



Introduction

To Create Is Human

This book started with a story I read in *Young World Rising: How Youth, Technology, and Entrepreneurship Are Changing the World From the Bottom Up*, a book about young entrepreneurs in developing countries, authored by Rob Salkowitz (Salkowitz, 2010). The book begins with the story of Suhas Gopinath, the Indian teenage entrepreneur who started his company developing websites for businesses in the United States at the age of 14 (Salkowitz, 2010). Born in 1986, Gopinath began his career as a freelance Web developer when he was 13, using skills he learned while minding the local cyber café in Bangalore. When he decided to found his own company, Globals Inc., he had to register it in California because Indian laws did not permit him to do so. A decade later, Globals Inc. is a multimillion-dollar global company with operations in a dozen countries. Gopinath has been recognized as the world's youngest CEO, with awards from various organizations including the World Economic Forum, the European Parliament, and the International Association for Human Values.

The story got me thinking. At a time when even college graduates are having a hard time finding a desirable job, or any job at all, how could Suhas Gopinath, a teenager from a family without a business tradition in one of the poorest countries on earth, create a job he apparently loves for himself and many others? Why don't the college graduates in developed countries who supposedly have better education and more resources than Gopinath create jobs for themselves?

THE NEED FOR ENTREPRENEURSHIP

Youth unemployment has become an urgent challenge facing the global society. In 2011, nearly 75 million youth aged

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15 to 24 were unemployed worldwide. The majority of the world's youth (87%) living in developing countries "are often underemployed and working in the informal economy under poor conditions," according to the 2012 *The World Youth Report* of the United Nations (United Nations, 2011). But the situation is not much better in the developed countries. In the 34 member countries of the Organisation for Economic Co-operation and Development (OECD), which include the world's wealthiest and most developed countries, "22.3 million young people—were inactive in the fourth quarter of 2010, neither in jobs nor in education or training" (United Nations, 2011).

Entrepreneurs like Gopinath are what the world wants to solve the unemployment problem. Numerous international organizations have produced reports about the importance of entrepreneurship and issued calls for countries to develop entrepreneurship (Schoof, 2006; World Economic Forum, 2011). The World Economic Forum, for example, has identified entrepreneurship education as the core of its Global Education Initiative (World Economic Forum, 2009, 2011) because "[I]nnovation and entrepreneurship provide a way forward for solving the global challenges of the 21st century, building sustainable development, creating jobs, generating renewed economic growth and advancing human welfare" (World Economic Forum, 2009, p. 7). "Entrepreneurs are recognized as important drivers of economic and social progress, and rapidly growing entrepreneurial enterprises are viewed as important sources of innovation, employment and productivity growth," says another report of the World Economic Forum (World Economic Forum, 2012).

To raise awareness of the importance of entrepreneurship and celebrate entrepreneurs, U.K. Prime Minister Gordon Brown and Carl Schramm, the president and CEO of the Ewing Marion Kauffman Foundation, kicked off the annual Global Entrepreneurship Week (GEW) initiative in 2008. Since then GEW has become "the world's largest celebration of the innovators and job creators who launch startups that bring ideas to life, drive economic growth and expand human welfare" with

115 countries participating (Global Entrepreneurship Week, 2012). In his 2009 Presidential Proclamation of the GEW in the United States, President Barack Obama spoke highly of entrepreneurs: “Throughout our history, American entrepreneurs have been an effective force for innovation at home and around the world. . . . Entrepreneurs are the engine of job creation in America, generating millions of good jobs” (Obama, 2009). The European Roundtable on Entrepreneurship Education wrote in a report:

Europe is facing challenges in terms of competitiveness as well as economic and sustainable growth. . . . Europe must invest in developing entrepreneurial and innovative skills to build sustainable economic development, create jobs, generate renewed economic growth and advance human welfare. (European Roundtable on Entrepreneurship Education, 2010)

