

Moderated Discussion

2 Million Minutes

Public school reformers in the United States borrowed practices and forms of education long before *A Nation at Risk*. During periods of rapid change, Americans often compared their school systems with those of other countries as a way to advocate for their own preferred reforms. In Massachusetts, Horace Mann introduced elements of Prussian education. In Kentucky, Mann Butler imported the monitorial classroom organization of English reformer Joseph Lancaster.

During the twentieth century, a military confrontation with the Soviet Union produced self-critical assessments that referenced idealized views of schooling elsewhere, even before the launching of Sputnik (see Rudolf Flesch's 1955 classic, *Why Johnny Can't Read*). After Sputnik, these comparisons reached a crescendo, as seen in the 1959 advocacy by Admiral Hyman Rickover: "If our people are not properly educated in accordance with the terrific requirements of this rapidly spiraling scientific and industrial civilization, we are bound to go down. The Russians apparently have recognized this."¹ Economic competition during the 1980s led to a similarly critical comparison of American and other systems, leading the United States to support the Trends in International Mathematics and Science Study (TIMSS) and its video collection of math lessons around the world.

In parallel with public scrutiny of other systems, scholars whose work appeared in the *Comparative Education Review (CER)* sought to preserve a more detached, less passionate space for analysis. Of course, *CER* authors from the United States have been acutely aware of public borrowing amid public anxiety about the standing of American education in the world. At the same time, they often followed the paths of Michael Sadler and Isaac Kandel, who tried to understand the functions of an education system within the larger context of a national economy and social system. Recent commentators (cf. Gita Steiner-Khamsi and David Philips) reflect on the history of borrowing as a strand in comparative education.

While the *CER* and other scholarly meeting places have maintained a (comparatively) calm nexus for the discussion of schooling cross-nationally, the conversation outside of academia has buzzed ever more loudly in recent years. Once a buzzword inside the academy, "globalization" is now discussed widely in the United States, with obvious consequences for public discourse. This moderated discussion attempts to integrate public and scholarly debate.

¹ Hyman G. Rickover, *Education and Freedom* (New York: Dutton, 1959).

We are indebted to the producers of a film that is now being seen widely in American schools of education and by U.S. teachers. Bob Compton has shared film clips from *2 Million Minutes* with the *CER*, and we have placed them in the online edition of this February 2009 issue. Compton then provided his personal background and perspective on this effort. We invited comments by six participants, including two of the “kids” (now university students) whose school experiences were featured in the film. Four other discussants came from the academy and from development work, with experiences in South Asia, China, and the United States. After making their initial comments and reading those of their fellow participants, each participant responded with a second commentary. The *CER* editors hope that readers will continue this discussion. Subscribers to the *CER* can comment on the film and continue the discussion by logging on to the Comparative and International Education Society forum at <http://cies.us/forum/> and then clicking “2 Million Minutes.”

David Post

FIRST ROUND RESPONSES

BOB COMPTON

I never imagined that my 2005 visit to a first-grade classroom in Bangalore, India, would compel me to make a documentary film, change how my own children are educated, or land me on TV shows and in the U.S. media. The seminal moment occurred when I asked a dozen 5- and 6-year-old Indian children, “What do you want to be when you grow up?” Their answers astounded me: “Engineer, engineer, scientist, cardiologist, engineer, fighter pilot, teacher, engineer, engineer, doctor . . .” How remarkable! Little children in a country I imagined as mired in third-world poverty had already set very ambitious career goals.

Perhaps this class was an aberration, a coterie of little Indian geniuses or just wild dreamers. So I decided to visit high school students close in age to my own two daughters. What I quickly learned from them was that my daughters’ education, in a well-regarded American private school, lagged the Indian national academic standards (Indian Certificate of Secondary Education examination) by 2 or more years in almost every subject. I also discovered that Indian teenagers were not the math and science nerds I had expected but were knowledgeable in world history (including U.S. history), geography, civics, English literature, English grammar, and economics. And, as expected, they were also deeply educated in science, having taken from 2 to 4 years of physics, chemistry, and biology, as well as 4 years of mathematics.

The fact that my own daughters’ Indian peers were more advanced aca-

demically filled me with anxiety. In the competitive “flat world” described by Thomas Friedman, and in the twenty-first century that David Brooks has dubbed the “Cognitive Age,” I knew two things would be crucial to my girls’ career success—a broad knowledge of the world and solid cognitive skills. Perhaps by being on the ground in India, by dropping into classrooms unannounced, and by asking simple questions and getting spontaneous answers, I had discovered that something profound was going on in Indian education and Indian culture.

To make others aware of what I saw in India as well as in China, I chose to make the documentary film *2 Million Minutes*. Only through film could others see and hear the students and parents of India and China in comparison with American students and parents. High school was selected because that is where the school curricula diverge most dramatically. The film’s title is drawn from the fact that as soon as a student completes the eighth grade, he or she has 2,102,400 minutes until high school graduation.

The film follows two high school seniors—a boy and a girl—from each of these countries. How students spend their 2 million minutes—in class, at home studying, playing sports, working, sleeping, socializing, or just goofing off—will affect their economic prospects for the rest of their lives. By extension, how a country’s high school students spend their collective 2 million minutes will affect a country’s economic prospects in the twenty-first century.

I intentionally selected Carmel High School in Carmel, Indiana. It is a highly regarded U.S. public high school, it is in the heartland of America in a wealthy community, and 91 percent of its students go on to college. Carmel is a school most American parents would want their child to attend. I then selected schools in Bangalore and Shanghai in which the demographics of the parents were similar—professionals, upwardly mobile, relatively well-off.

At each school we asked the administration to identify 20 students who were in the top 10 percent academically and who were also highly regarded by their peers. From that group we then selected two students who represented the high-achieving, well-regarded student. Thus, in America we profiled Neil Ahrendt, student body president, football player, and newspaper staff member. In China we profiled Jin Ruizhang, a top student academically and admired for his success in national math competitions.

Many American viewers have seen the film, on the surface, as a critique of the American school system. In fact, it is not. No pedagogical comparisons are made, and no in-depth interviews with educators in the three countries are conducted. While the American school system needs improvement, that is the least significant aspect of the film.

And yet the film often seems to make some Americans defensive because the Indian and Chinese families on the screen run counter to preconceived notions. The four sets of Indian and Chinese parents are more globally aware than some Americans expect, and they are thoughtfully engaged in their

child's education. Many Americans are quick to point out that China and India combined have over 1 billion people in poverty, as if that somehow inoculates us from the competition posed by the other billion.

