

SEVEN

Average Is Over

We have a bone to pick with the writers of the movie *The Social Network*. We take exception to the way they depicted Lawrence Summers, who was the president of Harvard at the time in which the movie is set. At one point, two Harvard students, the twin brothers Cameron and Tyler Winklevoss, go to Summers complaining that a fellow student, Mark Zuckerberg, has stolen their idea for something called “the Facebook.” Summers hears the twins’ tale of woe without a shred of sympathy, then tosses them out with this piece of advice: “Yes, everyone at Harvard is inventing something. Harvard undergraduates believe that inventing a job is better than finding one, so I’ll suggest again that the two of you come up with a new, new project.”

That line is supposed to make Summers look arrogant, unsympathetic, condescending, and clueless. In fact, his point describes perfectly what “better” education should aspire to achieve: ingenuity, creativity, and the inspiration to bring something “extra” to whatever the student winds up doing in the world.

Woody Allen’s dictum that “90 percent of life is just showing up” is no longer true. Just showing up for work will not cut it anymore. Now it is about showing off—not strutting or calling attention to yourself but doing things with an excellence that deserves attention.

America’s economic future will depend on how well we are able to get our whole country to resemble Garrison Keillor’s fictional Lake Wobegon, “Where all the women are strong, all the men are good-looking, and all the children are above average.”

Average is officially over.

In a hyper-connected world where so many talented non-Americans and smart machines that can do above-average work are now easily available to virtually every employer, what was “average” work ten years ago is below average today and will be further below average ten years from now. Think of the world as one big classroom being graded on a curve. Well, that curve is steadily rising as more brainpower and computing power and robotic power enters the classroom. As a result, everyone needs to raise his or her game just to stay in place, let alone get ahead of other workers. What was an average performance in the past will not earn an average grade, an average wage, or a middle-class standard of living.

Say you’re applying to college next year and you’d like to go to a small liberal arts college in central Iowa—say, for instance, Grinnell College. Well, at Grinnell, with 1,600 students in rural Iowa, “nearly one of every 10 applicants being considered for the class of 2015 is from China,” *The New York Times* reported (February 11, 2011). “Dozens of other American colleges and universities are seeing a surge in applications from students in China ... following a 30 percent increase last year in the number of Chinese studying in the United States ... [But this] has created a problem for admissions officers. At Grinnell, for example, how do they choose perhaps 15 students

from the more than 200 applicants from China? ... Consider, for example, that half of Grinnell's applicants from China this year have perfect scores of 800 on the math portion of the SAT, making the performance of one largely indistinguishable from another."

This is just one small reason that whatever your "extra" is—inventing a new product, reinventing an old product, or reinventing yourself to do a routine task in a new and better way—you need to fine-tune it, hone and promote it, to become a creative creator or creative server and keep your job from being outsourced, automated, digitized, or treated as an interchangeable commodity.

Everyone's "extra" can and will be different. For some it literally will be starting a company to make people's lives more comfortable, educated, entertained, productive, healthy, or secure. And the good news is that in the hyper-connected world, that has never been easier. If you have just the spark of a new idea today, you can get a company in Taiwan to design it; you can get Alibaba in China to find you a low-cost Chinese manufacturer to make it; you can get Amazon.com to do your delivery and fulfillment and provide technology services from its cloud; you can find a bookkeeper on Craigslist to do your accounting and an artist on Freelancer.com to do your logo. All you need is that first spark of extra imagination or creativity.

In *Wired* magazine (January 25, 2010), the technology writer Chris Anderson eloquently explained what the hyper-connecting of the world is doing for anyone with an itch to start something:

Here's the history of two decades in one sentence: If the past 10 years have been about discovering post-institutional social models on the Web, then the next 10 years will be about applying them to the real world. This story is about the next 10 years. Transformative change happens when industries democratize, when they're ripped from the sole domain of companies, governments, and other institutions and handed over to regular folks. The Internet democratized publishing, broadcasting, and communications, and the consequence was a massive increase in the range of both participation and participants in everything digital—the long tail of bits. Now the same is happening to manufacturing ... The tools of factory production, from electronics assembly to 3-D printing, are now available to individuals, in batches as small as a single unit. Anybody with an idea and a little expertise can set assembly lines in China into motion with nothing more than some keystrokes on their laptop. A few days later, a prototype will be at their door, and once it all checks out, they can push a few more buttons and be in full production, making hundreds, thousands, or more. They can become a virtual micro-factory, able to design and sell goods without any infrastructure or even inventory; products can be assembled and drop-shipped by contractors who serve hundreds of such customers simultaneously. Today, micro-factories make everything from cars to bike components to bespoke furniture in any design you can imagine. The collective potential of a million garage tinkerers is about to be unleashed on the global markets, as ideas go straight into production, no financing or

tooling required. “Three guys with laptops” used to describe a Web startup. Now it describes a hardware company, too. “Hardware is becoming much more like software,” as MIT professor Eric von Hippel puts it ... We’ve seen this picture before: It’s what happens just before monolithic industries fragment in the face of countless small entrants, from the music industry to newspapers. Lower the barriers to entry and the crowd pours in.