THE REDEFINITION OF ENTREPRENEURSHIP

While Gopinath may epitomize traditional entrepreneurship, that is, the ability to start a business and make a profit, the meaning of entrepreneurship has expanded significantly in its current use. The World Economic Forum defines entrepreneurship as

a process that results in creativity, innovation and growth. Innovative entrepreneurs come in all shapes and forms; its benefits are not limited to startups, innovative ventures and new jobs. Entrepreneurship refers to an individual’s ability to turn ideas into action and is therefore a key competence for all, helping young people to be more creative and self-confident in whatever they undertake. (World Economic Forum, 2009, p. 9)

Entrepreneurs are no longer only those who start a business and try to maximize profits. There are social entrepreneurs

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who recognize a social problem and apply entrepreneurial principles to achieve social change (Martin & Osberg, 2007). There are intrapreneurs who bring significant innovative changes from within an organization (Swearingen, 2008). There are also policy entrepreneurs, whose enterprise is to bring innovative improvement in policy from within public and government institutions (Harris & Kinney, 2004).

With the expanded definition, entrepreneurs are believed to have more power to solve the complex problems facing human beings and bring prosperity to humanity than governments and international organizations, according to Philip Auerswald, senior fellow in Entrepreneurship of the Kauffman Foundation and associate professor at George Mason University. In his 2012 book *The Coming Prosperity: How Entrepreneurs Are Transforming the Global Economy*, Auerswald argues that “the vast majority of alleged threats to humanity are, in fact, dwarfed by the magnitude of opportunities that exist in the twenty-first century” (Auerswald, 2012b, location 133–136). These opportunities will be harnessed by entrepreneurs, more so than governments, to transform the human society:

if anything is more naïve than an unquestioning belief in the transformative power of entrepreneurs, it is an unquestioning belief in the power of national governments, international organizations, and multinational corporations to address complex twenty-first century challenges. In many parts of the world where change is most urgently needed, governments are as likely to be a part of the problem as a part of the solution. In such environments, all institutions structured to work through national governments face serious handicaps. The relevance, much less effectiveness, of the UN and the World Bank—the two institutions most clearly tasked in the post–World War II order with addressing global challenges—is less assured today than that of entrepreneurs. (Auerswald, 2012b, location 136–139)

THE MISSING LINK

The world needs entrepreneurs and great entrepreneurs like Henry Ford, Thomas Edison, Steve Jobs, Richard Bronson, and Mark Zuckerberg, who are admired, envied, celebrated, and in great demand. But how come we don't have more of them?

The missing link is “an entrepreneurial mindset—a critical mix of success-oriented attitudes of initiative, intelligent risk-taking, collaboration, and opportunity recognition,” says a report by the Aspen Institute Youth Entrepreneurship Strategy Group (Aspen Youth Entrepreneurship Strategy Group, 2008). It is hard to imagine someone without an entrepreneurial mindset to engage in entrepreneurship activities. Moreover, the entrepreneurship mindset as defined by the Aspen Institute is also needed for working in existing businesses and organizations. It is a frustrating and sad irony that with so many unemployed in the world, business leaders are complaining that they cannot find qualified workers (Auerswald, 2012b; Zhao, 2009). “The number of workers with adequate skills has decreased,” says the Manpower Group, a global consulting firm with offices in over 80 countries (Manpower Group, 2012).

Why is the “entrepreneurial mindset” missing in our society in general and among our youth in particular?

Our schools don't teach entrepreneurship seems to be a logical answer. It is generally true that “entrepreneurship” has not been part of the formal curriculum in the majority of schools around the world. Even in the United States, a country that has been typically or stereotypically viewed as the land of entrepreneurship, “there is no system in place that offers Entrepreneurship Education as an option for all students” (Aspen Youth Entrepreneurship Strategy Group, 2008, p. 19). As a result, “youth Entrepreneurship Education programs are in place in some communities, but most American youths have little or no access to such training,” writes the Aspen Institute Youth Entrepreneurship Strategy Group in its 2008 *Policy Maker's Action Guide* for youth entrepreneurship education

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(Aspen Youth Entrepreneurship Strategy Group, 2008). According to a *Survey of Entrepreneurship Education Initiatives* conducted by the Science and Technology Policy Institute, although 18 states in the United States have taken legislative actions to support entrepreneurship education in K–12 schools, some simply require the inclusion of the entrepreneurship concept. “None of these programs has been rigorously evaluated, so beyond the establishment of a program or concept, the impact of these initiatives remains unclear” (Peña, Transue, & Riggieri, 2010, p. 9).

