 1 of this symposium, believed such programs prepare mass-produced, *employment-minded* job seekers, rather than innovators or entrepreneurs.

Yager envisioned a student-centered, journalistic approach. Students would formulate questions in science, investigate multiple sources, evaluate information, and produce value for an end-user—just like a reporter. Imagine extending that approach to other traditional subjects. For example, math students learning *perimeter* and *area* could explore the amount of table space needed to fit 125 fifth graders and their place settings for an end-of-the-year field trip. Failure to produce appropriate solutions would have real-world consequences. Compare this with the traditional approach where students measure the length and width of predefined quadrilaterals.

The difference lies not just in the level of concept mastery, but also in the level of ownership. With a journalistic approach, the motivation to learn comes from within—essential when cultivating innovators and change agents. Policymakers appear to acknowledge the benefits of this approach, since they recently funded personalized learning in certain rural districts of Kentucky and Mississippi, but it needs to reach critical mass to empower a generation of graduates.

Teachers will undoubtedly play a primary role in shaping student-centered classrooms. Carol Ann Tomlinson's differentiated instruction model in this issue recognizes and addresses the varied levels, interests, and approaches to learning. Here, teachers seek (and appreciate) differences, cultivate the right attitudes and habits, and link experiences to learning, among other principles of "teaching up." In the end, this mentality fosters a sense of agency and responsibility that a one-size-fits-all, competency-based approach does not.

None of this is possible, unless teacher education recognizes the primacy of individuality. David Monk cautions us to consider the current tumultuous state of teacher reform in this issue. There is still lack of consensus on best practices, cost-effectiveness, and the benefits of value-added measures, despite the new CAEP standards. These challenges compel us to harness our research more effectively.

Connectedness

Like individuality, being "connected" is a part of the way we live and work. However, it is more than just accessibility and integrated technology. Three components—*caring*, *networks*, and *interdisciplinarity*—define the "new connectedness" in the 21st century. Cultivating global citizens requires schools to recognize each of them.

Caring provides the ethical basis of connectedness. It matters even in "quid pro quo" relationships, because it profoundly

shapes the character of a group (i.e., families, communities, ethnic or religious groups, society). Without caring, there is no reason to build formal or informal relationships. Nel Noddings realized this 30 years ago when she boldly proposed an "ethic of care" education approach centered on happiness.

Extending her idea to the global level takes on profound importance when individuals have more power than ever, even in collectivist societies. Protesters in Tunisia, Egypt and other Middle Eastern countries fomented change during the Arab Spring uprising that began in 2010. President Xi Jinping of China recently vowed to relax the one-child policy, eliminate repressive "re-education through labor" camps, improve the rights of farmers and migrant workers, and encourage individuals and enterprises to invest overseas. Despite ongoing instability, these examples demonstrate mankind's tendency toward progress and humanity.

Moreover, they suggest efforts to promote an ethic of caring would augment progress and produce better adults. Noddings maintains there is no better goal in education (see previous article). Without an ethic of caring, we lose the ability to empathize and gain trust. Allan Ornstein, in fact, believes this very intolerance is responsible for American decline, not the loss of Christian values, faith and ideals in Part 1 of the symposium. Schools need to help children navigate and cultivate relationships better in an increasingly polarized and complicated climate. We can no longer isolate them from the global village.

Networks—the system of interconnected people—have always been essential, yet the adage "who you know is more important than what you know" has never rang truer in a social and global economy. Policymakers and educators underestimate their role in education. It is much more than fostering a collaborative or community-centered environment.

Research on social networks suggests that those we know through friends (also referred to as "second-" or "third-degree connections") can help us more than our direct connections. Since they "occupy" the same world as we do, our friends tend to possess similar knowledge and experiences. Indirect connections, however, broaden our resources exponentially. Assuming we each have forty friends, third degree connections would yield us 64,000 introductions ($40 \times 40 \times 40$), and infinitely more social capital. Successful networking sites such as *LinkedIn* and *Facebook* are based on this principle.

Networks can also help high potential, low-income students get into selective colleges. Frequently, they lack the social capital to apply, as James Comer indicated in this issue, because they are either unaware of the financial assistance offered or they underestimate their qualifications. As a result, they are "undermatched." These students would particularly benefit from one form of networking, mentorship—perhaps the most powerful form of social capital. Mentors would not only provide valuable insight, they could open the door to vast resources that would be otherwise inaccessible. Supervised internships would provide similar value.

Principles behind social networks also seem to apply to other networks. Research suggests that ethnic and gender

preferences, as well as obesity, can spread through networks based on the strength of social ties. There is a higher risk of obesity, for example, if one has obese friends, but lower if his or her second-degree connections were obese. Understanding the science of networks can help us detect epidemics earlier, as well as understand the spread of ideas and initiatives.