For open-minded viewers, what the film reveals are societal differences among India, China, and America that are reflected in the high school experience. America's school culture is one that stresses athletics and extracurricular activities, part-time jobs, and a "well-rounded" student. Academic achievement is not given the time, attention, or resources that it is given in India and China.

The Indian and Chinese families we followed recognize and reward academic excellence, and they revere intellectual achievement. They emphasize math and science without neglecting history, geography, or literature—Western as well as Eastern. They learn our language, while our students learn Spanish or French. While organized sports exist in their high schools, very few students would consider athletics to be a priority. Both countries also endeavor to have students become "well-rounded," but in a different sense than Americans use the term. We see the Chinese and Indian students engaged in the arts (violin, singing, or ballet) or relaxing with friends, but they always put studies first and aim very high—in terms of careers, colleges, and test scores.

What *2 Million Minutes* ultimately suggests is that the Indian and Chinese school and family cultures align very well with the challenges of the globally competitive, technologically advanced twenty-first century. By contrast, America's school and family culture looks outdated, obsolete, and perhaps a bit arrogant. America's economic prosperity in this century will require its young people to be more globally competitive and more highly skilled in cognitive technical abilities and to offer unique intellectual and creative value, or the high-wage jobs will go to other countries. There is no longer any such thing as an "American job." There are global jobs, and they go to the most efficient and effective producers.

What I saw in a first-grade Indian classroom 3 years ago shocked me, worried me, and profoundly changed me. I hope that Americans can be brought to see what the global education standard looks like and that we can be motivated to rise to the challenge, just as President Kennedy inspired us to reach the moon after the Soviet Sputnik passed us overhead. We are again at a "Sputnik" moment, and we need leaders who will inspire us to do our best.

APOORVA UPPALA

"America is another name for opportunity," wrote Ralph Waldo Emerson. And, thanks to the flattening of the world, these opportunities are increasingly being seized by foreign nationals. The lack of serious competition offered by Americans is a double bonus for those of us seeking the advantages that this great land offers.

As a high school student in India, it did not occur to me that I would be grappling for jobs not just with the 17 people in my classroom but also with students from other countries coming from completely different backgrounds culturally, socially, and economically. In this modern age of globalization, it goes without saying that only an individual with technical knowledge backed by good social and communicative skills is going to be successful. Do I think the Indian education system has prepared me to be globally competitive? Yes, I do.

A tenth-grade graduate who took the Indian Certificate of Secondary Education (ICSE) examination would have completed 4 years of schooling in mathematics, physics, chemistry, biology, history, civics, geography, environmental education, and another additional subject (computer science, commerce, etc.). Both English and Hindi literature and grammar are taught from kindergarten through tenth grade. If the student chooses science as his major after the tenth grade, he would take an additional 2 years of science, mathematics, and English.

Because of the duration for which mathematics and sciences are taught in school, the depth in the syllabus and hence the student's understanding are much greater than in some countries. This method of learning is in sharp contrast to the American education system, in which a student takes only a few science subjects a year by choice. The continuity that is so crucial for the complete grasp of a concept is lacking. And the system leaves too much to the choice of a student. It may work wonders for a boy who is focused and has his goals in sight. But when they are teenagers, few students want to voluntarily burden themselves with extra course work, especially in advanced science and math.

In my opinion, this is where the Indian system scores above the American one. The syllabus encompasses a wide range of subjects that are compulsory up to a certain level. This ensures that every student has the basic knowledge required in every subject, after which they can specialize in the field of their choice.

A common misconception about Indian students seems to be that they spend all their time studying. Contrary to popular opinion, a wide array of cocurricular activities is encouraged to foster the all-around development of the student—sports, Debate Club, Eco Club, Interact Club, Literary Club, Science Club, and Theatre Club, to name a few.

I was an active member of the Eco Club and the Interact Club (a social service club involving service to the needy), was on the debate team, and was also student body president. Well-roundedness is something that Americans place a lot of emphasis on. Although Indian students spend less time socializing or participating in other extracurriculars than their American counterparts, American students pay dearly for their extra edge in well-roundedness by compromising their academic standards. If being a well-rounded

student comes at the cost of being academically less competent, it is an advantage that Indian students would willingly forgo.

But the biggest contrast in the high school culture in India and the United States is the importance given to sport. Sport in Indian high schools is just another mode of entertainment. Yes, we are passionate about our teams and schools, but the kind of extreme adulation and fanaticism attached to sport in U.S. schools is definitely lacking. The amount of time and work that a student puts into his sport is just astonishing. This might imply that my high school soccer team would get thrashed by the Carmel school team. But, ultimately, why does it matter so much? How many of those players are going to become professional sports people? I guess to the Indian rational-thinking mind, it is just a question of putting your bet on the winning horse. The chance that a student would become a professional athlete is 1 percent at the brightest; a good engineer, 80 percent. So it's an obvious logical choice as to where the time and effort goes.

Another reason is partly the social disparity between the two countries. An American student might never have to worry about starvation or poverty. The country has economic resources vast enough to take adequate care of its citizens, so his appetite to take a huge risk on the career front is much larger. On the other hand, India still has around 220 million people whose day-to-day existence is a fight against poverty and hunger. With survival in question, education does assume paramount importance in an Indian student's life.

Their security, though unconscious, is probably the most heartening thing to American students. The average schools there are well equipped with extremely good facilities, top-notch sports complexes, music rooms, and laboratories that could easily better the best Indian schools. With so many resources at his disposal, if a student just decided to focus on a particular area of interest and really applied himself, things would be far easier for him than for an Indian student. He does, after all, live in the land of opportunity!

NEIL AHRENDT

Whether or not I was a good candidate for *2 Million Minutes* is a source of contention in my mind. If the attempt was to profile the average American high school student, I most certainly was not that person. But if the desire was to capture the educational, social, and distinctly "American" lifestyle of the best and brightest in privileged suburbia, than I suppose I can't say the producers were too far off.

I never had to exert myself terribly to succeed in high school. I hardly ever studied for tests. I always viewed finals as a challenge to see how much I could remember without studying. I never did homework outside of class, I started projects the night before, and yet I still performed fairly well. But

if we try to attribute my study habits (or lack thereof) to a failure of the U.S. educational system, I think we'd be doing it a disservice.

My interests and the pursuits in which I was self-motivated fell outside the boundaries of the classroom, and I often felt that my time could have been better spent toward these other matters rather than dedicated to tests that I knew I could pass. Certainly, I wasn't overburdened with free time. I had a part-time job along with numerous extracurricular activities ranging from student government to environmental activism.