IT'S NOT ABOUT TEACHING ENTREPRENEURSHIP

Thus a seemingly natural step is to teach entrepreneurship formally in schools by making entrepreneurship education part of the curriculum. “The first and most important step would involve state and school district adoption of a formal Entrepreneurship Education curriculum,” followed by teacher professional development, community partnerships, and effective and accurate evaluation (Aspen Youth Entrepreneurship Strategy Group, 2008, p. 19). Governments are then called to develop and adopt standards for entrepreneurship education and provide funds to support teacher development so they can teach entrepreneurship to students. “Including Entrepreneurship Education in formal statewide education standards is the first and most important reform that can occur at the state level,” recommends the Aspen Institute (Aspen Youth Entrepreneurship Strategy Group, 2008, p. 22). The Science and Technology Policy Institute suggests the U.S. federal government should “assume the role of setting program standards and curricula guidelines for entrepreneurship education” and “creating a national system for accreditation and certification” (Peña et al., 2010, pp. 24–25).

This seemingly natural action to produce more entrepreneurs is unlikely to work. Gopinath apparently did not take an entrepreneurship education course in his school before

starting his business. He was not even a good student, according to his mother and the traditional educational criteria. He failed his exams and had to miss classes often in order to run his business. Apparently, it was not his school learning that made him successful in business. It was not his homework and exams that gave him the ability to create value for society and job opportunities for many people globally. Steve Jobs did not take an entrepreneurship course before he started Apple, nor did Bill Gates before starting Microsoft. What's perhaps in common across these entrepreneurs is that they succeeded *despite of*, not because of, their school experiences. Some poorly implemented, standardized, required entrepreneurship education course could have damaged their entrepreneurial activities.

Furthermore "there are no definitive studies that clearly and unequivocally demonstrate the impact and benefits of entrepreneurial education" (Peña et al., 2010, p. 15). In fact, making entrepreneurship education a part of the formal curriculum may do more harm than good. The curriculum standards, guidelines, assessment, and evaluation that will likely be put in place for a formal course or program are antithetical to the entrepreneurial mindset.

The real problem is that our "educational system continues to push students through career services offices around the country toward the same pathways followed by their parents, rather than encouraging students to map out new pathways that correspond to current realities," writes Auerswald (2012a). "Our education system is designed to turn out 'good employees,' not 'good entrepreneurs,'" Tom of Dayton, Ohio, wrote to Steve Strauss, a *USA Today* columnist who specializes in small business and entrepreneurship (Strauss, 2006). Strauss agreed, adding: "We have an education system that was created around the time of the Industrial Revolution when we needed to turn rural kids into urban employees capable of working in assembly line, mass-market factories. As a result, we ended up with a school system focused on rote memorization and measurable, predictable results" (Strauss, 2006).

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Entrepreneurs, in the broad sense, are not only a select few. Everyone needs to be entrepreneurial in the 21st century. Entrepreneurs today are the “black-collar workers,” a term coined by Auerswald with inspiration from Steve Jobs’ black turtleneck (Auerswald, 2012b). A teacher who does not believe we need all to be entrepreneurs asked me the same question that Auerswald answers:

From where we sit now, it seems improbable that an entire economy could be built of such workers. Where are the drones in this picture? Where are the undifferentiated masses of the unfulfilled? Try asking yourself this question instead: from the standpoint of a 15th-century peasant, how likely is the reality of the present day? . . . Just as former farmers were compelled to convert themselves into blue-collar workers to realize their potential in the economy of the 20th century, so will former factory workers (and retooling economic drones of all types) convert themselves into black-collar workers to realize their potential in the economy of the 21st century. (Auerswald, 2012a)

