

>> Okay, ready for our closing keynote? I think you're going to really enjoy this, to discover that we have something in common, spent some time at the same university. Go Spartans! Michigan State University -- woo! How about it? Okay, let me please introduce our -- our speaker today, Yong Zhao, Ph.D. is an internationally known scholar, author, and speaker. His works focus on the implications of globalization and technology on education. He has designed schools that cultivate global competence, developed computer games for language learning, and founded research and development institutions to explore innovative educational models. Dr. Zhao has also published over 100 articles and 20 books, including *Catching Up or Leading the Way: American Education in the Age of Globalization* and *World Class Learners: Educating Creative and Entrepreneurial Students*. He is a recipient of the Early Career Award from the American Educational Research Association and was named one of 2012's Ten Most Influential People in Educational Technology by Tech & Learn Magazine. He is an elected fellow of the International Academy for Education. His latest book, *World Class Learners*, has won several awards, including the Society of Professors of Education Book Award in 2013, Association of Education Publishers Judge's Award, and Distinguished Achievement Award in Educational Leadership in 2013 -- busy man! He currently serves as the Presidential Chair and Director of the Institute for Global and Online Education in the College of Education at the University of Oregon, where he is also a professor in the Department of Educational Measurement, Policy, and Leadership. Please join me in welcoming Dr. Zhao.

>> It's always good to be back in -- in this Hershey Lodge. This is quite a nice place because I've been here many times -- many times. Other than the cold, my brain can't handle this. Pennsylvania, you guys don't run conferences in nice times. You always -- I left Oregon yesterday. It was like 67 degrees. I got here this morning, it was 9 degrees outside, right? It's amazing. So what are you doing in nice times, you know? It's kind of interesting. It's -- so I admire anybody who can handle this cold. I was in Michigan for 15 years and it was too cold for me. Got to go to Oregon and rain is better than cold, I have to tell you that.

Now, I just want to say that I worked with a lot of special education professionals when I was at Michigan State. We worked with OSEP. I tried to develop technology that supported development of special education and I have a very strong kind of affiliation with this school because I -- I was a special ed farmer in my village in China. I have to tell you this, I grew up in a little village in China and was -- if you look, this is actually the house I grew up in in my village in Sichuan Province. And in my village, the norm, your normal ability is to ride a water buffalo, so this is our assessment and our -- our Common Core. That's the standard and the common quote was to say, "If you have the ability to drive the water buffalo, I wasn't very good."

And I tell you that, I wasn't very good. And so I was considered needed special education from my parents and my father, luckily, did not try to make me a better water buffalo trainer. He said, "Go away," you know? So he allowed me to go to school and that's something very nice that he did. Otherwise, I would have become the worst peasant in China, and so I've always wanted to let you know that I am a failed peasant and it didn't work out for me. And so that's something really interesting in special education. We look at what -- what's defined as deficit, what's defined as strength?

And the other side of special education could be gifted education. You can look at a lot of gifted kids; they really have some problems in other domains, right? So before I get -- do any of this,

we just passed Christmas. I want to show you this. Everyone knows the story of Rudolph, right? Do you know Rudolph? I want to see if I can play this for you. You can listen to it. Now you know Rudolph has been -- had a deficit problem for a long time, right? His shiny red nose and he was completely useless. Nobody wants to play with him. He's just kind of excluded, right? And now what happens?

You know the rest of the story. One foggy Christmas night -- evening, right? I don't know this stuff. And no, Santa Claus needed someone who has that nose, right? Maybe they did not have flashlights at that time. So it's -- no, this is actually quite interesting about how do we define talents. Until Santa Clause comes along until the foggy Christmas evening came along, Rudolph was considered a problem, right? Now with the right condition, we get redefined what it means. So really I think most of my research all these years has been trying to justify why I should exist. That's amazing -- why a failed peasant can survive in America. That's basically I'm trying to justify my existence and so it's all the research is about.