My parents encouraged me to get involved with my interests, whatever they were. They stressed that schoolwork was important all throughout my life, but they never put the kind of unnecessary pressure on me that I've seen in countless stressed-out peers. I came home with good grades, so they assumed I must have either been doing something right or been really good at cheating.

I can't say I truly believe my lack of dedication toward science and math classes is cause for concern for our economic future. I know I could have taken advanced science classes in subjects I hated, received college credit for courses that wouldn't count toward my major, and ended up with knowledge and skills that wouldn't benefit me. Instead, I took classes that I enjoyed, learned about subjects I was interested in, and probably retained more information than if I had just slaved through it for an extra footnote on my college application.

That is not to say that I am not concerned for our economic future. We face a global energy crisis that will require innovation and ingenuity from our nation's best and brightest, much as the space race propelled our scientists and engineers to the international forefront. This time, however, there will be no air sirens or public service announcements warning of an imminent Commie attack to goad us into another rapid frenzy of increased dedication to the sciences. We simply cannot afford to wait around for another Sputnik to kick us into gear.

I am concerned that the fastest-growing ethnic group in the country, Hispanics, is also the group that lags the most in education. I am concerned that, 40-some years after integration, black students still perform at lower levels than white students. We have school systems in place that make it impossible for habitually underperforming teachers to be fired, a government that financially supports failing inner-city schools while still restricting the growth of successful charter schools, and a culture that would rather see its youth succeed at athletics than perform well in education.

We stubbornly refuse to recognize the vast strides that India and China have made in industrialization and in the building of infrastructure, instead falling back on the subtly racist yet widely accepted belief that our intrinsic "well-rounded" nature as Americans will always keep us ahead of the pack. We blame foreigners and giant corporations for high gas prices rather than

raise fuel standards or make sacrifices in the way we drive. This is a nation unable to comprehend that the way things are is not going to last, and it will require a large shift on our part to stay competitive in the future.

That is not to say we are destined to lose our global economic position. India struggles with a very large population still trapped by poverty and an infrastructure that cannot grow fast enough to meet the country's needs. China has undergone rapid industrialization at the cost of heavy environmental damage, as well as the loss of civil rights of its citizens. So while these nations may be catching up, they are not without problems of their own. And if there has ever been a nation capable and willing to face up to the challenges presented to it, no matter how daunting or overwhelming, it is the United States. The amount of opportunity and social mobility found here is unique in the global landscape, and we must use this to our advantage in the future. If we can reignite the spirit of innovation, hard work, self-sacrifice, and ambition that propelled this country to the international forefront, we will be able to compete on the same level with any country, regardless of how many nights its students spend reading calculus books.

M. NAJEEB SHAFIQ

Following six high school students in China, India, and the United States, this documentary film makes two provocative points. First, high school math and science training in China and India is superior because it is more rigorous than that taken by American students. Second, America's less rigorous high school math and science training is to blame for U.S. workers being less globally competitive than Chinese and Indian workers. I highly recommend *2 Million Minutes* as a pedagogic tool for the comparative and international education community because it concisely illustrates the American public's concerns about high school math and science training, and it invites us to discover what the United States can learn from the Chinese and Indian approaches to high school math and science training. In these comments, I assess the film's second point about the implications of high school math and science training on the global competitiveness of U.S. workers.

It is worth clarifying the meaning of "globally competitive." The global competitiveness of a worker is determined by a worker's productivity and wage rate. Specifically, the worker who produces more for a lower wage is more globally competitive. What does available research tell us about the global competitiveness of U.S. workers relative to Chinese and Indian workers? Recent studies by Duke University and the Urban Institute independently found that U.S. workers are typically more productive than Chinese and Indian workers. The same studies, however, also report that U.S. workers demand higher wages than Chinese and Indian workers do. The high-productivity but high-wage characteristics of U.S. workers make it difficult to

assess the film's claim that U.S. workers are not as globally competitive. Moreover, the global competitiveness of workers is likely to vary considerably across occupations, industries, and locations.

It is also important to recognize that high school is not the final training phase of highly skilled workers in math and science. The 2 million minutes spent in high school matter, but advanced math and science skills are acquired in the next 2 million minutes (i.e., undergraduate education) and in the 2 million minutes after that (i.e., graduate education). The majority of higher education institutions in China and India cannot compare to the teaching and research provided by U.S. institutions. Consequently, U.S. higher education students quickly meet and then exceed the standards of all but a few of the students in China and India. *2 Million Minutes* briefly acknowledges higher education by correctly identifying the Indian Institutes of Technology (IIT) and Tsinghua University as world-class institutions. However, the IIT and Tsinghua are exceptions, and most higher education institutions in China and India are far from world-class in terms of in engineering, math, and science. The superior quality of U.S. higher education may be one key reason why U.S. workers are more productive. In other words, the argument that U.S. high schools turn out less productive math and science workers may be valid if we compare high school-educated workers in math and science fields across the three countries. But once the productivity of workers with higher education is compared, this argument is invalidated. In short, the productivity gains from American higher education training in math and science compensates for the relatively undemanding high school training in math and science.

In addition, productivity differences between workers in the United States, China, and India should not be attributed only to differences in their training, because productive workers need a set of complementary factors, including the availability of information on work options, organizational management practices, legal institutions, patent protection laws, natural resources, the environment, infrastructure, and political stability. The United States enjoys a sizable advantage in terms of complementary factors, and this significantly compensates for the low rigor of high school math and science training. The footage from Shanghai and Bangalore shows that China and India have made progress in developing the complementary factors that facilitate the contribution of math and science training to an economy. But Shanghai and Bangalore do not represent the serious shortcomings of complementary factors in most regions of China and India, where there is widespread corruption, gender discrimination, and poverty. The American advantage in complementary factors is larger than what is suggested by *2 Million Minutes*.

We must also take into account that many Chinese and Indian students pursue graduate studies in the United States, and they often become permanent residents and contributors to the U.S. economy because of lucrative

work opportunities. *2 Million Minutes* highlights the allure of U.S. work opportunities by describing the success of Indian information technology entrepreneurs in the United States and their celebrity status in India. This brain gain of talented students and workers from abroad ensures that high school educational gaps matter less in determining the eventual stock of highly skilled math and science workers in the United States.