“Entrepreneurship refers to an individual’s ability to turn ideas into action and is therefore a key competence for all, helping young people to be more creative and self-confident in whatever they undertake” (World Economic Forum, 2011, p. 5). The entrepreneurial skills and mindset are similar to the new survival skills in the 21st century discussed in *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*, by Tony Wagner, co-director of the Change Leadership Group at Harvard Graduate School of Education. The new survival skills—effective communication, curiosity, and critical-thinking skills—“are no longer skills that only the elites in a society must muster; they are essential survival skills for all of us” (Wagner, 2008, p. xxiii). But even our best schools don’t teach these skills.

What can and should we do then? What can we learn from Gopinath and his fellow entrepreneurs? Are the Gopinaths born or made? Are they simply great happy accidents, lovely exceptions, or can we find a way to produce more?

TO ENTERPRISE IS HUMAN

The Loss of Entrepreneurship and Creativity

To borrow Duke University engineering professor and prolific author Henry Petroski's notion that "to engineer is human," I suggest to enterprise is human and to create is human. "While educators are currently wrestling with the problem of introducing technology into conventional academic curricula, thus better preparing today's students for life in a world increasingly technological," writes Petroski in his book *To Engineer Is Human: The Role of Failure in Successful Design*, "I believe, and I argue in this essay, that ideas of engineering are in fact in our bones and part of our human nature and experience" (Petroski, 1992, p. vii).

Entrepreneurship is fundamentally about the desire to solve problems creatively. The foundation of entrepreneurship—creativity, curiosity, imagination, risk taking, and collaboration—is, just like the ideas of engineering, "in our bones and part of our human nature and experience." Human beings are born with the desire and potential to create and innovate, to dream and imagine, and to challenge and improve the status quo. We are also born with propensity to be social, to communicate, and to collaborate. For thousands of years, bees have kept the same design of their dwellings, the honeycomb, but the design of human buildings has been changing constantly. "It is the human tastes, resources, and ambitions that do not stay constant" (Petroski, 1992, p. 2). And sometimes, we just like to change things.

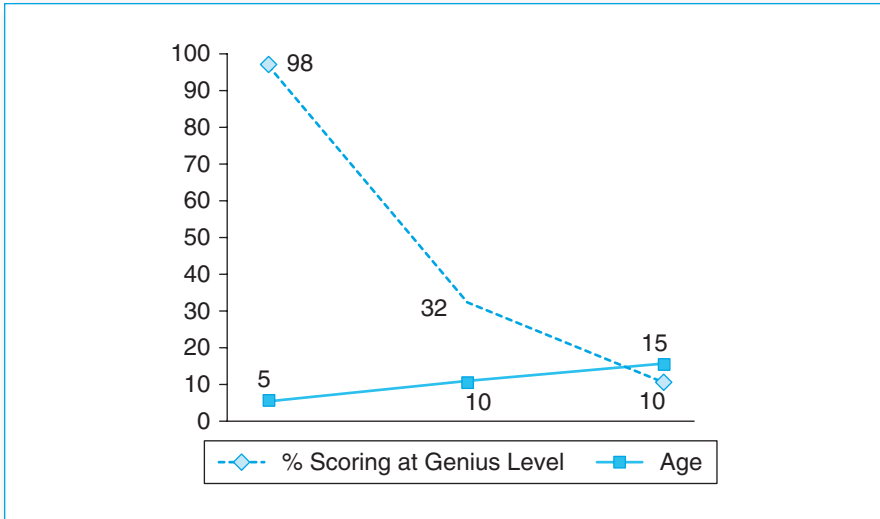
The potential can be suppressed or amplified by our experiences. Some experiences enhance our creativity, while others suppress it. Some experiences encourage risk taking, while

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others make us risk averse. Some experiences strengthen our desire to ask questions, while others instill compliance. Some experiences foster a mindset of challenging the status quo, while others teach us to follow orders. Human beings are adaptable and our nature malleable. The experiences we have play a significant role in what we become.