And now we think about all education. It really has a lot to do with what we consider as talent. In education, it's supposed to -- supposed to help our children succeed in the future. And therefore, we want to instill in our children a set of skills and talents and knowledge that will help them succeed. And such is honestly right now, the efforts behind the Common Core. Are you guys doing Common Core in Pennsylvania? I was just in Texas last week in Texas said you cannot do Common Core in Texas. They have Texas Core, and it's illegal to mention the Common Core in Texas. So if you guys go in there, just make sure you don't do that, okay? You'll get arrested for that, okay?

Now, the Common Core was -- what is the Common Core supposed to do? Remember, you use two terms called the college and career readiness. How many of you believe that? What? You don't believe what our government says? No, that's shocking. That's -- that's unbelievable. So I've been asked to talk a lot about the Common Core and most people really don't want me to be there to talk about Common Core, because I don't like it.

They always ask and say, "Why are you opposed to the Common Core standards?" I said, "I'm not really opposed to the standards. I'm opposed to the Common Core." I said, "If they are not common or core, I will be fine," you know? If the Common Core standards are not common or core, I'll be completely fine. The Common Core part -- what does the Common Core do? It basically defines what's valuable, what's not valuable. What's useful, what's not useful. It defines and expects you to progress like that.

So some people ask me and say, "What's your definition of a great education?" I said, "A great education is not about ready for college. It's not about ready for career. It's about ready for life." And for that, I -- I talk about -- a lot about my own children and I just want to show you that I have a child. This is my second daughter. My second child, that's my daughter and she is applying for college and now she is actually trying to explain to college and admission officers why she has not followed the Chinese path, have perfect grades. She'll have a hard time. She's having a very hard time explaining her kind of imperfect record of grades and -- and so it's kind of fun and to think about that. For her, I have a son as well -- I always talk about one thing. I said, "If you are successful, you should not be living in my basement."

And so I say that, "A good education gives our children readiness to move out of their parents' basement." So I think that out of basement readiness, it's -- out of basement readiness is much more important than career or college readiness. Well, it's actually something very simple. You know, how do you stay out of our parents' basement? It's very simple. It's like number one, you have some financial independence; that is, you are able to do something somebody is willing to pay you for, whatever that is, right? I think that's the most basic thing, right? Whether it's college or not.

Second thing, you have some social independence. That is, at least you know how to deal with other people, so people don't kick you out of their apartment or some stuff like that. Something like that -- and you have some psychological independence that you're mature enough, you do not have to call your mother every three seconds to survive, right? I think those are very basic, rudimentary requirements. It's like now you know all the Common Core, all those things they talk about, they're trying to make a prediction. They say if you know this stuff in math or English language arts, you will be ready for college. I can tell you, that's not going to be possible.

You know how many colleges we have in the US? Four thousand. And so which college are you going to be ready for? You know, ready for Harvard, UPenn, Penn State, or some community college or nothing, you know? Why do you want to go to college when 53% of our college graduates are in their parents' basement? And that's -- that's one thing, right? Then what kind of career do you want to be ready for? Like even is the Common Core going to get you ready for -- we just watched the Super Bowl. Remember that? You know, I don't think the Common Core is going to get you there. I don't think so. And what kind of things to be used -- and most of the careers we haven't invented yet? We don't even know it exists. And so I'm happy -- that's why I said my father did not try to make me ready to drive a water buffalo and that was nice of him.

So sometimes, we've got good education and you just let people do what they might be interested in doing. And let's look at the college readiness. Everybody is trying to say, "We've got to go to college." You read a few weeks -- a few months ago -- US, I think the New York Times Magazine did an article called, "The Boomerang Generation." Have you heard about the Boomerang Generation? You know, the Australian boomerang? You know, you send out, it comes back -- that's our kids. They go away for a few years and they come back and stay in our basement and they never leave. And you know what? An average of over \$20,000 in college debt. So they're not only back in your basement, they actually have some debt. And they better stay in the basement; otherwise, the bill collector will be at your door all the time.