To conclude, it is difficult to verify the film's concern about the global competitiveness of U.S. workers. There is evidence, however, that U.S. workers are more productive than Chinese and Indian workers because of superior higher education institutions and the support from complementary factors. Furthermore, U.S. workforce productivity is boosted by the migration of highly skilled Chinese and Indian workers. Such advantages from higher education institutions, complementary factors, and brain gain more than compensate for America's less rigorous high school math and science training. Overall, *2 Million Minutes* deserves great credit for making us think carefully about the reasons why comparatively more U.S. students, despite their less rigorous high school math and science training, go on to become productive workers. The film also reminds us that we are witnessing a period of profound social change in China and India, and most of what I have written here may quickly become invalid.

YONG ZHAO

2 Million Minutes generates fear that America will lose to its competitors because its students are falling behind their counterparts in other countries. The film leads viewers to the conclusion that American students are no longer merely "at risk" of falling behind (as *A Nation at Risk* argued 25 years ago). America's students are now clearly behind even third-world students in India and China, in addition to being in twenty-fourth place among developed countries. However, I contend that the film is guided by a false premise.

The false premise is that more time devoted to the so-called core academics leads to more educated and hence more competitive citizens in the future. *2 Million Minutes* documents a well-known fact: Chinese and Indian students spend much more time than their American peers on studying the core academics—math and science. But it also magically jumps to the conclusion that because American students spend less time on math and science they are "clearly behind." The fact is that there is no large-scale systematic test to show that the Chinese and Indians are ahead of Americans in anything, math and science included. It is possible that the Chinese and Indians could perform better in math and science tests, but it is still a bridge too far to make the connection between test scores and national competitiveness, let alone a happy, successful, and fulfilling life for each individual.

The Chinese seem to know better than the *2 Million Minutes* team what

it takes for a good education. Having suffered from the negative consequences of what the film praises, the Chinese have been battling what is termed “student overburdening” for decades. “Excessive long hours of studying, excessive amount of homework, severe lack of time for rest, ever-increasing weight of school backpacks . . . [and] unbearable academic burden harm students’ mental and physical health,” began a news story about the Chinese Minister of Education’s announcement of new strategies to further reduce the academic burden on students in China in 2004.

Students’ academic burden, their *jianfu*, has been a national headache for the Chinese. The government has undertaken a wide variety of strategies to tackle this persistent problem, including a massive national curriculum reform, continuous reforms around the college entrance exam, repeated executive orders to limit school time and the amount of homework, and punitive actions against school leaders who offer classes during vacations and holidays. Just a few months ago in Shanghai (the home of two students featured in *2 Million Minutes*), the Education Commission explicitly stated that schools must follow the new curriculum, which reduces content, shortens academic study time in school, and includes more non-math and non-science content. In addition, schools are prohibited from adding instructional time and offering instruction on weekends, holidays, and summer and winter vacations. The amount of homework was also spelled out: no written homework for first and second graders, no more than 1.5 hours per day for middle schoolers, and no more than 2 hours for high school students.

If the Chinese are already ahead of the Americans in education due to their better allocation of the 2 million minutes, if they spend more time on the “core” academics, then why do they want to change it so drastically?

The problem of “high scores but low ability” (*gaofendineng*) is a common complaint about Chinese graduates. Excessive focus on the core academics and schoolwork may have made the Chinese students better test takers. But along the way they have lost what is truly important, which is the ability to apply their knowledge, problem-solving skills, risk-taking spirit, passion for life and work, and creativity. In 2005, I had the opportunity to accompany a team of researchers from the National Center on Education and the Economy in preparation for what was later known as the *Tough Choices or Tough Times* report. We found that, almost unanimously, foreign firms had difficulties with engineers and managers who graduated from Chinese universities. While university graduates are plentiful in China, only a small proportion of them have the skills required by international firms.

2 Million Minutes mistakes forced decisions for voluntary choices. It admires the Chinese and Indian students’ clear career choices at an early age, and it seems to scold American students for not knowing what they want to do even in high school. Apparently the *2 Million Minutes* team does not understand that the majority of Chinese and Indian students do not have the

luxury of making their own choices. Their “choices” are more a result of survival pressure than free will. Many Chinese students know that they must get into a college in order to change their lives. To do so, they must get good scores on the college entrance exam, in which math, English, and Chinese count the most, and so they must do well in these subjects. The pressure is so high that very few of them have the time or opportunity to consult their own interests.

I have had plenty of experiences with both systems professionally and personally. I was born and educated in China. I taught both secondary school and college in China. I visit China almost every month to conduct educational research there. I still have families and friends in China. I completed my graduate study education in the United States and have been working as a professor here. Both of my children attend American schools. My experiences and research tell me that, contrary to what *2 Million Minutes* suggests, it would be extremely dangerous for American education to emulate the Chinese system.

RUKMINI BANERJI

How are the 2 million minutes of high school available to students in different countries? This film is a thoughtful glimpse into the lives of six young people, two each from America, India, and China. The film is powerful, as many films are, because it gets a viewer up close and personal. Through the narrative of the film, I was able not only to see what happens in high school in different countries but also to get a more nuanced understanding of how the path through high school is mediated by a larger set of expectations and opportunities. For me, having lived in India and in the United States, these were familiar children, familiar families, and familiar schools, at least those in the United States and India. But the lens was a new one. The juxtaposition of the narratives of different children in the same text made me think about new questions.

As I write, it is the end of May here in India, the season when high school examination results are announced. It is a season of mixed emotions, hopes and disappointments. The high school examination results are both a public issue and an intensely private affair. Watching *2 Million Minutes* in this environment and at this time has added a dimension to the viewing that I may not have seen otherwise.

In terms of schools and students, in each city the film chose high-performing schools and high-performing students. Already in his or her last year in high school, each student has a strong likelihood of succeeding. The pathway from this potential and promise to what eventually happens in terms of college placement or admission is what we watch.

There is an interesting interplay of aspirations and preparations that seem

to play out in the broader social context of these students. By the last year of high school, their future pathways are already determined. Both their school systems and families are propelling the children along this path. I wondered as I watched whether the path was so well determined a few years earlier in the lives of these students. If we had seen these families and students in the last year of middle school (eighth grade), would the story have been different?

What role does competition play? The Indian and Chinese families and students are aiming very high (Yale, advanced math program at Peking University, IIT). The U.S. students are going to Indiana and Purdue, which are also good universities but perhaps less intensely competitive. Coming from very large countries with big young populations, Chinese and Indian students learn about competition from a young age. In India, there has been tremendous expansion in elementary schooling of all types and qualities (private, government, government-aided private, missionary, etc.). However, higher education institutions have not expanded in the same way. What are the implications of this competition? In the film, we see what it does to the children in their last year of high school, but what does it do before and beyond? Does the same pressure continue through college? I have always wondered whether this pressure to succeed so early in life kills something important in our children that is not visible until later.