Schools are the primary institution for our children besides family, and therefore the primary place that shapes the experiences our children have. There is no definitive research to show to what degree school experiences in general increase or decrease creativity and entrepreneurial capacities because of the differences in definitions and measures of creativity and the differences in the experiences different schools offer (Claxton, Pannells, & Rhoads, 2005). But one well-known longitudinal study by George Land and Beth Jarman found a decline in creativity as children became older. In their 1992 book *Breakpoint and Beyond: Mastering the Future—Today*, Land and Jarman (1992) describe a longitudinal study on creativity beginning in the 1960s. Land administered eight tests of divergent thinking, which measure an individual's ability to envision multiple solutions to a problem. NASA had used these tests to measure the potential for creative work by its employees. When the tests were first given to 1,600 three- to five-year-olds, Land found 98% of them to score at a level called creative genius. But five years later when the same group of children took the tests, only 32% scored at this level and after another five years, the percentage of geniuses declined to 10%. Figure 0.1 illustrates the sharp decline in one measure of creativity as children get older. By 1992, more than 200,000 adults had taken the same tests and only 2% scored at the genius level. The Harvard psychologist Howard Gardner also noted a decline in artistic creativity once children enter school (Gardner, 1982). Tony Wager also "observed that the longer our children are in school, the less curious they become" (Wagner, 2008, p. xxiii).

While to varying degrees all schools squelch creativity and entrepreneurship (Zhao, 2009), some do so more effectively

Figure 0.1 Decline of Creativity by Age

SOURCE: Land & Jarman, 1992.

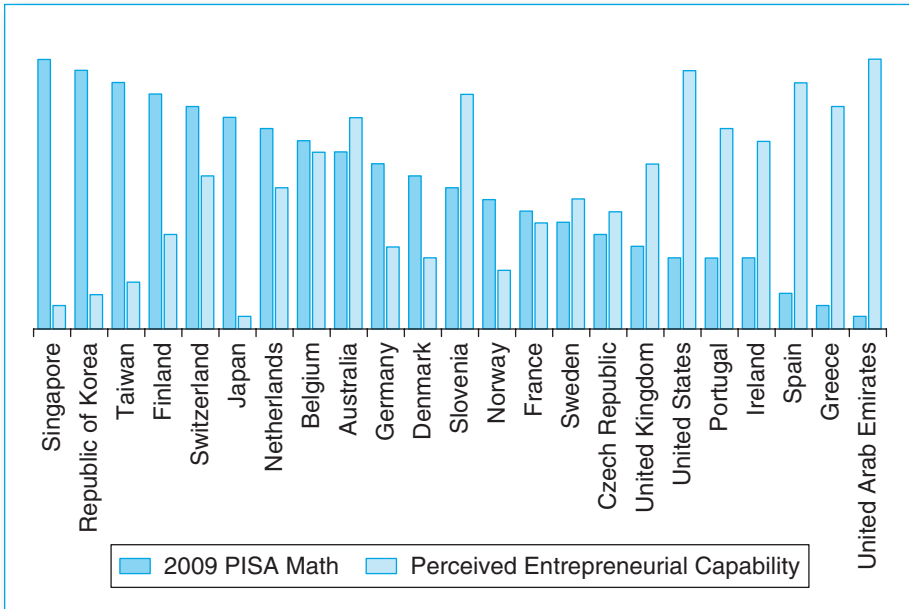
than others. This partially explains the uneven distribution of entrepreneurial activities across different regions and nations globally. Some countries seem to have more entrepreneurial and creative talents than others. The annual Global Entrepreneurship Monitor (GEM) Survey that tracks various aspects of entrepreneurship activities in over 50 countries shows significant differences in terms of entrepreneurial capabilities and activities across different countries of similar economic conditions (for example, Bosma, Wennekers, & Amorós, 2012; Kelley, Bosma, & Amorós, 2010). The number of patents per capita, an indicator of a nation's innovation endeavors and innovative talents, also varies a great deal across different nations (World Intellectual Property Organization [WIPO], 2007).