But some people are not risk takers—not resilient or entrepreneurial enough to start a new company from scratch. That’s okay. In that case, though, they need to re-create themselves within their existing company or line of work by taking a routine creator job or routine server job and turning it into something special for which people will want to pay extra.

For some that will be providing something sophisticated that a creative creator would do—designing a building, writing an innovative legal brief, inventing a new business, composing an ad, redoing a kitchen, or writing an iPad application. But for many others it will mean becoming a creative server and bringing a special passion or human touch to a job in a way that truly enriches the experience for the person paying for it. We all know that when we see it. You see it when you visit a parent in a nursing home and watch as that one health-care worker sits patiently with your father and engages him in a way that so clearly brightens his day that you say to yourself, “I am speaking to the manager. I will pay extra just to have her be on duty with Dad every day.” You see it when you are waited on by a salesperson in the men’s suit department or the women’s shoe department who is so engaging, so up on the latest fashions and able to make you look your best, that you’ll come back and ask for that person by name. You see it in that trainer or Pilates instructor who seems to know exactly how to teach each exercise properly—the one everyone is standing in line for, even though he charges more than his colleagues. And you see it on Southwest Airlines, where they manage to take an economy airline seat and give it something extra. Southwest pilots, stewards, and stewardesses try to bring a little humor and a personal touch to everything they do.

The point of this chapter, and the whole education section, is this: For decades there has been a struggle between the American economy’s desire to constantly increase productivity and the desire to maintain blue-collar jobs. We watched as more and more machines and cheaper and cheaper foreign workers replaced American manual laborers. We compensated for this loss of blue-collar jobs by creating white-collar jobs. But how do we compensate for the loss of white-collar jobs, which are increasingly under threat in the hyper-connected world? We do it by inventing new kinds of white-collar jobs. But that requires more start-ups and better education and more investment in research and development to push out the boundaries of science and technology. Today, the Chinese can generate growth just by educating their people enough to do the jobs now done in rich countries. For us to grow, we have to educate people to do jobs that don’t yet exist, which means we have to invent them and train people to do them at the same time. That is harder, and it is why we need *everyone* to aspire to be a creative creator or creative server.

There are three mind-sets that are helpful in thinking about how to be a creative

creator or creative server: think like an immigrant, think like an artisan, think like a waitress.

Every American worker today should think of himself as a new immigrant. What does it mean to think like an immigrant? It means approaching the world with the view that nothing is owed you, nothing is given, you have to make it on your own. There is no “legacy” slot waiting for you at Harvard or the family firm or anywhere else. You have to go out and earn or create your place in the world. And you have to pay very close attention to the world you are living in. As with immigrants throughout history, Americans now find themselves in new and in many ways unfamiliar circumstances. In important ways, in this hyper-connected world of the twenty-first century we *are* all immigrants.

Everyone should also think like an artisan, argues Lawrence Katz, the Harvard labor economist. “Artisan” was the term used before the advent of mass manufacturing to describe people who made things or provided services with a distinctive touch and flair in which they took personal pride. Prior to the Industrial Revolution, this included just about everyone: the shoemaker, the doctor, the dressmaker, the saddler. Artisans gave a personal touch to whatever they did, and they often carved their initials into their work. It’s a good mind-set to have for whatever job you are doing: Would you want to put your initials on it when it’s done?

Finally, it would not hurt for all of us at times to think like a waiter or waitress. In late August 2010, Tom was in his hometown of Minneapolis, having breakfast with his friend Ken Greer at the Perkins pancake house. Ken ordered three buttermilk pancakes and fruit. When the waitress came back with the breakfast plates, she put them down in front of each of them, and as she put Ken’s plate down she simply said, “I gave you extra fruit.” “We gave her a 50 percent tip for that,” Tom recalled. That waitress didn’t control much in her work environment, but she did control the fruit ladle and her way of trying to do that little extra thing was to give Ken extra fruit. In many ways, we all need to think like that waitress and ask: What is it about how I do my job that is going to differentiate me? More than ever now, we are all waiters and waitresses trying to do that something extra that a machine, a computer, a robot, or a foreign worker.