What about disappointment? In the film, the four very hardworking young people from India and China do not make it to their first-choice colleges or courses. What does that do to future aspirations and future pathways? There is serious concern in India about the depression among high school students once high school results come out. Is the American system healthier for students because of the wide range of good institutions and courses within institutions to choose from?

The film has focused on high-performing schools and high-performing students. Watching the film, I began to think about students in each of these countries who are in backward parts of the country, in mediocre schools, and who themselves are not high performers. I wondered what the last year of high school is like for such children. Are there more similarities across countries for less successful children? Are there more opportunities for an average child from an average high school in the United States than in the other countries? With high growth rates in India and China, economic opportunities are opening up at different levels and in different sectors and geographic regions. With widening opportunities, will the pressure on teenagers to succeed academically decline?

The film's choice of commentators was interesting. The film is about aspirations and academics in American high school education, and therefore it was only fitting that successful people in the United States were commenting on the status of education. I wondered what a cross-section of successful

adults would say in the other countries. There were two commentators of Indian origin. I wondered whether the voices of successful people of Chinese origin in the United States would be any different.

The last thought I have is about assessing pathways. When and how can we evaluate trajectories? Is the United States losing its global advantage in science and technology? If so, I am sure that this is partly related to the lower emphasis placed on science and math in American high schools. But do U.S. universities, simply by scale and access, compensate for the lower academic content in high school? Is there a steeper learning growth curve in later years?

DAVID F. LABAREE

It is tempting to raise questions about many aspects of *2 Million Minutes*, but I think it is more fruitful to direct attention to the film's central argument about what constitutes a socially beneficial form of education. Essentially, the film says that students in China and India are putting the 2 million minutes of high school to good use by concentrating on their studies (particularly science and math), which will help them get good jobs and help their countries outproduce the United States economically. Meanwhile, American high school students are wasting their time on everything but their studies, and those studies in turn give short shrift to science and math. This is how a once-dominant country can slide into decline and be overtaken by leaner, hungrier, and more ambitious competitors. Time is running out.

As presented in the film, both the Asian and American models of education are effective at providing individuals with an opportunity to get ahead. The issue is the social consequences of the two models, which are quite divergent. The Asian model is a classic example of what the sociologist Ralph Turner, 50 years ago, called a "sponsored" mobility system. Students are required to specialize early in a particular field of study dictated by their intended occupational destination, and they study this field intensively. The American model is a classic case of what Turner called a "contest" mobility system, which encourages students to delay specializing their studies until the last possible moment, with the aim of keeping their occupational options open. The result is an educational system that stresses general education at all levels and deters deep learning in a particular field.

A system of sponsored mobility produces specialists with a deep knowledge of one area but with little flexibility in switching fields or adapting to change. The contest mobility system produces generalists with thin knowledge about everything but with good prospects for changing careers and adapting to a future unanticipated by their schooling. The sponsored system promotes intensive learning of the curriculum, and schools award diplomas based on a student's demonstrated mastery of this curriculum. The contest system tends to discount learning in favor of tokens of learning (grades, credits, and de-

grees), and it measures educational attainment in hours of attendance rather than tested performance. The sponsored system gives students the incentive to study hard now and reap the reward later. The contest system encourages students to lag in their studies early but to take them more seriously as they rise in the system and get closer to the point of specialization and employment. For most Americans, high school is not a time to study hard—and neither Neil nor Brittany did. But college is understood to be harder (as Neil anticipated). Even more demanding is graduate school, in which an increasing number of Americans receive their terminal educational experience.

Given the dramatic differences in the core structure of the Asian and American models of education, it is not surprising to see how much harder Xiaoyuan, Ruizhang, Apoorva, and Rohit worked at their high school studies than did Brittany and Neil. As Neil's mother and one of the commentators pointed out, however, this does not mean that the Americans were not working hard in high school. In fact, they were amazingly busy doing things other than homework. For example, Neil was former captain of the football team, worked at a restaurant, produced graphics for the school newspaper, served as class president, was a member of the environment club, and socialized with friends. The film makes a strong argument that the Asians are using their time on things that matter while the Americans are wasting their 2 million minutes on marginalia. I want to make the opposite argument.

How does society benefit from having students master the formal curriculum in high school with the zeal that the four Asian students demonstrate (to the great approval of the film's commentators)? The educational machinery in which they are caught is very good at creating good students, but how does it contribute to making good citizens and good parents? Despite the testimonials of the economists, how does it even make good workers? There is a connection between science and math knowledge and the work of engineers. But how many engineers do we need? For everyone else, the classic school subjects (language, math, science, and social studies) have little connection to any work people do in the real world. Contest mobility systems may promote educational formalism, by focusing on the tokens rather than the substance of learning (degree accumulation), but so does sponsored mobility, by focusing on the mastery of school subjects (curriculum accumulation). The difference is that all of the noncurricular things that the American students in the film were doing had the potential to enhance their ability to contribute to society. They were picking up skills about how to function in a work environment, network, compete, lead, improve the environment, and juggle priorities. They were also learning how to work the system to their advantage, how to do the minimum needed to satisfy school requirements so they could do what they really wanted elsewhere. Isn't it more productive for the economy and society to produce fewer zealous students and more accomplished hustlers? Doesn't the contest mobility system

do a pretty good job of preparing actors for life in a market economy, which rewards entrepreneurship over scholarship?

SECOND ROUND RESPONSES

DAVID F. LABAREE

Let me start by picking up on a theme raised by other commentators, namely, the decisions that critically shaped the tenor of the film. One such decision was the choice of schools for comparison: selective schools focusing on science and math in urban centers of technology (Shanghai and Bangalore) versus a rather ordinary upper-middle-class high school in the Indianapolis suburbs, of the sort found in almost any prosperous American community. Why not use as a comparison Bronx Science or Palo Alto High, where we would find many American students studying too hard and stressed out by the competition? My Stanford colleague Denise Pope runs a program called Stressed Out Students (SOS), which is designed to help alleviate the overwhelming achievement pressures facing Silicon Valley students. Or, consider the over-weighting of economists as talking heads in the film (Robert Reich and Richard Freeman). This decision raises questions: Why is human capital production the most important goal for education? Why does everyone have to become an engineer?