According to a Pew research study in 2013, almost 90% of young adults in the U.S. use social networking sites. The potential is staggering. People—not just the advantaged—can harness their network to uncover atrocities and confront problems like disasters, terrorism, inequality, environmental pollution, and climate change faster and more effectively than they have ever done. They just need to know how to cultivate and harness it.

Schools must recognize their role in this. As currently constructed, however, the system is simply not designed to facilitate networks. School and classroom culture is still rather closed, shutting out parents, the community, and businesses—all of which can provide further support, perspective, mentorship, and training. Families and students—particularly those from disadvantaged areas—should not have to cultivate them on their own.

Interdisciplinarity is the capacity to integrate knowledge and thinking in two or more disciplines to produce cognitive or technical advancement—such as solving a problem or creating a product or service. Because life is increasingly complex and fluid, it has become the quintessential 21st century mode of thinking and doing. *Interdisciplinary*, like *caring* and *networks*, define the “new connectedness.”

To maximize this, teachers must allow students to take the lead. Under Zhao’s “entrepreneur-oriented” approach, students’ interests and passions—not a prescribed curriculum—determine what they learn and produce. Teachers respond to and support their pursuits, which will often require tapping into nontraditional areas of study like business, art, and psychology. They are equally as relevant as science, math, history, and language arts.

Interdisciplinarity plays a significant role in any innovation. Former Apple CEO Steve Jobs leveraged his love of design, his business acumen, and his technological acuity to create highly valued, innovative products. His ability to hold different elements in his mind simultaneously and play obsessively with them until it all comes together in a moment of simplicity and clarity allowed him to revolutionize four industries—music, cell phones, PCs, and tablets. Right now, schools simply do not prioritize or integrate many real-world disciplines.

Those that do, like Bennington College, have shown promise. In the mid-1990s, it radically reorganized the program structure under its president, Elizabeth Coleman. She eliminated the subject-based curriculum and organized it by political-social challenges such as equity, the uses of force, and health. She treated them not as topics of study, but as frameworks of action to help students think across disciplines and solve real-world issues.

To update Socrates’ popular quote for the 21st century, the “unconnected” life is not worth living. If we cannot cultivate the ability to connect in multidimensional ways, we will

engender a learned helplessness in students. They will not be able to solve long-standing conflicts without the ability to care, or at least respect others’ perspectives. They will not be able to affect change if they cannot cultivate global networks. And finally, students will not be able to innovate without the ability to think in broad, multi-disciplinary ways. In short, the “new connectedness” has more to do with a blurring of lines among countries, groups, institutions, and disciplines, than accessibility. The 21st century is about relationships.

Non-cognitive Attributes

Thousands of people can now take free online courses (known as massive open online courses, or MOOCs) at Harvard, Yale, or MIT, yet only *seven* percent of enrollees complete them. What do these few have that the others don’t? In Part 1, Martin Carnoy and Richard Rothstein, along with Henry Levin, believe persistence, focus, and other *non-cognitive attributes* make the difference. They separate successful people from the rest. They allow achievers to persist in learning a difficult language, persuade clients on a new idea, and follow through on a commitment.

Sheer conviction, for example, allowed Tesla Motors CEO Elon Musk—an innovator perhaps only second to Jobs—to push his idea for a streamlined, retractable door handle past the skeptics and into production. There were numerous engineering challenges, including the lack of panel space for a mechanism to work tens of thousands of times in all temperatures, and the balance between durability (so the mechanism could break through ice) and sensitivity (to stop instantly if a child’s finger gets in the way). Musk received tremendous pushback from his engineers—who even told him the idea was “stupid.” His conviction and belief, however, prevailed.

The South African-born Musk typifies the kind of entrepreneurs Zhao and Ornstein believe we need to cultivate and retain, respectively. Work ethic may partly explain why immigrants make up a majority of STEM workers and why China and India, according to Ornstein, graduates four times the number of scientists and engineers as the U.S. It also suggests that immigration policies must complement education policies. If innovation is the ultimate goal, education is one important part of it.

Levin argued that the *ability to adapt* is perhaps the one attribute that matters in the 21st century. It influences worker productivity both in the short run (through efficient allocation of resources) and the long run (in accommodating new technologies). Evidence suggests that managers can maintain productivity by substituting less educated, but adaptable workers for their more expensive, educated counterparts. Apparently, adaptability matters even more than experience and content skills. In fact, the survival of individuals, companies, and societies is positively Darwinian.