This kind of “extra” is what “better” education has to achieve and to inspire. For the last 235 years, America expanded and upgraded its educational system again and again in line with advances in technology. When we were an agrarian society, that meant introducing universal primary education; as we became an industrial society, that meant promoting universal high school education; as we became a knowledge economy, that meant at least aspiring to universal postsecondary education. Now the hyper-connected world is demanding another leap. Mark Rosenberg, the president of Florida International University, which has 42,000 students, summed up what it is: “It is imperative that we become much better in educating students not just to *take* good jobs but to *create* good jobs.” The countries that educate and enable their workers to do that the best will surely thrive the most.

Indeed, as globalization and the IT revolution continue to merge, expand, and advance, the more they will destroy the old categories of “developed” and “developing” countries. Going forward, we are convinced, the world increasingly will be divided between high-imagination-enabling countries, which encourage and enable the imagination and extras of their people, and low-imagination-enabling countries,

which suppress or simply fail to develop their peoples' creative capacities and abilities to spark new ideas, start up new industries, and nurture their own "extra." America has been the world's leading high-imagination-enabling country and now it needs to become a *hyper*-high-imagination-enabling society. That is the only way we can hope to have companies that are increasingly productive *and* many workers with jobs that pay decent salaries.

The big question for American educators, though, is how one actually goes about teaching "extra." The three R's—reading, writing, and arithmetic—we know how to teach and test. Teaching "extra," though, requires both teaching and *inspiring* creativity. There is no one way to do this, and the different attempts to teach creativity and "extra" are among the most exciting experiments in education today. But we know it can be done because people are already doing it.

The Three C's

Tony Wagner, the Innovation Education Fellow at the Technology and Entrepreneurship Center at Harvard and author of *The Global Achievement Gap* and *Learning to Innovate, Innovating to Learn*, has a good definition of a "better" education. It is one that teaches what Wagner calls the "the three C's"—"critical thinking, effective oral and written communication, and collaboration."

Thinking critically, Wagner says, involves asking the right questions—rather than memorizing the right answers. Communication and collaboration involve defining objectives and then working with others to bring them about. A person needs all three C's to become a creative creator or a creative server.

"If you cannot communicate, you cannot collaborate," explains Wagner, "and if you cannot collaborate, you will be less creative." There is a myth, he says, that the most creative and innovative people do their best work alone. "That is simply not true from what I see in the workplace and from talking to highly innovative people. Innovation today is almost always done in teams that are multinational, multilingual, and even virtual." In such teams, he argues, "to work effectively you have to communicate effectively."

But how can we nurture that first C—creative and critical thinking—in a classroom setting? It is not easy to define creativity with any precision, let alone measure it or teach it. Nonetheless, because the merger of globalization and the IT revolution is putting every job under pressure, because well-paying jobs will more and more require a measure of creativity, and because the burden of preparing Americans for the workforce falls so heavily on our schools, the schools must find ways to inspire the three C's while teaching the three R's.

Here we offer a few examples of what strike us as successful efforts to do so. We begin with Steve Jobs and his often cited 2005 commencement speech at Stanford University. Jobs attended Reed College, in Oregon, for one semester, and then dropped out, but that brief experience left its mark.

I naively chose a college that was almost as expensive as Stanford, and all of

my working-class parents' savings were being spent on my college tuition. After six months, I couldn't see the value in it. I had no idea what I wanted to do with my life and no idea how college was going to help me figure it out. And here I was spending all of the money my parents had saved their entire life. So I decided to drop out and trust that it would all work out OK. It was pretty scary at the time, but looking back it was one of the best decisions I ever made. The minute I dropped out I could stop taking the required classes that didn't interest me, and begin dropping in on the ones that looked interesting.

It wasn't all romantic. I didn't have a dorm room, so I slept on the floor in friends' rooms, I returned Coke bottles for the 5¢ deposits to buy food with, and I would walk the 7 miles across town every Sunday night to get one good meal a week at the Hare Krishna temple. I loved it. And much of what I stumbled into by following my curiosity and intuition turned out to be priceless later on. Let me give you one example:

Reed College at that time offered perhaps the best calligraphy instruction in the country. Throughout the campus every poster, every label on every drawer, was beautifully hand calligraphed. Because I had dropped out and didn't have to take the normal classes, I decided to take a calligraphy class to learn how to do this. I learned about serif and sans serif typefaces, about varying the amount of space between different letter combinations, about what makes great typography great. It was beautiful, historical, artistically subtle in a way that science can't capture, and I found it fascinating.