Moving beyond the issue of selective comparisons, however, I want to develop a more basic point that I mentioned at the end of my previous comment. Both students and society may be better off when schools focus less on producing scholars and more on producing hustlers. As we have seen, American schools are not terribly effective at turning out graduates with a deep command of the academic subjects in the elementary and secondary curricula. Our test scores internationally are at best in the middle of the distribution. Other school systems are consistently more effective at teaching this material. But it is not clear that accumulating this kind of academic knowledge is particularly useful. During the same period in the latter half of the twentieth century in which U.S. test scores were mediocre, U.S. economic development was stellar.

Maybe the lesson from this is that it is dangerous to take school too seriously, for both individuals and societies. The result of an intensive focus on academic learning may be, at the individual level, a generation of stressed-out students and, at the societal level, an accumulation of academic skills and knowledge that are not especially functional for modern political, social, and economic life. It may turn out to be advantageous for a society to have an American-style educational system, which discounts academic learning and encourages students to game the system. Of all the students depicted in the film, Neil was the most adept at managing his 2 million minutes of high

school in a way that allowed him to contain academic demands and focus attention on the array of extracurricular activities most in line with his personal goals. Neil's pursuit of these personal goals—through his participation in football, student government, school newspaper, environment club, restaurant work, and his peer group—may prove even more beneficial to his own future and to his country's political, social, and economic prosperity than if he had concentrated on attaining the top grades in the most demanding classes. In high school Neil was learning how to bend school to his own ends instead of training himself to be a good student. The American educational system, therefore, may not be very good at producing graduates with a strong command of the school curriculum, but it may be reasonably effective at producing graduates who are self-directed, entrepreneurial, and creative.

RUKMINI BANERJI

Two years ago, an important study on student achievement was done in India. The study sampled students from the “elite” schools of urban India. These are private schools offering instruction in English in the biggest cities of the country. These schools are very similar to the schools that Rohit and Apoorva attend in *2 Million Minutes*. Students were given tasks based on rote learning or textbook-based knowledge in science and math and other tasks that required them to apply their knowledge. Many of the test items were from international tests. The findings indicated that Indian students did well on the rote learning or textbook-based questions, but they did much worse than their international peers on tasks that required them to apply their knowledge. The bottom line is that a cross-section of the best Indian high schools performed poorly against representative national samples from other countries.

For the past three years I have been involved with a different study that focuses on student learning. The Annual Status of Education Report (ASER) is a household survey that measures basic reading (ability to read basic text at a second-grade level) and the ability to do simple arithmetic operations. The ASER reports from 2005 to 2007 are available at <http://www.pratham.org>. India has close to 575 rural districts, and ASER is carried out annually in practically all of them. Close to three-quarters of a million children in the age group 3–16 years are covered, and all children 5 years and above are tested. For rural India as a whole, in grade 5, close to 50 percent of children are unable to read the simple text fluently or solve a division problem correctly. By grade 8, the situation is better, but about 20 percent of students still cannot divide.

In India, at different ends of the quality spectrum of education, there are different concerns with student achievement. Through elementary school, a

significant majority of our children do not achieve a satisfactory level of basic learning. Of those who survive into middle and secondary school, the percentage of children who pass grade 10 examinations hovers in most states at the 50 percent mark. While performance in textbook-based knowledge is high among children attending elite schools, we are concerned whether they can apply themselves or think independently beyond textbooks. *2 Million Minutes* captures high school life at the very tip of the iceberg. As in China, we also see in India the intense academic competition for admission to the top colleges. It is often jokingly said in these circles that the competition to get into MIT may be less severe than the competition to get into IIT (India's top engineering schools).

What happens next? Do children in India and China who have come through the arduous academic path do better or worse than their American counterparts through college and then in the work life beyond? Compton has immersed us in the lives of these six young people. I urge him to find them again after the next 2 million minutes are up.

YONG ZHAO

2 Million Minutes is intended to do two things. First, it attempts to generate fear among Americans by communicating the shock, anxiety, and worry Compton felt when he visited a first-grade Indian classroom in 2005. Second, it hopes to bring Americans to see "what the global education standard looks like," implying that China and India embody the global education standard.

Compton was worried because the 5- and 6-year-old Indian children told him that they wanted to be an "engineer, engineer, scientist, cardiologist, engineer, fighter pilot, teacher, engineer, engineer, doctor." He thought it remarkable that "little children in a country I imagined as mired in third-world poverty had already set very ambitious career goals." I respect Compton's feelings, but his anxiety and worry are unnecessary. I am not sure how much faith we should place in the career aspirations of 5- and 6-year-olds. If these aspirations are to be believed, I would have made an unforgivable mistake by encouraging my son, who wanted to be a truck driver, and my daughter, who wanted to be an elephant, to pursue their aspirations when they were 5 or 6. And for myself, I wanted to become a judge of water buffalo because my father was such a judge and was well respected in my village. Luckily, things seem to change. Both my children have changed their career goals, and I am a professor at an American university.

American viewers of the film need not feel anxious that because Chinese and Indian students spend more time on math, science, and other academic subjects they pose a threat similar to that posed by Sputnik 50 years ago. Many of the best talents in other countries will come to the United States, provided that the United States remains open and tolerant. According to a

recent study, 80 percent of graduates of Tsinghua University (often considered “China’s MIT”) have moved to the United States since 1985. The percentage is 76 percent for Peking University (“China’s Harvard”). In 2002–3, about 10,089 Chinese received doctoral degrees in science and engineering from American universities. Over 92 percent expressed the intent to remain in the United States.

Neither is it necessary to worry that Indian and Chinese students will take away jobs from their American peers because of their superior mastery of math and science knowledge, provided that Americans continue to support the development of a diversity of talents. As author Daniel Pink points out in his book *A Whole New Mind*, we are transitioning from the information age to the conceptual age, and new essential aptitudes are required of workers. In the age of globalization, when outsourcing and offshoring have become the norm of business practices, a global redistribution of specialization has already taken place. The only reason multinational companies will offer employment to Americans, who cost five to seven times more than their Indian and Chinese peers, is that they can offer something that the Chinese and Indians cannot: the freedom to explore different options and to pay serious attention to individual interests and passions.

M. NAJEEB SHAFIQ

Our discussion has raised concerns about Chinese and Indian approaches to high school training. Labaree questions whether the approaches result in greater productivity, citizenship, and parenting. Banerjee and Zhao argue that Chinese and Indian approaches lead to a heavy burden on high school students and families. There are also reasons to suspect that the Chinese and Indian approaches to high school training are unsustainable. As Banerjee ponders, improving work opportunities may make students and families less ambitious because the same opportunities are available with less educational effort. I would further add that the quality of high school training is also likely to decline because talented teachers are going to be lured away by nonteaching opportunities. Moreover, as poverty alleviation continues in China and India, new voices enter the political arena and reduce educational disparities. This may shift government funds away from high schools serving the elite to those serving the poor, thereby causing a reduction in the rigor of education in elite high schools.