Comer’s work with inner city children proves that we can cultivate socio-emotional skills. His Social Skills Project involved planning and hosting a dance-drama program, where

students learned skills like helping those who had difficulty presenting (rather than ridiculing them), as well as raising challenging questions in a respectful way. As a result, academic achievement jumped, student attendance improved, and teacher turnover decreased. Most important, the project had a galvanizing effect on the students, the school culture, and the community. Imagine the impact on graduates if states scaled up social skills efforts at an early age.

Redefining Excellence: Ownership

At no other time has *individuality*, *connectedness*, and *non-cognitive attributes* played such a critical role in the way we live and work. They suggest that knowledge and skill are not enough, and that a broader, more self-directed approach is necessary. We believe the education system needs to move toward an *ownership-based model*. Ownership drives people to pursue knowledge and skills, because they feel as though what they are working on is “theirs.” It is different from related constructs like commitment and involvement; it is much more active and intrinsic. In fact, it would more effectively develop potential than accountability.

Perhaps no organization epitomizes ownership better than Google, named the top company to work for by *Fortune* magazine. They empower their staff by taking care of individual needs. Not only do employees have comprehensive on-site perks (e.g., medical and dental facilities, oil change and bike repair, free gourmet food and laundry), they also have unique freedoms. Googlers, as they are known, can take courses in stress management and advanced negotiation, as well as sabbaticals to pursue a reimbursed education. Software engineers have the flexibility to work away from the office, design their own workstations, and even scribble ideas on walls.

On top of *individuality*, Google also cultivates *connectedness* and *interpersonal relationships*. Their open space, for example, fosters collaboration. “Everything we [do is] geared toward making it easy to talk,” according to an engineering director. Open spaces enable ideas to cross-fertilize and stimulate serendipitous interaction. “20 % time”—the freedom to work on any project one full day per week—also exemplifies the ownership mindset. Popular products like *Gmail* and *AdSense* emerged from 20 % time. So do other more creative endeavors, like engineer Chade-Meng Tan’s course on mindfulness. His desire for world peace led him to design this course with the help of psychologists, professors, and other business luminaries. Not only is it one of the most popular classes taught in the company, it has propelled Tan to write the *New York Times* best seller *Search Inside Yourself*.

The quality of the end product, as well as spiritual fulfillment, ultimately separates “owners” like Tan from regular employees. The latter adopts a “hey-I-just-work-here” attitude that undermines performance and company success. Unfortunately, that same apathy characterizes the attitudes of most high school students, which in turn compromises the

quality of learning and work. Noddings believed that students should choose their own track, rather than be assigned to one. That simple shift would alleviate apathy, increase quality, nourish the soul, and cultivate ownership in a way accountability could never do. Teachers would merely facilitate the process.

Emerging research demonstrates that ownership can be effectively developed and implemented. In 2013, the National Center on Scaling Up Effective Schools sought to identify programs, policies, and practices of high schools that “beat the odds.” They discovered that *increasing student ownership* made a distinct difference. Teachers developed this capacity by changing beliefs and mindsets of students to increase self-efficacy (i.e., individual beliefs about his or her ability to perform well) and by engaging students to do challenging academic work. They also scaffolded students’ learning of both academic and social behaviors and put structures in place to guide them in taking ownership and responsibility for their academic success.

The ownership model was particularly effective because it enacted what researchers called “school-wide facilitating conditions.” This included:

1. Developing a shared school mission;
2. Aligning school-wide structures and practices to the mission;
3. Cultivating a culture of trust and faculty and student stability;
4. Building positive relationships between students and teachers; and
5. Ensuring efficacy, accountability, and a safe and orderly school environment.

Reflecting on the *Nation at Risk* report, two things are clear: 1) we have been asking the wrong types of questions; and 2) our existing approach does not align with our goal to produce innovators. Policymakers appear to ask questions like, *how do we ensure graduates have the right knowledge and skills?* Or *how do we close the achievement gap?* Invariably, the answer requires some measure of students’ competency, which is a poor proxy for innovation, accomplishment, or success any kind. Competency is neither the goal nor the answer to 21st century excellence.

Our contributors’ arguments suggest that more appropriate types of questions ask: *How do we maximize students’ potential?* And *how do we ensure graduates will flourish?* A rapidly changing and complex society suggests that *mindsets* are highly relevant. The right mindset acts as the spark to unlock potential. With ownership, accountability comes from within—not from tests. That difference is significant, especially when most students routinely feel disengaged by schooling. If we want our graduates to maximize their potential and flourish, we must recognize the themes our contributors believe define our times—individuality, connectedness, and non-cognitive attributes—and find an education approach that

matches it. A model based on ownership would be a good place to start, since it motivates students to learn, invest in, and fulfill their potential no matter if they go into STEM or the arts. Education has no more a nobler goal than to produce such excellence in the 21st century.

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