None of this had even a hope of any practical application in my life. But ten years later, when we were designing the first Macintosh computer, it all came back to me. And we designed it all into the Mac. It was the first computer with beautiful typography. If I had never dropped in on that single course in college, the Mac would have never had multiple typefaces or proportionally spaced fonts. And since Windows just copied the Mac, it's likely that no personal computer would have them. If I had never dropped out, I would have never dropped in on this calligraphy class, and personal computers might not have the wonderful typography that they do.

There are two messages contained in Jobs's speech. The first is the importance of a liberal-arts education. To be sure, no one can be a creative programmer without knowing math or basic computing. And no one can be a creative engineer without knowing basic physics, nor can anyone invent a new drug without a background in biology and chemistry. Being grounded in the three R's and in an intellectual discipline matters. But if, in our rush to get everyone a proper grounding in math and science, we throw out or shrink art, music, journalism, choir, band, film, physical education, dance—and calligraphy—as many public schools are being forced to do, we lose the very things that encourage collaboration and inspire creativity and mash-ups.

The other lesson of Jobs's speech for teaching creativity is the importance of what Wagner calls “play” and “discovery.” These two are related in children from an early

age. Jobs was indulging himself when he took that calligraphy course, just exploring things he never knew about before or never felt he had time to explore. He was “playing,” in the way educators use that word. “Every kid is an artist in kindergarten,” explains Wagner. “Play is a form of discovery, and it is how we begin to make sense of the world and discover our passions.” The problem with school today, Wagner argues, “is that it doesn’t respect play, passion, and purpose—and isolates those who won’t conform.” Because these attributes cannot be measured, they cannot be tested, so they are not really valued.

Marc Tucker heads the National Center for Education and the Economy. He says that some of the best school systems he has studied, such as Denmark’s, promote play with a purpose—but at a very high level. “I observed this in a technical high school in Denmark,” said Tucker, “where the class was divided into four or five teams and each was given the assignment to build a dogsled. They competed with one another. First, they had to decide: Do we optimize for speed, for going a long distance, or for carrying heavy loads? You had to announce your criteria in advance and lay out your plan, and then build to it.” While teams could decide their own work schedules, it was not just unstructured exploration. “It was supported exploration,” said Tucker. “What I mean is that you take a problem that others have worked on before and you work your own way toward solving it. It requires you to draw on but then extend your classroom knowledge, to search for the relevant information you need, to filter out what can and can’t be used to solve the problem, to learn how to be skeptical of some information, and ultimately to translate it all into a solution. At each stage you are supported by the faculty, so it is not totally unstructured.”

Tucker added, “I have seen lots of project-based curriculum in the U.S. but the substance is often so shallow. To make this work, it has to be built on a solid base of knowledge. You have to know some basic engineering to build a dogsled. If you don’t have that solid base of underlying skills, you will get nowhere.” The goal, Tucker said, is a classroom situation where students can explore and collaborate, “but it has to be against a set of high standards for the project” so that students cannot just turn in any piece of junk and call it creative.

When it is done seriously, Tucker concluded, “it gives young people confidence, and that is crucial. To be creative, people need to have the confidence that they can do it.” They also need the confidence to believe that “they can leave their moorings” and explore somewhere new outside their comfort zone.

The best companies already understand this. The adult version of “play” are programs that companies such as Google and 3M have instituted, in which employees are invited to spend 15 or 20 percent of their week working on projects that they devise, which are loosely connected to the company’s main mission but can lead in almost any direction. “It is permission to play on company time,” said Wagner. The programs have been a rich source of innovations for both companies. The website eWeek.com ran a piece (October 31, 2008) about Google’s “20 percent time rule, which allows programmers and other Google employees to spend one of their five work days per week working on something of their own design. These projects stay in-house for a while, but several have been spun off for use in the outside world ... Gmail, Google News and Google Talk are among that number.”

The Good News

Fortunately, many American educators, at all levels, are aware of this challenge and are exploring unconventional ways to address it.