What is intriguing is that countries that show a low level of entrepreneurship are countries that have been high performers on international tests. For example, high-scoring countries on the Programme for International Student Assessment (PISA) and the

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Trends in International Mathematics and Science Study (TIMSS), such as Singapore, Japan, Korea, and Taiwan, scored much lower than Australia, the United Kingdom, and the United States in the category of perceived entrepreneurship capabilities of the Global Entrepreneurship Monitor Survey in 2011 (Bosma et al., 2012). Correlational analyses show a statistically significant negative relationship between test scores in math, reading, and sciences and aspects of entrepreneurship. Figure 0.2 shows the ranking of 23 countries (regions) that participated in both the 2009 PISA and 2011 Global Entrepreneurship Monitor survey in PISA math performance and reported entrepreneurial capabilities. All 23 countries (regions) are considered developed economies and thus are categorized as “innovation-driven economies” by the GEM study.

Figure 0.2 Ranking by PISA Math Score and Perceived Entrepreneurial Capability



SOURCES: Bosma, Wennekers, & Amorós, 2012; Organisation for Economic Co-operation and Development (OECD), 2010.

This inverse relationship between test scores and entrepreneurship does not necessarily mean high test scores caused the loss of entrepreneurial capabilities or vice versa, but it does suggest that education systems that produce good test scores more often than not have lower entrepreneurship activities and capabilities. It also suggests the possibility that the mechanisms that lead to higher test scores could lead to lower levels of entrepreneurship. The possibility becomes more certain when other evidence, such as differences in educational policy, curriculum, pedagogical practices, and student activities, are taken into consideration. For example, the United States has seen a significant decline in creativity among its youth over the past two decades, which coincides with its waves of educational changes to boost student test scores.

THE DECLINE OF CREATIVITY AND EDUCATION REFORM IN THE UNITED STATES AND NCLB

In July 2010, *Newsweek* published “The Creativity Crisis,” an article about the decrease in creativity in the United States. The article cites research by Kyung Hee Kim, an educational psychology professor at the College of William & Mary. Kim analyzed performance of adults and children on a commonly used creativity measure known as the Torrance Tests of Creative Thinking. The results indicate a creativity decrease in the last 20 years in all categories. Fluency scores (a measure of the ability to produce a number of ideas) decreased by 7% from 1990 to 2008, while Originality scores (ability to produce unique and unusual ideas) decreased by 3.74% from 1990 to 1998. Although it remained static between 1998 and 2008, Kim says, “Originality scores have actually significantly decreased, but the decrease has been deflated through the use of outdated scoring lists.” Creative strengths (creative personality traits) decreased by 3.16% from 1990 to 1998 and by 5.75% from 1990 to 2008. Elaboration scores (ability to develop and

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elaborate upon ideas, detailed and reflective thinking, and motivation) decreased by 36.80% from 1984 to 2008. Scores in Abstractness of Titles (ability to produce the thinking process of synthesis and organization, to know what is important) increased until 1998, but decreased by 7.41% from 1998 to 2008. Scores in Resistance to Premature Closure (intellectual curiosity and open-mindedness) decreased by 1.84% from 1998 to 2008 (Britannica Editors, 2010a).

When asked to explain this decline, Kim proposed several societal, home, and school factors. For example, “contemporary parenting styles may create overly programmed lives for children, by overprotecting them and overscheduling them, which has the effect of denying children opportunity to discover for themselves,” Kim told editors of the Encyclopedia Britannica. Schools certainly play a significant role. “Teachers claim to value creativity in children, but in fact it is proven that they generally dislike creative behaviors and characteristics in the classroom because they are inconvenient and hard to control” (Britannica Editors, 2010b). Then she talks about the impact of No Child Left Behind (NCLB) on creativity: “NCLB has stifled any interest in developing individual differences, creative and innovative thinking, or individual potential” because:

Teaching to this test [mandated by NCLB—author] discourages purposeful creativity development and stifles children’s creativity in schools. Standardized testing forces emphasis on rote learning instead of critical, creative thinking, and diminishes students’ natural curiosity and joy for learning in its own right. Further, NCLB may stifle teachers’ creativity because the high pressure to cover the content required to produce passing test scores override the desire (and time) to stimulate children’s imagination and curiosity. . . . The standardized testing movement created by NCLB has led to the elimination of content areas and activities, including gifted programs, electives, arts, foreign languages, and elementary science

and recess, which leaves little room for imagination, critical and creative thinking. This may eliminate the opportunities for creative students to release their creative energy in school. . . . Those who preserve and develop their creative abilities despite the odds will be adversely affected. . . . Further, research shows that high school students who exhibit creative personalities are more likely to drop out of school than other students. (Britannica Editors, 2010b)

THE FUTURE OF EDUCATION

Schools in general reduce instead of enhancing creativity and the entrepreneurial spirit because they have been designed to prepare good employees. And the qualities of a good employee in the traditional sense are drastically different from what makes a good entrepreneurial worker today. The majority of schools in the world today are facing increasing pressure to produce good employees and thus working hard at what is believed to produce good employees with prescribed standardized curricula, lock-step pacing guides, and standardized tests that encourage memorization and compliance.

The possibility that measures to raise *test scores* or to improve *academic achievement* reduce entrepreneurial capability has significant implications for the directions of education. There is general agreement among policy makers, government and business leaders, educators, parents, and the general public across the world that we need to provide high-quality education to all children so they can be prepared for the future—the globalized world that is constantly and rapidly transformed by technology. There is also an agreement at the conceptual level that a well-prepared citizen of the future needs to be creative, entrepreneurial, and globally competent. As well, agreement exists that the current version of education offered in most countries is not sufficient to meet the needs of the future and reform is necessary.

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However, when it comes down to educational policy and practice that actually affect students, there are significant differences. At the system level, standing on one side are the standard-lovers and test-addicts represented by the so-called education reformers championed and backed by government and business leaders in mostly Western developed countries such as the United States, the United Kingdom, Australia, and New Zealand, which traditionally have had a relatively decentralized and less standardized education. Although these countries have generally performed well economically and had more entrepreneurial and creative endeavors, they have not necessarily consistently held top places on international tests. These countries have been in recent years pursuing an educational approach characterized by centralizing curriculum standards, narrowing the school curriculum, increasing the stakes on test scores for teachers and students, and reducing variation in educational pathways for students. *NCLB* and *Race to the Top* of the U.S. federal government and the Common Core State Standards Initiative are good examples of measures pursued by this group.

In stark contrast are the veterans of standards and testing represented by mostly Eastern Asian education systems such as China, Korea, Singapore, Hong Kong, and Japan, which have had a long tradition of fairly centralized and standardized education. These countries have over the past few decades evolved into new economic powerhouses and have consistently held top places on the international test score league tables. These countries have begun to travel down a different path characterized by less centralization and standardization, less emphasis on test scores, broader curriculum, more autonomy for schools and teachers, and more choices for students.

Which group will eventually win is not certain, but existing evidence suggests at least that tightly controlled standardized curriculum, a uniformly executed teaching approach, narrowly prescribed and carefully planned learning activities, and rigorously watched and frequently administered high-stakes tests do not produce creative and entrepreneurial

talents, although they may lead to higher test scores. I am not certain about the winner because I am not sure how far and fast can the latter group move away from their tradition of standards and testing, while I very much appreciate their desire and conviction. I am not certain also because I don't know how much more evidence of damage the Western group needs to see before they may want to stop and rethink.

This book is written in the spirit of showing my appreciation of and support for the efforts that have been undertaken by China, Korea, Singapore, Hong Kong, and other systems that have seen the damages of standards and testing. It is also written to provide more evidence and reason to help convince the new converts to standards and testing that the road has been traveled before, and it does not lead to the future—according to those who have been there.