But this is -- do you know -- you noticed that the data is actually quite interesting. Today in the US, even our unemployment is -- is going down really a lot. This country is doing much better, but youth unemployment is not doing much better. The same thing in Canada -- I was in Canada, Australia, England, and China this year. I did not outdate this data. China graduates 7.3 or 7.5 million college students. Last year, it was 7 million. You know, every year -- so where do you find the jobs for these people. We not only have unemployment, we have underemployment. You know, a lot of college graduates, you know where they're not really working on jobs that require a college degree. This is quite serious and that's why you know in the US now today, we have the best-educated generation of bartenders. Have you guys tried that? You know, even go to Starbucks and get all of a Shakespeare major mopping the floor at Wal-Mart, you know, we've

got -- and by the way, I don't think chemistry majors actually do not make better cocktails. So if you've tried that. This is actually quite shocking right now with all of this situation.

So what's wrong? Why are college graduates -- they're not only college-ready, they went in, they paid the money -- borrowed, rather -- and they graduated, but they're still not given the independence. The Boomerang Generation is coming back to our house. I mean we love them during Christmas, but you know, other times, please, you know? Now, what is the situation here? This is really number one thing we need to think about. It's -- and we also at the same time, you know, overall in the economy, there is another argument that says actually we have a talent shortage. Have year heard about that? A talent shortage. Many business owners and the companies are saying that we can't find the people we need, so that's why they're blaming American education is we don't produce the talents we need. That's why they justify we have to send jobs overseas. You heard about this? Our education is so bad, we're not producing these people.

But that's actually not only a US problem; we see a global -- there's a global problem in this that everybody say we don't have the right people. You have a talent surplus, you have a talent shortage, so what is the problem? You know, I was just using China's example. China -- one of the biggest problems for businesses in China -- foreign business is that they said we can't find the right people and the talent. Imagine if 1.3 billion people, 7 million college graduates -- that's a huge -- and you can't find people to work for you?

What is the story? So this comes people, this is a story of the talent mismatch. That is what we've been producing and what the new society wants. That's a very simple story now. So who can we blame this situation? So what do we need? What has changed? As you probably know, you know, and let me just park that idea there. But think about this: in human society, we always, always experience sometimes-transformative changes.

When transformative changes occur, they redefine the value of talents and the skills and redefine the values. So what's valuable before may not be valuable today. What's not valuable before, may become more valuable today. Imagine my village, and I was lucky to be able to get out just at the right time. If I was born there 100 years ago, I don't know. I would be the most miserable farmer in my village. I would still be there because I couldn't get redefined my talents, so that always happens.

So what has happened? Why did certain talents lose value and how new things have gained value? So let me ask us to think about -- I don't know if you guys have seen this car. Actually it was quite fun, the Google Car. How many of you are into Google Car? Have you seen this one? Have you seen this one? This is not a Google Map car. This is a car that does not need a human driver, okay? A car that's not a human driver, and this is not experimental. Actually, a car, a driverless car, is coming to a street near you.

And this is -- Google unveiled this last year, so can you imagine a car without a driver? Now let's think about this idea. This is a transformative technology, because we've always had transportation that required a human driver. And sometimes, sometimes, when those things -- when this kind of transformative change has happened, there will be a massive change in our society. And I always say this, "You know in human life, there are sometimes, no matter how big a problem is, you can always run away from it." That's one thing I learned that if you wait long

enough, those problems would disappear. And the problems won't become problems, so this is the kind of thing. Let me give you an example. Pennsylvania is actually a good place to think about this. About 120 years ago, one of the biggest problems human societies faced was horses. Horse droppings, you know? Horse manure. Remember when we were powered by horses, horse wagons, and they had an international conference said that if we did not solve the problem how to deal with horse droppings and horse manure, most major cities in the world would be buried under five feet of horse manure by the 1950s.

Think about Philadelphia, New York, and it's true. You know, hundreds of thousands of horses running through the streets. And I don't think we solved the problem. As you know, as Pennsylvanians, you know that horses still do horse business. But we're not under those things. What happened? Technology changed, right? We used cars. Now we have other problems; we had pollution. That's a different thing that come along.

But now with this one, I want you to imagine with a driverless car, what kind of problems would just disappear? Will no longer be a problem. Can you think of some? Anything? Come on, you know? DUI -- that's a euphemism for drinking and driving. Okay, so yeah, you can drink and drive now. Basically, you will not be arrested for drinking and driving, you now. And you can do your makeup and driving, you know? You can do text messaging and driving, right? You know, you are not driving.

Any other problems that might disappear? What?

