

# **Skills for the 21<sup>st</sup> Century**

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The following are excerpts from a 2008 book by Tony Wagner entitled *The Global Achievement Gap*. Mr. Wagner interviewed dozens of corporate executives and visited hundreds of secondary school classrooms. These excerpts were shared with the Upper School faculty earlier this year.

## **Tony Wagner's Seven Survival Skills for Teens Today**

**Critical Thinking and Problem Solving**  
**Collaboration across Networks and Leading by Influence**  
**Agility and Adaptability**  
**Initiative and Entrepreneurialism**  
**Effective Oral and Written Communication**  
**Accessing and Analyzing Information**  
**Curiosity and Imagination**

### **Critical Thinking and Problem Solving**

“Work is no longer defined by your specialty; it’s defined by the task or problem you and your team are trying to solve or the end goal you want to accomplish. Teams have to figure out the best way to get there – the solution is not prescribed. And so the biggest challenge for our front-line employees is having the critical-thinking and problem-solving skills they need to be effective in their teams – because nobody is out there telling them exactly what to do. They have to figure it out.” - Karen Bruett – manager of strategic business development in K-12 education at Dell Computer Corporation.

Critical thinking means “taking issues and situations and problems and going to root components; understanding how the problems evolved – looking at it from a systemic perspective and not accepting things at face value. It also means being curious about why things are the way they are and being able to think about why something is important. What do I really need to understand about this: what is the history; what are other people thinking about this; how does that all come together; what frames and models can we use to understand this from a variety of different angles and perspectives then come up with something different. I feel strongly that schools don’t teach kids how to think really critically. When I taught in college, I found students just couldn’t do it – think critically – and you don’t learn that in one semester. I am a psychologist by training, and I know from my child development studies that you need to start teaching critical thinking as soon as children are capable of abstract thinking.” – Annamarie Neal – vice-president for Talent Management at Cisco Systems.

...a major shift in the way West Point developed leaders; a much more adaptive leadership model followed. We reduced the engineering sequence of courses and added social sciences, humanities, and languages in order to develop cadets’ ability to think

adaptively and flexibly, as well as critically.” – Rob Gordon – former director of American Politics Program at West Point.

### **Collaboration across Networks and Leading by Influence**

“Kids just out of school have an amazing lack of preparedness in general leadership skills and collaborative skills. They lack the ability to influence versus direct and command. Students have a naivete about how work gets done in the corporate environment. They have a predisposition toward believing that everything is clearly defined, and then people give directions, and then other people execute until there’s a new set of directions. ...Boundaries are fluid. ....Rarely does one group have everything they need to get a job done. How do you solve a problem when people who own what you need are outside your organization or don’t report to you, or the total solution requires a consortium of different people? How do you influence things that are out of your direct control? – Mike Summers – vice-president for Global Talent Management at Dell Computers.

“The concept of leading by influence is another example of a skill that’s important not just for businesses but for society overall. It’s about how citizens make change today in their local communities – by trying to influence diverse groups and creating alliances of groups who work together toward a common goal. Aren’t these the leadership skills we want every young person to master in order to be more effective citizens in our democracy?” – Tony Wagner

### **Agility and Adaptability**

Anyone one who comes to work at BOC Edwards “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 reorganization every year because of changes in the business. People have to learn to adapt. I can guarantee that 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.” – Clay Parker

“To survive, you have to be flexible and adaptable and a lifelong learner... And so some of the key competencies we hold employees accountable for include the ability to deal with ambiguity, the ability to learn on the fly, and strategic ability. What goes on in too many classrooms today is the same stuff as fifty years ago, and that’s just not going to cut it.” – Karen Bruett

“You have to take in all sorts of new information, new situations, and be able to operate in ambiguous and unpredictable ways. Our system of schooling promotes the idea that there are right answers, and that you get rewarded if you get the right answer. But to be comfortable with this new economy and environment, you have to understand that you live in a world where there isn’t one right answer or if there is, it’s right only for a nanosecond. If you’re afraid, you can’t think clearly.” – Ellen Kumata – managing partner at Cambria Associates – Consultant to senior executives at Fortune 200 companies.