To prepare global, creative, and entrepreneurial talents, that is, everyone in the future, education should at first not harm any child who aspires to do so or suppress their curiosity, imagination, and desire to be different by imposing upon him or her contents and skills judged to be good for him or her by an external agency and thus depriving of the opportunities to explore and express on their own. In other words, we should at least allow Suhas Gopinath and the likes to exist without punishing them or locking them up in a classroom in the name of helping them to become successful. The most desirable education, of course, is one that enhances human curiosity and creativity, encourages risk taking, and cultivates the entrepreneurial spirit in the context of globalization.

This book is about the why and how of the most desirable education.

PLAN OF THE BOOK

The book includes 10 chapters.

Chapter 1 presents a summary of the concerted efforts toward standardization and homogenization of learning

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experiences undertaken by governments and international organizations. It discusses the intentions, outcomes, and why these efforts are futile in saving the past and harmful to the future.

Chapter 2 presents arguments of “mass entrepreneurship,” or reasons for why everyone needs to and can become global, creative, and entrepreneurial. It brings evidence from a broad array of sources to show that dramatic population increase, accumulation of wealth, technological advances, and economic globalization have created a new world that demands and supports everyone to become entrepreneurs or entrepreneurial employees.

Chapter 3 presents the essential elements of entrepreneurial capabilities or the entrepreneurial spirit. It also follows the debate about whether entrepreneurs are born or made and suggests that they are probably both and more with evidence from research in entrepreneurship, economics, cognitive psychology, and evolutionary psychology.

Chapter 4 connects entrepreneurship to education. Starting with the observation that commonly believed education giants such as China and Singapore are entrepreneurial and creative dwarfs, this chapter studies the test score gap and the entrepreneurship gap. By analyzing the inverse relationship between test scores on international assessments and entrepreneurship capacities, this chapter presents evidence to show that high test scores come at the cost of creativity and the entrepreneurial spirit.

Chapter 5 uses education in China and the United States as a case study to further illustrate how an education that produces high test scores does damage to creativity and entrepreneurship. Through microlevel analyses of educational policies and practices, this chapter shows that the “flaws” in the U.S. education system happen to be the mechanisms that lead to the successes of Steve Jobs and Lady Gaga, while what helps China’s students in Shanghai to be No. 1 in the PISA rankings is also what causes its lacking of innovative entrepreneurial giants. However, the U.S. capability to produce more creative entrepreneurs is an accident, an imperfect

execution of an old education paradigm that is shared by China and other countries.

Chapter 6 discusses how we must have a paradigm shift in order to turn the happy accidents of the U.S. education system into a designed approach. The chapter contrasts two educational paradigms that exist: the employment-oriented vs. the child-centered. Although the child-centered paradigm has existed for a long time and has accumulated abundant evidence to prove its success, it has not been widely adopted. The chapter discusses why we need the paradigm shift and the obstacles to making the shift.

Chapters 7, 8, and 9 together present the components of the new paradigm: the what, the how, and the where. Chapter 7 uses Summerhill School in England as a case of the principle of student autonomy in deciding what learning experience they have in a school. It brings evidence to show why respecting student voice, self-governance, and passion are not only morally right but also educationally sound.

Chapter 8 uses High Tech High in San Diego as an example to show engaging students in creating products is an effective way to cultivate creativity and entrepreneurship. The chapter discusses the different models and incarnations of project-based learning and proposes a new concept—product-oriented learning—as a way to prepare the talents we need. It also makes specific recommendations about implementing product-oriented learning.

Chapter 9 uses the Cherwell School in England and Oxford Community Schools in the United States as examples of why and how students can become global entrepreneurs and schools global enterprises. This chapter discusses the components of global competency for entrepreneurs and different ways schools can become global enterprises that not only provide rich global experiences for their students but also take advantage of global resources to provide a better education for their students and students in other places.

Chapter 10 presents the triad model of education that unifies the three principles discussed in the previous chapters.

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The chapter proposes a comprehensive list of indicators of a world class school ready to prepare their students to become global, creative, and entrepreneurial.

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