>> [INDISCERNIBLE]

>> Air pollution? Maybe not, because you know, you are still -- pollution -- human drivers do not give a lot of pollution. You know, right? Remember, it's only replacing the driving part -- only replacing the driving part, okay? So think about other things.

>> [INDISCERNIBLE]

>> Less speed time, that's possible. You know, cars. And something -- road rage, yes. Road rage, humans get angry; cars don't. But unless you have a Windows car and Google car, they might get angry at each other. You don't know. It turns out that Apple might, you know, like the Android and you know, just "I don't like you." You never know. But imagine the driver's license, right? You don't need to teach drivers skills now.

Now imagine all those things. Other things can change a lot. You know, if we don't need drivers, do we need traffic police? Imagine changing jobs; we are affecting jobs. If you don't have drivers now, taxi drivers, truck drivers, limousine drivers, and they again are related. You have nobody to arrest. We don't need people to arrest people anymore. You don't need the police. You don't need drivers ed. You do not -- maybe the actual drivers insurance companies might change. Can you imagine the whole chain reaction? What jobs will be disappearing? And actually, the traffic lights might disappear because most traffic lights were used to help human beings, not regulate cars, you know? Not in regular -- machines -- and we don't need to make traffic lights anymore. And there's something else people say, well, for example, you don't need a steering wheels. Those making steering wheels better be gone -- and gas pedals. And all those better be gone. And you are seeing -- someone said, "Well, maybe in the future, a car is so automatic, you don't need to own a car; it becomes a service." Because the car is so nice, you

punch it in to come pick you up at 9:00 in the morning and find a place to park itself in a nice place, you know. And maybe parking spaces will be changed. You know, so this massive shifts a lot of those changes.

We're seeing -- we're going to see and witness a massive loss of jobs in this domain. But at the same time, it enhances some other things and the physically disabled people can drive. They can move around, you know. Visually impaired, can you imagine? Senior people? Young babies -- babies can. So you may face a -- your two year-old maybe is going to school by himself. You know, you punch the car to Google, come pick me up, right? Now maybe your school -- seriously, some of your elementary schools, you don't have many mothers parking outside anymore. It's amazing; it's shocking. And then there's new businesses coming out. Can you imagine some new businesses? I'm thinking about car interior design would be very hot, because now you don't drive. What are you going to do in the car, right? So now you can put hot tubs inside, you know?

So you can imagine this whole chain of thinking about what matters. This is a major transformation that's going to redefine the value in one little domain -- in one little domain. Just for this thinking, why is literacy so important today? Was it important -- has it always been important in human society? No. Until Gutenberg made reading a popular universal demand, it wasn't important. I can tell you in my village it wasn't important. The ability to read was of minimum value when it was investing in my village, no matter what I could ride, nothing -- only so much. So I've always blamed the problem of literacy on Gutenberg. If he hadn't invented this thing, would we have to? You know, we don't have to deal with this stuff.

So technology always, always redefines the value of talents, skills, and knowledge. And maybe if some people are still debating penmanship, you know all those issues we're debating? All those -- and so what has changed in our society that kept sending our kids back to our basement. Its two big changes -- transformative changes -- that's happening right now and we are just beginning to have a taste of the aftermath of it. Number one is we are arriving -- arriving at the second machine age. The second machine age is in contrast to the first machine age. The first machine age was when it was steam engines. The steam engine made all the massive shifts, you know, come from agricultural to industrial revolution, and that liberated a lot of talent to do different things -- changed the value of talents. You know, you may be a great ship -- you know, kind of take care of a ship, but it didn't matter anymore. Remember those things?

Now the second machine age is really having to do with teacher technology. What did teacher technology do? Teacher technology deals with the information, deals with the routine management. They become smart technologists so that they can drive cars. But not only can they drive cars, they can do a lot more thing. For example, Becky, I know you are from Michigan. You're probably familiar with this. While you guys are in Pennsylvania, there it is, too. Where the Rust Belt, not the Bible Belt. The Bible Belt don't deal with this. But, you know -- so imagine. Look at this. This was commonplace in the 1950s to the 1970s. Do you remember those times? And these were high-paying, middle class jobs. Middle class jobs. Now, you know, technology; it's all technology. This is what we have today. We've lost how many jobs?