In 1981, Steve Mariotti had just left his job as an analyst with Ford Motor Company and moved to New York to start a new business when he got mugged jogging along the East River. Five teens jumped him, beat him up, and stole the \$10 he was carrying. Afterward, he said, “I felt like if they had only asked for help, I would have given it to them.” The son of schoolteachers, Mariotti decided after the incident to quit his job and teach in an inner-city school. The transition was rocky. “On his first day at Brooklyn’s Boys and Girls High School,” *People* magazine reported (September 13, 2003), “troublemakers called him Mr. Manicotti. One pupil set another kid’s coat on fire. ‘I was terrified,’ he says. ‘The principal told me I was the worst teacher in the school ... I realized the good kids were getting bullied and tormented by the few who were really bad,’ says Mariotti, who soon changed his teaching methods.”

In a departure from normal practice at that school he decided to teach something that his students wanted to learn—how to make money. Suddenly, said *People*, they were flocking to his new business class, “a mix of basic math, English, commercial skills and trips to places like a wholesale market.”

The experience eventually led Mariotti to establish, in 1987, the Network for Teaching Entrepreneurship (NFTE), an organization that helps young people from low-income communities unlock their potential for entrepreneurial creativity by teaching them to start their own businesses, which keeps them in school as they are learning how to do this.

Today more than 330,000 students in junior and senior high schools across America have taken part in a NFTE course or in its national competition for the best new business plan put together by a student age eleven to eighteen. Here is how it works. Once a school has affiliated with NFTE, explained Amy Rosen, the organization’s current president, “we hold NFTE University, where the teachers who will be implementing our program are trained to deliver our unique curriculum”—a mix of math, introductory accounting, entrepreneurship, and economics.

NFTE then provides the schools with its own specially designed textbook, now in its eleventh edition, which teaches the basics of entrepreneurship. The students participate either as a stand-alone course or as part of other courses, such as economics, which requires their mastering a certain level of math. Says Rosen, “You cannot figure out return on investment if you cannot multiply fractions.” The class starts with each student being given \$25 to buy something to resell for a profit at a NFTE-sponsored school bazaar. “That’s how you learn the difference between gross and net profits,” said Rosen. Then every student has to design a business according to a defined template.

Throughout the year they work on developing a business plan for their own business, which they present and defend in the spring. If they choose, they can then enter local, city, state, and national competitions to become one of the national finalists. In 2010, President Obama met with the finalists, who were chosen from an original pool of 20,000 entrants. The overall winner, Nia Froome, a seventeen-year-old student from Valley Stream, New York, received the \$10,000 grand prize for the

business she started, Mamma Nia's Vegan Bakery. Bosnian immigrants Zermina Velic and Belma Ahmetovic, from Hartford, took first runner-up for their computer services company, Beta Bytes, which they started to help fellow immigrants deal with their computer problems.

Many students drop out of school today because they can't make a connection with their teachers or their curricula, noted Rosen. "What NFTE does is engage their brains in projects they feel are relevant and bring out that individual thing we all have," she explained. "Remember, free enterprise is all based on individuality and people finding their own path to independence. And when you find a way for kids to engage their brains and combine it with a way for them to discover their individual interest, you have a winning combination."

These students "have a lot of street smarts," Rosen added. "Most of them are surviving in really challenging environments. So if you just give them the minimum amounts of information and show them the world beyond their communities, many of them are natural entrepreneurs. They see all kinds of opportunities. They see a way to make a living in this world in a whole different way."

A documentary about NFTE entitled *Ten9Eight* was released in 2009, which is how we found out about the program. The three finalists that year were an immigrant's son, who took a class from H&R Block and invented a company to do tax returns for high school and college students; a young woman who taught herself how to sew and designed custom-made dresses; and the winner, an African American boy who manufactured "socially meaningful" T-shirts. The young woman who started the clothing business "turned down an Ivy League college to attend Northwestern," said Rosen, "because Northwestern promised her a single room so she could bring her sewing machine to school."

Creative Crimson Tide

Many colleges attempt to teach creativity and critical thinking. One of the more novel programs for this purpose is the Creative Campus, initiated by the University of Alabama. Hank Lazer, the associate provost for academic affairs and the program's executive director, explained to Tom that it all started by accident—by students looking for something extra. In 2005, the university was offering an honors seminar called "Art and Public Purpose," about how public institutions can support the arts. At the end of the term the thirteen students, rather than write individual papers, banded together and "presented a long report and recommendations to the provost on how to broaden and deepen the exposure to the arts by Alabama students on and off campus, so students not majoring in the arts could be more artistically expressive," said Lazer. "They thought it was important." So did the university leadership, which had recently commissioned a study that found that some 70 percent of entering University of Alabama students had participated in a band, a choir, a yearbook staff, a newspaper, or something involving the arts, but only 19 percent did so while in college. "That was a disturbing statistic, coming at a time when 'creativity' was emerging as the new necessity for an educated person—and to get a job," said Lazer.