I am persuaded by Compton and the young Neil and Apoorva that we must revise our preconceived notions on Chinese and Indian approaches to high school training. As *2 Million Minutes* shows us, China and India are no longer isolated from the rest of world, and their approach to high school training reflects these changes. Students show increasing awareness of global issues and critical thinking skills. Note Apoorva’s terrific contribution to our

discussion and Neil's recognition that complacency undermines social and economic progress. In the past, American society and educational systems have benefited from borrowing from the critical thinking of Prussian high schools and German universities. So what can be borrowed from the Chinese and Indian approaches to high school training? Fortunately, the resurgence of educational borrowing research and practice means that the comparative and international education community is ideally suited for the difficult task of identifying the prospects of educational borrowing. At the very least, educational borrowing can involve incorporating global studies curricula in teacher education and high school curricula.

2 Million Minutes and this moderated discussion, however, have revealed several challenges in borrowing Chinese and Indian approaches to high school training. For example, U.S. schools cannot be expected to replace the social capital toward schooling that is provided by Chinese and Indian families and communities. Many U.S. students and families appreciate the American emphasis on extracurricular activities and may therefore oppose a shift toward greater emphasis on academics and after-hours private tutoring. Furthermore, U.S. educators who favor pedagogically progressive or liberal arts approaches to high school training will reject specialist approaches. Finally, practitioners and researchers should articulate all that is right with the U.S. approach to high school training and the consequences of relinquishing those approaches. It is therefore also the role of comparative education practitioners and researchers to identify and overcome the challenges of educational borrowing from China and India while preserving the strongest elements of U.S. high school training.

NEIL AHRENDT

The strength of this documentary arises not out of the lives and words of the students portrayed or even the commentary of the experts but rather from the discussion it provokes in classrooms, conferences, and screenings across the nation. That my life helps to foster the necessary national conversation about the state of U.S. education is a personal point of pride, especially since people like David Labaree recognize that I was hardly living a lackadaisical lifestyle.

We have all been asking the same basic question: is our system preparing today's American youth to be globally competitive? Our answers differ, yet certainly there is no single right response. As Zhao mentions, the excessive amount of work placed upon Chinese students has led to high rates of stress and unhappiness. Certainly we do not want to imitate an overbearing system in which students are pushed to the point of exhaustion in the name of education. And, as Shafiq explains, the number of foreign-born graduate students studying in the United States has always been and continues to be

massive. There is little question that the majority of American higher education universities offer a better education experience than the average overseas institutions.

Apoorva relates that a student who does not consistently study in one area, such as math or science, will lose the fundamental understanding of it. True, having only one year each of chemistry, biology, and physics will leave most students (like myself) with little actual ability to apply them later on (if I took a test on those subjects now, I doubt I'd fare very well). But as Labaree observes, a student with concentrated study on a few core subjects will do well in those subjects but will have a hard time switching to a different environment. It is estimated that in my lifetime, the average worker my age will switch jobs around six to seven times.

Where do Brittany and I and other American students stand as compared to our foreign peers? Is global competitiveness more than just, as Shafiq says, worker productivity and wage rates? Can we truly envision what the flat world of tomorrow will require of its workers and how best to prepare our students today for their future competition?

My thoughts: we are behind in some areas, ahead in others. Some jobs of tomorrow will require a high level of math and science to build the newest technologies and propel our industries forward. But other jobs will require creativity, ingenuity, innovation, entrepreneurship, and freethinking—all attributes not commonly associated with long hours studying equations and formulas. I'm not saying these attributes aren't and won't be found abroad, but they've always been American strengths, and we need to continue to capitalize on them.

The question that remains: in the 2 million minutes (and more) that a student spends developing his skills, can we provide a strong foundation in diversified core abilities along with the propensity to invent, lead, and succeed in the global economy of tomorrow? We won't get there by copying the methods of countries abroad, and we won't get there with our complacent heads in the ground. I remain optimistic. I retain the hope that staying globally competitive is not out of our reach. And though I play a small role, I intend to do whatever I can to help us get there.

APOORVA UPPALA

It is nice to see the kind of debate and dialogue that *2 Million Minutes* has initiated across the country. When Rohit and I started on the movie 2 years ago, we had no clue that we were in fact representing the entire student community or that our lives and inane little routines were going to be analyzed by millions.

Neil has an interesting point. He talks of self-motivation and of pursuing his interests, which, quite evidently, he has well sorted out. But he puts himself

in the bracket of the “best and brightest” students, thus leaving the reader to contemplate what would be the state of the not-so-bright students. Not everyone at the age of 18 is able to make such strong decisions about where they see themselves a few years down the line. And, as Neil mentions, if students see their high school exams as casual memory tests, then it must be hard for them to figure out where their true interests lie. However, he’s hit the nail on the head with the part about the infrastructure development in India being at snail’s pace and China’s coming at a heavy price. Without a shadow of a doubt, the United States of America has the best infrastructure and technology to tackle some of the gravest problems facing mankind today, be it the energy crisis or global warming. The only difficulty is the number (not the quality) of skilled professionals addressing those issues.

Shafiq rightly points out that college-level education is of a higher standard in the United States than in India. I am currently in my second year of engineering, and I can vouch for the fact that high school is way more challenging than college. I also have several friends pursuing degrees abroad, and they all seem infinitely happier with their courses and subjects than most of my peers here in India. Especially in the rural areas, the difference in the level of education really does strike you. Analytical subjects are learned by rote. Scientific thinking and logical reasoning are not encouraged, consequently rendering the graduates initially unemployable without adequate job training. But I must also point out that the U.S. economy relies heavily on Indian manpower, and all the contributions that immigrants make to the economy make the economy more vulnerable when the “reverse brain drain” begins.

Zhao states that *2 Million Minutes* advocates the Indian and Chinese methods of studying for students in the United States. But the movie states plain facts and does not draw conclusions or encourage adopting another country’s method of educating its children. Instead, it is intended to serve as a platform to initiate dialogue and discussion among experts. It is obvious that none of the three education systems is without drawbacks. It does not make sense to blindly adopt another country’s educational strategy, because it would be a complete misfit with the preexisting social and cultural values of the country. I think that the makers of *2 Million Minutes* completely understand this fact and hence leave it to the audience and experts to devise an educational policy that would succeed in getting the maximum potential from a student.