Actually, you know in Hershey, if you were here five years ago, did you go to the factory? The chocolate factory? They hired about 2,000 or 3,000 people. If you try and go back again, there are probably like 500 people now. I think that this is a massive shift of those things, so

technology has replaced a lot of -- lot of jobs. You don't see a bank teller there often. We've lost a lot of accountants now in tax accounting to TurboTax, and do you know that? Notice that? In America, we have a surplus of lawyers today. It's almost impossible to imagine, you know, in America, a surplus of lawyers. But you have nothing to worry. We are still suing each other as much as possible and we just don't need as many lawyers. Why? Because lawyers do research. A lot of legal research was done in 50 years ago by hand. Now with search engines and databases, it changes a lot of those things.

So people have asked this question: "Are you going to prepare students to have the skills and knowledge that cannot be replaced by a machine?" That's the basic thing, you know. And we have too many -- too many of these jobs now being replaced and a lot of our kids were prepared to take these jobs -- that's gone.

That's -- and now we have another problem. It's not a problem; it's really the idea that's called the arrival of the age of globalization, you know. There's two books you can get a chance to read. It's an old book now, a great book in 2005, 10 years ago. Thomas Friedman, now the arrival of globalization, which is not because they lasted, it's true. What does globalization mean for us in terms of knowledge and skills? Very simple: our knowledge and skills now are a commodity, globally speaking. By the way, I have to tell you -- I don't believe education is all about finding a job, okay? It's much more than finding a job. But finding a job should be one of the factors. So I'm only talking about this one element of globalization; I don't have time. You only gave me two hours and I need 20 hours to go through this whole thing. And so -- and what does this -- this one element of globalization is our skills and knowledge have entered a global market.

Pennsylvania, if you go to the Redding area, your problem is still a lot of steel factory jobs went to Mexico, China, India, and it's something very simple. They said if as a business, you want to acquire the skills across the list and globalization enables that because the transaction cost is so low. So if the skills that can be acquired cheaper in other places, it will be. That's what is called outsourcing of jobs.

Now here is a challenge to all of us. This is hard economic data and don't be mad at me, and I -- but it's true. Now, American schools, we spend about \$115,000 for 12 years per student in the US. China is probably \$10,000. India might be less. If those students can have the same skills but cost 10 times less, with Redding, the students don't deserve to have the jobs here. And also, those are human beings, too. We can't say, "No, no, the Chinese, Indians, and Mexicans don't deserve this. We do." So our job is to say, "What can our \$115,000 get us that cannot be acquired at \$10,000 or \$20,000?" And that is actually right now, when we talk about in this country global competitiveness, we are always driven by this idea our students' test scores are much lower than others.

You know, you have this idea -- we all talk a lot about those things and then that we are under attack in the US. But our government says, "Well, we spend so much more money but our test scores are so much lower." I tell them, "We are teaching our kids something else." It is that something else that matters, because test scores, no matter how hard we try, no matter how hard we try, we will not beat the Asians -- East Asians -- in terms of test scores. I am sorry I have to say that, you know?

By the way, do you have a governor called Ed Randell? Did you have one? Oh, he -- he has something amazing to say about test scores. I've got to show you this. This is -- because I don't get to use this very often, but I'm having a problem with this is very good. Do you remember when the Chinese took test scores very high a long time -- a while back -- it's always very high. And so the governor -- your governor -- was very worried. And the Chinese was giving us a great lesson, and one year it happened, I think the Eagles had to cancel a game due to a snowstorm. And remember he went on the radio? And you know, football, Philadelphia, China, they don't get together, you know.

I mean, the Chinese don't even play football, but the governor was clever enough to bring them together, and this is what he said about you. I'm sorry about this. He said, "We've become a nation of wussies. The Chinese are kicking our butt in everything. If this was in China, do you think the Chinese would have called off the game? People would have been marching down to the stadium. They would have walked and they would have been doing calculus on their way down." So that's -- just wanted you to know. You have a very globally minded governor. Thank you.