The university leadership got the message, and in 2006 it initiated a program called

Creative Campus, designed to nurture creativity among students by getting them to think about how to promote the arts in their community, on and off campus. The program was given its own prestigious home in Maxwell Hall, the university's old observatory at the highest point of the original UA campus, and, more important, directly across the street from the football stadium! The university was encouraged to fund the program, said Lazer, after visits to the campus by Daniel Pink, author of *A Whole New Mind: Why Right-Brainers Will Rule the Future*, and Sir Ken Robinson, author of *Out of Our Minds: Learning to Be Creative*, "who were touting creativity as the driving force for economic and community development."

Creative Campus works this way: Each year forty to forty-five students are paid between \$8 and \$10 an hour for ten hours of work a week to come up with ideas that fuse and promote the arts and culture in ways that enrich student life and the artistic life of the surrounding community. They put together their own teams to develop project ideas and to collaborate in executing them. For instance, one project, Lazer explained, "involved Creative Campus interns pulling together a multifaceted partnership with the West Alabama Chamber of Commerce, the City of Tuscaloosa, the City of Northport, and Tuscaloosa County—and Robert McNulty's Partners for Livable Communities—to develop a comprehensive cultural arts and economic development plan for the region." The campaign was called "Culture Builds." Another team put together the Druid City Arts Festival—which is held in downtown Tuscaloosa to highlight a range of local artists and bands, and is now in its second year. Yet another team created a program called Unbound Arts to present the artwork of people with disabilities.

Lazer says that "we are a deliberately unstable and organic group by design." The purpose is to push students into thinking creatively and entrepreneurially about broadening exposure to the arts "in a way that will push every one of our students out of their comfort zone." Interns not only have to learn about the area's art and music scene in depth; they have to propose ideas for engaging it and then work through all the bureaucratic issues involved in staging a major event.

"A lot of the completion of a really creative task is boring," Lazer said, which is why his program aims not only to foster imagination but also to teach execution. "Persistence trumps talent, but it is best to have both," he says. "The students who want to organize an arts festival learn to work with the mayor and the city regulations that they need to negotiate. They learn that that is a big part of doing anything exciting." The whole idea is to let students "play" in a structured way and with a purpose.

Besides thinking creatively and collaboratively, Lazer said, "we are teaching the students two things: self-confidence and resiliency, which is what gives you the ability to get through the failures. It takes you at least ten ideas to come up with the good one," and then persistence squared to get that good one done. "We have one student," Lazer added, "who is graduating in electrical engineering who just decided to take one year off to work on his band. His mom told us she is not upset by this detour, which is probably what it will prove to be, because of the self-confidence she has seen her son develop in the program. I suspect that in two or three years, when he is working for Apple or Google, his band experience will also serve him well."

An Idealab

When you ask Bill Gross what it takes to be creative and a starter-upper, he doesn't say math or liberal arts or collaboration. He says "courage."

Gross knows start-ups and starter-uppers as well as anyone in America's high-tech firmament, for the simple reason that his start-up business manufactures start-ups. Gross founded the Idealab in Pasadena, California, in 1996, describing it as an innovation laboratory that supports "groundbreaking companies whose products and services change the way people think, live, and work." Working out of a big warehouse, Gross hosts and helps to fund half a dozen or more start-ups at a time under one roof. You can walk the halls of his office and find a budding solar company in one corner working next to a budding social-networking game company in another. After his college days at Caltech, Gross says, he was a "serial entrepreneur," starting one company after another, until he realized that he was a "parallel entrepreneur" and became the incubator/partner for many start-ups at once. Gross's Idealab has gotten about a hundred companies up and running since 1996. Among his recent winners was Picasa, a software download sold to Google that helps users organize, edit, and share photos.

"I look at the world and see something I don't like and my immediate instinct is to say, How can I fix that? I don't think I have better skill than other people to do that, but I have less fear than other people to go out and do it." Gross argues that a big part of teaching the creative process at any level involves getting people to overcome their fear of failure and plunge ahead when they have an idea.

Who taught him that? "Failure," says Gross. "We have had one hundred companies over the last twenty years and sixty have succeeded and forty failed, and the failures are where I learned everything. Everybody goes through life and sees things and says, 'I wish that were this way.'" But most people stop there. The successful creators and entrepreneurs are the people who overcome that fear and act. The biggest barrier to creativity, argues Gross, is "lack of self-confidence."

