By Tony Wagner

RIGOr redefined

THE SEVEN SURVIVAL SKILLS FOR CAREERS, COLLEGE, AND CITIZENSHIP

I've spent the last two years researching and writing a new book, The Global Achievement Gap: Why Even Our Best Schools Don't Teach The New Survival Skills Our Children Need—and What We Can Do About It. I began with several questions: First, in the new global economy, where any job that can be turned into a routine is being either automated or "off-shored," what skills will our students need to get—and keep—a good job? And what skills are needed for citizenship today? Are these education goals in conflict, I wondered.

With a clearer picture of the skills young people will need, I then set out to learn to what extent we are teaching and testing the skills that matter most. And because we already know that many of our nation's urban schools are failing, I chose to observe classrooms in some of our most highly regarded suburban schools in order to understand whether our "best" was, in fact, good enough for our children's future. What I discovered in this journey may come as a surprise to many.

One of my first interviews was with Clay Parker, the President of the Chemical Management Division of BOC Edwards—a company that, among other things, makes the machines and supplies the chemicals for the manufacture of microelectronics devices, including silicon semiconductors and flat panel displays. He's an engineer by training and the head of a very technical business, so when I asked him about the skills he looks for when he hires young people into the company, I was taken aback by his answer.

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"First and foremost, I look for someone who asks good questions," Parker responded. "Our business is changing, and so the skills our engineers need change rapidly, as well. We can teach them the technical stuff. But for employees to solve problems or to learn new things, they have to know what questions to ask. And we can't teach them how to ask good questions—how to think. The ability to ask the right questions is the single most important skill."

"What other skills are you looking for?" I asked, expecting that he'd jump quickly to content expertise.

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"I don't understand," I confessed.

"All of our work is done in teams. You have to know how to work well with others. But you also have to know how to engage the customer—to find out what his needs are. If you can't engage others, then you won't learn what you need to know."

I was initially skeptical of Parker's answers—thinking perhaps that his views weren't representative of business leaders in general. But after having completed nearly 100 interviews with leaders from Apple to Unilever to the U.S. Army and reviewed the research on the workplace skills most needed, I have come to understand that the world of work has changed profoundly. There are, I discovered, Seven Survival Skills that all of our students will need to master in order to get a good job in the new "flat" world of work. I also came to see how these are the same skills young people need in order to discuss, understand, and offer leadership to solve some of the most pressing issues we face as a democracy in the 21st century.

1. Critical Thinking and Problem-solving

In order for companies to compete in the new global economy, they need every worker to be a "knowledge worker"—and to think about how to continuously improve their products, processes, or services. Over and over again, executives told me that the heart of critical thinking and problem-solving skills is the ability to ask the right questions. As one senior executive from Dell Computer said, "Yesterday's answers won't solve today's problems."

Ellen Kumata, who is managing partner at Cambria Associates, consults to senior executives at Fortune 200 companies. She explained to me the extraordinary pressures on all leaders today, regardless of their product or service. "When I talk to my clients, the challenge is this: how do you do things that haven't been done before, where you have to re-think or think anew, or break set in a fundamental way—it's not incremental improvement anymore. That just won't cut it. The markets are changing too fast, the environments are changing too fast."

2. Collaboration Across Networks and Leading By Influence

Teamwork, it seems, is no longer just about working with others in your building. And traditional top-down accountability structures are rapidly being replaced by horizontal networks. My conversation with CEO Christie Pedra at Siemens, first suggested to me that the concept of teamwork today is very different than it was twenty years ago. "Technology has allowed for virtual teams," she explained. "The way some engineering projects in our company are set up is that you are part of a virtual team. We have teams working on major infrastructure projects that are all over the U.S. On other projects, you're working with people all around the world on solving a software problem. They don't work in the same room, they don't come to the same office, but every week they're on a variety of conference calls; they're doing web casts; they're doing net meetings."

Mike Summers, who is Vice President for Global Talent Management at Dell Computers, said that his greatest concern was young people's lack of leadership skills. "Kids just out of school

have an amazing lack of preparedness in general leadership skills and collaborative skills," he explained, "They lack the ability to influence versus direct and command."

3. Agility and Adaptability

Clay Parker explained that anyone who comes to work at BOC Edwards today "has to think, be flexible, change, and be adaptive, and use a variety of tools to solve new problems. We change what we do all the time. I've been here four years, and we've done fundamental re-organization every year because of changes in the business. People have to learn to adapt. I can guarantee the job I hire someone to do will change or may not exist in the future, so this is why adaptability and learning skills are more important than technical skills."

4. Initiative and Entrepreneurialism

Mark Chandler, the Senior Vice President and General Counsel at Cisco was one of the strongest proponents of these traits. "Leadership is the capacity to take initiative and trust yourself to be creative," he told me. "I say to my employees if you try five things and get all five of them right, you may be failing. If you try ten things, and get eight of them right, you're a hero. If you set stretch goals, you'll never be blamed for failing to reach a stretch goal, but you will be blamed for not trying. One of the problems of a large company is risk aversion. Our challenge is how to create an entrepreneurial culture in a larger organization."

5. Effective Oral and Written Communication

Mike Summers, who is Vice President for Global Talent Management at Dell Computers, spoke forcefully on this issue: "We are routinely surprised at the difficulty some young people have in communicating: verbal skills, written skills, presentation skills. They have difficulty being clear and concise; it's hard for them to create focus, energy, and passion around the points they want to make. They are unable to communicate their thoughts effectively. You're talking to an exec, and the first thing you'll get asked if you haven't made it perfectly clear in the first 60 seconds of your presentation is, 'What do you want me to take away from this meeting?' They don't know how to answer that question."

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Listening to Summers' comments as a former high school English teacher myself, I was surprised by the list of skills he thought important: not only being able to communicate one's thoughts clearly and concisely, but also being able to create focus, energy, and passion. Summers and other leaders from various companies were not necessarily complaining about young people's poor grammar, punctuation, or spelling—the things we spend so much time teaching and testing in our schools. While it's obviously important to write and speak correctly, the complaints I heard most frequently were more about fuzzy thinking and young people not knowing how to write with a real voice.

6. Accessing and Analyzing Information

Employees in the 21st century have to manage an astronomical amount of information flowing into their work lives on a daily basis. As Mike Summers told me, "There is so much information available that it is almost too much, and if people aren't prepared to process the information effectively it almost freezes them in their steps."

It's not just the shear quantity of information that represents such a challenge. It is also how rapidly and constantly the information is changing. Quick, how many planets are there? While I was at Harvard in the early 1990's, I heard then Harvard University President Neil Rudenstine say in a speech that the half-life of knowledge in the humanities is ten years, and in math and science, it's only two or three years. And that was fifteen years ago! I wonder what he would say it is today.

7. Curiosity and Imagination

Clay Parker stressed the importance of employees whom he hires being more than just smart. "I want people who can think—they're not just bright—they're also inquisitive. Are they engaged, are they interested in the world?" And Mark Summers told me: "People who've learned to ask great questions and have learned to be inquisitive are the ones who move the fastest in our environment because they solve the biggest problems in ways that have most impact on innovation."

Daniel Pink, the author of A Whole New Mind, observes that with increasing abundance, people want more unique products and services. Plain vanilla won't cut it any more in today's crowded marketplace: "For businesses it's no longer enough to create a product that's reasonably priced and adequately functional. It must also be beautiful, unique, and meaningful." Pink notes that developing young people's capacities for imagination, creativity, and empathy will be increasingly important for maintaining our country's competitive advantage in the future.