That's -- but that said, I was saying globalization, even if you have the same test scores, even if you were doing your calculus on your way down, it won't work. Okay, so there must be something else. So the problem with that -- with what we've seen just now -- globalization and second machine age have made a lot of middle class jobs disappear in this country. That's why since the 1970s -- 1970s -- we've been seeing a decline of the middle-income group in the US. You can see we have a bipolar growth in this country. The rich is getting richer. I mean, I don't say the rich are getting richer -- it's the richer group is growing. And the poor group is growing. We are shrinking the middle class and that is very dangerous for society built upon the middle class.

And there are many reasons for this. There are many reasons. It's not only one. But one of the reasons is definitely the changing economy. The changing economy -- because it's also how our education have not responded to the changing economy, which is noble, because technology always goes forward; education catches up. There is always a race between technology and education. Do you think the time, you know, when the industrial revolution happened, most people were still had the farmer/peasant mindset. That's not helping them very much. It took us a long time to catch up, to have some prosperity. So what are you trying to catch up now?

So what is the new middle class? All of us have a responsibility to create the new middle class. Who shall the new middle class be? This is the question. And, of course, people say, "Well, you know, its normal. We can see the change of our proportion of our jobs." You look at this, over the last 200 years, how the percentage of different classes have -- have played a role in our society. We see the large one, the green one, is the declining of farming, forestry, and fishing. You know, we now have very few people doing those things, but actually producing more food than ever. Do you notice that? We have a lot more food now, but we have about 3%. We used to have 50% in farming and industry, and then those farming and industry people become -- I'm sorry, I mean farming and fishing people -- they have become the working class. They have become employees of companies of Henry Ford, of General Motors, of all those kinds of -- all the big steel factories, all those things, and we've become employees.

Now since the 1970s, those jobs we began to outsource. Shoemaking, textiles, remember? We don't make TVs anymore. Do you guys notice that? All those things are gone gradually. Now, we are exporting high-end jobs now to other places and losing machines. So you see the decline of the working class. A very small percent of people are truly called 'employed' now in many ways.

So what we have become, you see the rise of two groups. This is richer for I stay called rising up, the creative class and the service class. The creative class are those people who have creative value, who are combining new things. Those people are a lot of different kind of people. You have the Apple people, you have also the Facebook people. I'm always surprised at Facebook, you know? Facebook is a really interesting phenomenon. You know, what does it do to you? Nothing! Wastes your time, but it's such a big company. It's really interesting. Look, but those creative people, when you go to Silicon Valley, you see exactly this. The rise of the top income and the rise of the service sector. A lot of you have to serve those high-end people. It's really interesting to this group.

Now, the new middle class has to become the new creative class. So let's number one, talk about the creative class. So that's why today, everybody is talking about creativity. But creativity has often been misunderstood as a cognitive skill. They said, "well, you know, they're not creative people. They're less creative people." But in fact, everybody is creative. Everybody is creative, but creative in different ways. What does creativity mean? It means your ability to come up with something original -- something original. Something that deviates from others, from history. So creativity, by its own nature, is not inherently good or bad. It's just something different -- something different.

So when we look at creative people, we generally don't like creative people. Do you guys know that? We don't like creative people. You know, kids like this. Schools -- schools don't like creative people. I'm going to make fun of you now this time. Don't laugh at me, okay? But just laugh at yourself. Pennsylvania is one of the states that's been trying to push for Kindergarten readiness. You know that? It's one of -- and you referenced the Kindergarten readiness standard from Maryland. I don't know why you borrowed from Maryland, but you know. And one of these Maryland standards was for Kindergarten readiness is about -- you know what it is? It is whether you can walk in a straight line. That's Kindergarten readiness. I thought that was about driving. You know, when you get caught and they just -- "But officer!"

Another standard is about can you stay awake during the day. It's really -- you should go take a look at your Kindergarten readiness standards. Some of the -- it's actually -- Oregon is one of the leading states. We give a Kindergarten readiness test. You know, it's about how fast can you recognize like out of 100 letters, sound those letters out. And we spend money and we think we're doing good things. And you know, the last time I checked, Kindergarten is not a paying job yet. You don't get paid for going to Kindergarten.