## **Initiative and Entrepreneurialism**

Six years ago I was working with executives at a large financial firm to figure out what kind of talent they needed. There was a lot of resistance – you can't name it, you know it when you see it, you can't hire for it – all the traditional ways of thinking. Yesterday, we went back to do a full-day working session with all the senior execs on this problem... They've become much more clear about the skills they're looking for: an achievement orientation and a drive for results. Individuals who are self-starters, who take initiative, and who are entrepreneurial." – Ellen Kumata

"Both white- and blue-collar employees – and military personnel – frequently work in teams or with physical and virtual networks of individuals to solve problems or create better products and services. ....because of the rapid pace of change, today's successful employees must be highly adaptable and, in a growing number of organizations, even entrepreneurial." – Tony Wagner

## **Effective Oral and Written Communication**

"Communication skills are a major factor highlighted in dozens of studies over the years that focus on students' lack of preparation for both college and the workplace, and these skills are only going to become more important as teams are increasingly composed of individuals from diverse cultures. The ability to express one's views clearly in a democracy and to communicate effectively across cultures is an important citizenship skill as well." Tony Wagner

"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." – Mike Summers

"Listening to Summer's comments as a former English teacher myself, I was surprised by the list of skills he thought important: not only the ability to communicate one's thoughts clearly and concisely but also the ability 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 the lack of writing with a real voice." – Tony Wagner

## **Accessing and Analyzing Information**

"There's so much more data that people have to synthesize. And they can't just produce a bunch of reports. They have to find the important details and say 'here's what we should do about it'" – Rob Gordon

"Obviously, this information revolution has profound implications not just for work but also for citizenship and lifelong learning. To be active and informed citizens today, knowing how to read a newspaper is no longer enough. We have to be able to

access and evaluate information from many different sources. Indeed, all this access to information is of little use – and may even be dangerous – if we don't know how to evaluate it. Thus the immediate availability of information places an even greater premium on critical-thinking skills” – Tony Wagner

### **Curiosity and Imagination**

“The words *curiosity* and *inquisitiveness* are almost always mentioned when I ask leaders to tell me what skills matter most today. Creativity and innovation are key factors not only in solving problems but also in developing new or improved products and services. And so today's employees need to master both “left-brain” skills – such as critical thinking and problem solving, accessing and evaluating information, and so on – and “right-brain” skills such as curiosity, imagination, and creativity.” – Tony Wagner

“Daniel Pink, the author of *A Whole New Mind*, sees more white-collar jobs being automated or “offshored” – an issue that is at the heart of the questions I'm asking about the skills young people most need today. But he also observes that, in this era of increasing abundance, people want more distinctive products and services. Plain vanilla won't cut it anymore 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....In an age of abundance, appealing only to rational, logical, and functional needs is woefully inefficient. Engineers must figure out how to get things to work. But if those things are not also pleasing to the eye or compelling to the soul few will buy them. There are too many other options.” Pink also notes that developing our capacities for imagination, creativity, and empathy will be increasingly important in a future he describes as “high concept and high touch”: High concept involves the capacity to detect patterns and opportunities, to create artistic and emotional beauty, to craft a satisfying narrative, and to combine seemingly unrelated ideas into something new....High touch involves the ability to empathize with others, to understand the subtleties of human interaction, to find joy in one's self and elicit it in others and to stretch beyond the quotidian in pursuit of purpose and meaning.” – Tony Wagner

An anecdote from *The Global Achievement Gap*:

The exceptions to the rule – the teachers who use academic content as a means of teaching students how to communicate, reason, and solve problems – are rare, fewer than one in twenty in my experience. Their lessons stand out in stark contrast to what you see in most classrooms. I was lucky enough to witness one such lesson while visiting a school last week, which I'll briefly describe here:

*Algebra II.* It is the beginning of the period, and the teacher is finishing up writing a problem on the board. He turns to the students, who are sitting in desk-chairs that are arranged in squares of four that face one another. “You haven't seen this kind of problem before,” he explains. “And solving it will require you to use concepts from both geometry and algebra. Each group will try to develop at least two different ways of solving this problem. After all the groups have finished, I'll randomly choose someone from each

group who will write one of your proofs on one of the boards around the room, and I'll ask that person to explain the process your group used. Are there any questions?

There are none, and the groups quickly go to work. There is a great deal of animated discussion within all of the groups as they take the problem apart and talk about different ways to solve it. While they work, the teacher circulates from group to group. Occasionally, a student will ask a question, but the teacher never answers it. Instead, he either asks another question in response, such as "Have you considered...?" or "Why did you assume that? or simply "Have you asked someone in your group?"

What are some of the design elements that make this an effective lesson – a lesson in which students are, in fact, learning a number of the Seven Survival Skills, while also mastering academic content? First, students are given a complex, multi-step problem that is different from the ones they've seen in the past and, to solve it, they have to apply previously acquired knowledge from both geometry and algebra. Mere memorization won't get them very far in this lesson; critical-thinking and problem-solving skills are required. Second, they have to find two ways to solve the problem, which requires initiative and imagination. Just getting the correct answer isn't good enough; they have to explain their proofs – using effective communication skills. Third, the teacher does not spoon-feed students the answers; he uses questions to push students' thinking – as well as the limits of their tolerance for ambiguity. Finally, because the teacher has said that he'll randomly call on a student to show how the group solved the problem, each student in every group is held accountable. The group can't rely on the work of one or two students to get by, and the teacher isn't going to just call on the first student to raise a hand or shout out an answer. Teamwork is required for success.