Gross says he gained confidence "from a few failures I had at the beginning—and maybe it came from realizing that a few failures at the beginning didn't feel that bad. Failure that produces learning along the way is not looked on as a scarlet letter. As an employer, I find that when prospects come to me with failures on their résumés that they have taken accountability for and learned from, they are way more exciting to hire than someone who comes with a success that might have been due to luck. Every big company goes through hard times at some point, and having someone who has lived through that is very helpful."

Successful creators, argues Gross, not only have a gift for seeing things before others do. They have another skill that is just as important, if less glamorous. They know how to get things done. "Getting stuff done is really underrated," said Gross. "Bill Gates had a vision but then he just stuck with it and stuck with it and stuck with it. People laughed along the way; he just stuck with it. That you cannot teach ... You can admire and learn from it."

And as someone who is immersed in this world, Gross has no doubt that everyone needs to aspire to be what we call a creative creator or creative server, but he also believes strongly that there has never been a better time to do so. "This is a great time

to be an entrepreneur,” he argues. “There is lots of money around. And if you make something happen that catches on, you can reach the whole planet with your idea. You have to make something that gets through the noise, but if you do, you have a global reach that is just unbelievable.”

Yes, And

Like Gross, the best educators understand that “extra” and “creativity” are not so much taught as they are unlocked and let out, after which they are usually self-propelled. One school that was designed to foster this is the forty-three-year-old Nueva School, a private school located in Hillsborough, California, between San Francisco and Palo Alto. Nueva is for gifted children. Few public schools can match the resources and teacher-student ratio of Nueva, with more than four hundred pupils and facilities such as a children’s workshop with every imaginable tool designed for students to build things. But the principles Nueva applies in teaching young people from a very early age to be creative are things that others can copy, because they don’t involve money or class size or even the individual genius of students. They involve intangibles, such as trusting teachers, helping students develop the confidence to take risks, and—most important—learning to say “Yes, and,” according to Nueva’s head of school, Diane Rosenberg.

Rosenberg says that she and her colleagues approached the issue of how to nurture creativity by starting with a simple question: Who are successful people in life? “As we looked around,” she recalled, “the answer was that they were people who pursued their passion with a purpose. And they were all-in in doing so. They did it with their entire being, whatever it was. They were pulled by something inside them, not driven.”

That being the case, she said, starting with the four-year-olds in pre-K, the Nueva School encourages all students to find those things that pull them from within, through a combination of classroom fundamentals and project-based learning. Everything starts with a solid grounding in the fundamentals, says Rosenberg, echoing Marc Tucker. “Creativity only comes from a genuine understanding of a discipline,” she said. “We try to provide a solid foundation of core concepts and skills and then encourage students to play with ideas which they develop a passion for. But you cannot play with ideas if you don’t have the core understanding.”

For instance, says Rosenberg, a class might be studying ancient Egypt. They first study all the fundamental information in depth, and then each student is encouraged to explore whatever aspect of that society intrigues him or her—science, the Pyramids, economy, culture—through collaborative project-based research.

“As a teacher, you have to let go a little,” said Rosenberg. You don’t know exactly what a student might want to explore. Therefore, “you have to know that the kids are going to ask questions that the teacher doesn’t have the answers to and that teacher has to be willing to say, ‘I don’t know, let’s find out who does,’” said Rosenberg. “It is about directing them and teaching them how to ask the questions and how to navigate that world ... Part of that also involves creating a classroom environment where students feel free to pursue any idea without fear of ridicule, so that kids don’t feel

they have to conform.”

Which leads to Nueva’s overall teaching philosophy: “Yes, and.” Explains Rosenberg: “When a student proposes a project idea, our teachers are encouraged to say, ‘Yes, and ... would you consider taking it this direction?’” The idea is not just to accept any idea but always to begin by building on something coming from inside that student and then trying to guide it in a productive direction. But it has to start with saying “Yes” to student-generated ideas, whenever possible.

Self-motivation is vital now for other reasons as well. In a hyper-connected world where innovation takes place ever more rapidly, what a person knows today will be outdated tomorrow. In such a world one of the most important life skills will be the ability and desire to be a lifelong learner. If average is over, then school is never over. Some people are born with the curiosity and drive to keep learning long after they have left school. Others need to have it inspired in them, and that often comes from having had at least one great teacher who got them excited about a subject or embraced their own excitement with “Yes, and.” Wherever it comes from, everyone is going to need it because a better education today is one that prepares a student to understand a book that has not yet been written, to master a job that has not yet been created, or to conceive a product that does not yet exist. That is what students in their working lives will have to do, repeatedly.