Why should we get assessments if you feel ready? Kindergarten should always be ready for me. I'm a child! You should be ready for me! Why would assess that? I would ask that. And this child -- this child has to be -- this child cannot be ready, so where do you send this kid? Anyways, so creativity is not always valued. Creativity, in fact, actually schools were designed to stifle creativity. When we are age 5, 98% of us children -- our children age 5 -- are creative at a genius level. You know, creative at a genius -- not just creative. Ninety-eight percent -- that's

all of us! Okay, and -- but after 5 years in our school, we've got a rate of 60% of them because they've become better students. They do everything on time, they comply to your requirement and did everything you want. Remember those days? After another five years, age 15, 10% of that left. If you move on, you went to college, you become a good college student, you find a good job -- 2% left at age 44. That hope comes after retirement. George Bush is painting -- that's good evidence, don't you think?

Creativity can be regained, can rebound. Okay, now it gives great lessons here, what's implied here. Creativity -- recent research shows creativity is not only cognitive skills. It is not whether you can be creative. It has to do whether you want to be creative or you think you will be creative, the emotional -- social-emotional. Education stifles creativity; basically, we teach our children it's better to be compliant. Remember, that's how we teach our kids. It's better -- it's better for you to turn in a book report the way I want you to. It's better for you to write an essay, an item, with one statement, three supporting evidence, to get better test scores. Remember those things?

We teach people to find ways to comply, and children learn that fast. They learn to do whatever you want them to do because they want that reward, and that reward is very important. We comply -- that's how we lose. And we can regain, because after retirement you say, "I don't care what my boss says anymore. I want to be myself. I have 15 years left; I want to be creative." You guys see these old ladies are always creative, you know. I mean, they can do all kinds of things. This is why education systems always stifle creativity, because we reward compliance. And we measure our children, you know, their so-called 'readiness' by how well they comply. That's one thing. This is the first thing about creativity.

The other thing that is rising, this new age, remember all this? We talked about these cars? We need to get rid of something, it actually creates new opportunities. The new opportunities, creative people are more valuable, but also it creates value for other type of talents. Remember what used to be valuable may become less valuable, and that routine jobs are gone, so we need the creativity. But also it redefines other talents. You know, speaking of talents, we are all familiar with the individual diversity, where everybody is familiar is individual diversity and you remember how our gardeners will be talking about this for ages. We talk about multiple intelligences all the time, you know.

Right now, by the way, this is the old way of thinking about how we are multiply talented. All the multiple intelligence is just a concept. We have many more talents than this. Do you know the problem with this wheel is that this only says *we can only identify talent when we have a profession that corresponds to it*. We have more talents! We have -- human beings are actually talented in different ways. We are not able to identify other talents because we don't know that existed, so we should always be thinking about more talents here. And this also shows that when we say someone is talented, we are adding a utility value to it. When it's useful, you'll be very useful.

So now I want you to think about this: today, we have arrived at the time that many, many traditionally useless talents have become useful. Traditionally useless people have become useful, like Kim Kardashian is a good example. The Kardashians, you know the Kardashians? Yeah, okay. So you may not think she is useful at all, right? Don't you think? Well, I'm -- actually, I'm going to show you her picture. Ha, right? This is the only decent photo I can find.

But anyways -- I put her out there to showcase as an example. It's not because I endorse her, it's because I really met her. So proud. But she did not meet me. I'm sorry about that, you know. She never met me; I just met her. So you know, it's kind of those situations -- imbalanced relationship. Now this is a real story -- I saw her. This is really, she helped me think a lot about education. About several, three or four years ago, I was in Melbourne, Australia. We were just in a hotel somewhere and I was in the elevators and an entourage of people would come in and say, "Hey, give way. Kim is here." I'm like, "Okay, fine. Kim is here." So I got out of the elevator because I wanted to figure out who Kim was. And in the lobby, there's a lot of teenagers, people following this. So I got curious and "Who is this Kim?" And I don't know a lot of celebrities, by the way. When I was flying from Beijing this year recently, a person -- a big person was there. Everybody was greeting him like, "Oh, how great you are!" And all this. After a while he said, "Yeah, in Paris I'm a big deal." If you don't mind me asking who you are. He said, "Well, Horace." "Horace what?" "Horace Grant." I said, "So what do you do?" He said, "I play basketball." I say, "Okay."