The point that Banerji raises about competition is very true. Having been a part of the insane rat race myself, I have had an opportunity to experience and observe the implications of this extreme competition among my peers. Many students have had to make compromises on their careers despite scoring high on their tests. She raises some thought-provoking questions about the very basis of the Indian and American education systems.

I agree with Labaree’s observation of the “contest” and “sponsored” mo-

bility systems. As a product of the sponsored mobility system myself, I can guarantee that in Asia there is immense pressure on young children to choose from careers and professions they don't even comprehend. This is fine if the student has a genuine aptitude for the subject. But in a few cases they don't. At least most of them are assured of a basic pay, if not an intellectually and professionally fulfilling life. In the contest system, most of the early years are wasted in pursuit of the "ideal career." In some cases, prospective students may lose their drive and enthusiasm for higher education.

Compton mentions how a bunch of first-grade kids he met were very ambitious. But how much—really—will a six-year-old realize the implications of what this means? Also, while many of us wish to become scientists and fighter pilots, very few do so. In a country with more than a million kids studying, it might be too much to pay special attention to the desires of each student, but perhaps a few more of those that sound different from the usual would be nice.

As I was a young kid learning to play chess, I wanted to be really good, really fast. It bothered me that the games took awfully long to complete and I always lost! My father repeated the same thing to me every time: there is no substitute for hard work. It's a lesson every Indian learns early. The competitive nature of the child is piqued with every passing year in a school. When such competition exists at every avenue of a student's learning, the exposure he has is invaluable for a sound base. This is why an Indian student makes his presence felt in every path. But to excel is a whole different ball game.

BOB COMPTON

I found all of the comments to be quite insightful and thought provoking. There are only a few where I have a strongly divergent view.

Neil: I could have taken advanced science classes in subjects I hated . . . and ended up with knowledge and skills that wouldn't benefit me.

As an employer, what I like about Indians and Chinese is their willingness to tackle tough challenges that often don't interest them but are tasks that need to be done to deliver a product to market. Perhaps being compelled to take courses—some of which they likely hated—has given them tenacity in the face of problems they may not find fun.

Neil: If there has ever been a nation capable and willing to face up to the challenges presented . . . it is the United States.

China and India are not attacking us militarily. Their entrepreneurs and business executives are systematically identifying vulnerable industries and building new businesses to enter those markets. They did this in low-value manufacturing industries—such as shoes and furniture. Now they are moving to higher-value industries such as pharmaceuticals, where "in less than a

decade . . . India and China have gone from being marginal players to joining the major leagues, participating in the highest value segments of global Pharmaceuticals” (Vivek Wadhwa, Duke University, e-mail message to author, June 11, 2008).

Shafiq: The footage from Shanghai and Bangalore shows that China and India have made progress. . . . But Shanghai and Bangalore do not represent the serious shortcomings . . . in most regions.

The fact that a glass may be half empty in no way diminishes the fact that it is also half full. Shanghai has 20 million people (more than in New York State) and Bangalore has 6 million (a population the size of Massachusetts). The U.S. trade deficit with China is \$14 billion, and China has loaned America \$150 billion as the second largest buyer of U.S. Treasury securities, despite “serious shortcomings . . . in most regions.”

Zhao: The film is guided by a false premise . . . that more time devoted to the so-called core academics leads to more educated and hence more competitive citizens.

According to Eric Hanushek and Ludger Woessmann, “The cognitive skills of the population—as gained in math and science study—are powerfully related to individual earnings, to the distribution of income, and to economic growth.”² The advanced industries of the twenty-first century will require higher levels of cognitive skills across the entire working population, from the manufacturing worker controlling robots to the distribution worker managing a global supply chain to the administrative assistant handling complex information gathering and work flow processing. “Core” academics build those cognitive skills.

Zhao: Chinese and Indian students spend much more time than their American peers on studying the core academics—math and science. But [the film] magically jumps to the conclusion that because American students spend less time on math and science they are “clearly behind.” The fact is that there is no large-scale systematic test to show that.

The marketplace for employment is the largest systematic test possible for which country has the most talented workers. Google, Microsoft, General Electric, Eli Lilly, Hewlett Packard, Intel, Oracle, and even General Motors have built large research and development facilities in India or China or both. When was the last time a U.S. company announced it would hire 5,000 engineers in 1 year in America?

Banerji: I have always wondered whether this pressure to succeed so early in life kills something important in our children.

I have wondered the same thing as I watch American parents push, pressure,

² Eric A. Hanushek and Ludger Woessmann, “The Role of Cognitive Skills in Economic Development,” *Journal of Economic Literature* 46, no. 3 (2008): 607–68.

and prod their children to higher levels of competitive sports at younger ages. Today, a preteen athlete often trains year-round, has strength and speed coaches and a sports psychologist, and travels the country to compete. Today, orthopedists see more serious sports injuries among young children. I wonder what harm is done psychologically when an athletic “career” ends at age 16 because of a torn ACL after a decade of intense effort and sacrifice.

As for Apoorva, she has a standing offer to join any one of my companies the instant she finishes her studies.

PARTICIPANTS

Neil Ahrendt, a graduate of Carmel High School, is now in his second year at Indiana’s Purdue University, majoring in computer graphics technology with a minor in computer science. He is also working toward a Certificate in Entrepreneurship.

Rukmini Banerji works with Pratham, one of India’s largest education initiatives, in which she is responsible for the Annual Status of Education Report, a survey of 320,000 children in 16,000 villages. Initially trained as an economist, she was a Rhodes Scholar at Oxford University and completed doctoral and postdoctoral work at the University of Chicago. Also while in Chicago, she served as a program officer at the Spencer Foundation.

Bob Compton left IBM as a systems engineer 30 years ago to become a venture capitalist and entrepreneur. As president and chief operating officer of Sofamor Danek, he led the largest spinal medical device company in the world. He has served on over a dozen nonprofit boards, including as a trustee of the \$1.8 billion Kauffman Foundation, dedicated to accelerating entrepreneurship. *2 Million Minutes* is his first film production.

David F. Labaree is a professor of the history of education at Stanford University, where he has also served as an associate dean.

M. Najeeb Shafiq is an economist at the Indiana University School of Education and teaches about development and population issues. His research concerns child labor and gender gaps in rural Bangladesh.

Apoorva Uppala is currently studying in the Dayanand Sagar College of Engineering in Bangalore and is pursuing an engineering degree in telecommunications.

Yong Zhao is a University Distinguished Professor and director of the U.S.-China Center for Research on Educational Excellence at Michigan State University.