“Trust,” “ownership,” and “self-propulsion” are important words when it comes to bringing out people’s extras, and Rosenberg uses them a lot. “All great teachers feel like they are working for themselves,” she said. And so do all inspired students. The more trust you bring into a classroom—the more administrators can trust principals, principals can trust teachers, and teachers can trust students—the more each one of them, more often than not, becomes self-propelled, doing more than anyone would ever think of demanding from them.

So yes, it is possible to teach creativity, not only with a radical new curriculum but with some very traditional old values: trust, ownership, self-confidence, courage, and most of all, two common indispensable words in the English language, used together: “Yes, and.” Surely every school in America has room for these basic values in its classrooms.

If Carlson’s Law is correct and more and better innovation is going to be coming from the bottom up and less from the top down, then a leader or teacher or principal cannot be effective without being able to inspire workers or students.

“You cannot command collaboration and creativity,” says Dov Seidman of LRN. “You have to inspire it and create a context and an environment and a culture where it can happen—and where people [who feel] united by a shared vision will then work collectively and collaboratively to make it happen.”

“Extra” also has to be inspired because, as we’ve said, for many people the extra they have to add will not be a software breakthrough or a rocket design or even the drive to exceed a sales target. It will be something simpler but all too rare these days: the ability to connect with other human beings in a way that no machine ever can—whether you are a doctor, nurse, salesclerk, or teacher. Seidman maintains that “this distinctly human ability to be humane, hopeful, and helpful” cannot simply be taught to people; it, too, has to be inspired *in* people.

“I Kill Jobs”

For all these reasons, the merger of globalization and the IT revolution has made average a dangerous place to be on the workplace spectrum, and one way or another everyone needs to find his or her “extra.”

No one has more bluntly summed up why average is over, and what it means for education, than John Jazwiec, who has headed a variety of technology start-ups, including RedPrairie and FiveCubits. Blogging on his website, JohnJazwiec.com, he confessed:

I am in the business of killing jobs. I kill jobs in three ways. I kill jobs when I sell, I kill jobs by killing competitors, and I kill jobs by focusing on internal productivity. All of the companies I have been a CEO of, through best-in-practice services and software, eliminate jobs. They eliminate jobs by automation, outsourcing, and efficiencies of process. The marketing is clear—less workers, more consistent output. I reckon in the last decade I have eliminated over 100,000 jobs in the worldwide economy from the software and services my companies sell. I know the number, because ... my revenues ... are based on the number of jobs I kill. I have killed many competitors. Again, I reckon I have eliminated over 100,000 jobs in the last decade. I know the number, because I know I have been in large markets, and have ended up being one of two companies left standing, where there were many more when I took over. Finally, I have killed many internal employees. When I acquire a company, some of the “synergies” [involve] eliminating duplicate jobs. When I buy productivity software or outsource for lower labor costs, I kill internal jobs. Finally, companies that grow demand internal people to grow. They attract better job candidates. Growing companies kill internal jobs by economic darwinism. So there, I have said it, I am a serial job killer.

He explained: “Any job that can be eliminated through technology or cheaper labor is by definition not coming back. The worker can come back. They most often come back by being underemployed. Others upgrade their skills and return to previous levels of compensation. But as a whole, the productivity gains over the last twenty years have changed the landscape of what is a sustainable job.

What, then, is a sustainable job? Jazwiec asks.

The best way I can articulate what is a sustainable job is to tell you, as a job killer, [sustainable jobs are] jobs I can’t kill. I can’t kill creative people. There is no productivity solution or outsourcing [strategy] that I can sell to eliminate a creative person. I can’t kill unique value creators. A unique value creator is, well, unique. They might be someone with a relationship with a client. They might be someone who is a great salesman. They might be

someone who has spent so much time mastering a market that they are subject matter experts ...

The largest factor in high systemic unemployment is a failure in our schools and workforce to recognize [that] we have entered into a “free agent” era of labor. Everyone is now a free agent. The days [when] people worked for one company have been gone for a long time. But the days where people could assume [that] if they worked hard and the company they worked for was successful, [this] made them “safe,” is now over. They are over because job killers like me are lurking everywhere ... Until our children are taught to be individuals, until our colleges spend more time on creative application, and until we provide training and mentoring for before-gainfully-employed professionals, high systemic unemployment is never going away. In the meantime, the fully employed herd, without creative unique value contribution skills, will continue to be prey to serial job killers like me.