So anyway, he was apparently a big deal. But Kim Kardashian is the same thing. So I actually had a conversation with my daughter. I said to my daughter, "Athena," -- that's my daughter's name. "Who is this Kim person?" She said, "Oh, she's from the Kardashians." I say, "Why are people following her?" She said, "Well, she's a celebrity." I said, "A celebrity for what?" Nothing! My daughter said, "Nothing." A celebrity for nothing.

Now, this is really important if you think about it: celebrity for nothing. Do you know how many celebrities for nothing we have now? Honey BooBoo, right? Honey BooBoo -- do you know what Honey BooBoo -- Honey BooBoo used to come from a village of like 700 people and how many people follow her? I know you don't. I mean, you're not going to admit that anyway, but -- now this is what we have to think. How did these people become celebrities for nothing and they are not in their parents' basement? I am not endorsing their success. I simply want us to consider why they have more economic value than some of our college graduates.

You think our society is sick, you can think of whatever you like. You can do whatever you think about. But one thing I want us to imagine is we have arrived in another age, which Daniel Pink calls the Age of Abundance. That is, we have more -- we have more things. We have more resource to consume, that we do not spend as much time securing the necessities anymore. And like in my village -- Age of Necessity -- we spent most of the time securing the necessities: food, shelter, and clothing. Today, Americans don't worry about that. We also have more spare time.

So what it means is we now spend more time on resources securing consumptions that meets our psychological and spiritual needs. Psychological and spiritual needs -- and that that need is very diverse. That need -- so now if you think of consumption, those people who watch Honey BooBoo and the Kardashians are horrible people, think again. Yourself, do you really consume a lot of things you need? Do you consume things you want to need?

Many of our children will tell you, "Dad", or "Mom, I need an iPhone 6." I said, "No, you don't need one. You just want one." The want becomes the need. And psychological products are extremely diverse, therefore, all kinds of talent can become valuable. Just think about yourself. I give this example. It's absurd, because I lived in a village of necessity. When I came here for example, I could not buy shampoo -- 1992. Not because there wasn't any; there's too many. I mean those things, I did not know what kind of hair I had. You have to know -- you have to

know. Oily, normal, dry, you know, it just got -- you know, you got to go talk to a hair consultant. Do we need all this? It's still a traumatic experience for me. I don't buy it. My wife just buys it and I assume it's good for my hair. I had one bar of soap for every inch of my skin when I was in China, and that was sufficient. Now think about it: potato chips. Do you guys know there's a new potato chip flavor container on TV. How many chips -- how many flavors do we need? I was born in a village. One sweet potato but kind of baked one way, that's sufficient for me. So many flavors!

Another thing that's absurd, you know, like grass. I know you guys like to grow grass in the US. I came out of a village. We grow grass because the water buffalo needs that. Here, what do you do with the grass? You hire someone to fertilize, to sprinkle, water, and the only thing you do is cut it. What do we consume? We consume toys -- psychological, spiritual products -- it's toys. How many? Do you know there are 26 million songs on iTunes? What -- do we need that? You know, you don't. You know how many books now? How many TV channels do you guys have now? A thousand TV channels, right? You look at this stuff.

So why do we talk about this Age of Abundance? We consume personalized, psychological, spiritual products. We cannot simply pass by on the judgment on others, you know, those things. So what it means? We can be very diverse and that has come to the conclusion if Lady Gaga or Honey BooBoo is useful, anyone can be useful. Now that's the idea.

There's another reason why they've become useful. We've called it the Age of Globalization. Remember, abundance has to do with rising of productivity. Globalization brings that value, too. Globalization enlarges your -- enlarges your consumer base. And you just finished Super Bowl. Do you guys watch the Super Bowl? Okay, you know. You look at that -- Super Bowl is like a \$500 Million event. Just this one event, okay? What do they do? Really? What do the people do -- the players? They kick each other and they grab each other. You know, those talents -- do you think those talents were of much value 200 years ago? Even if they did, they were not of this much value.

What happened? Super Bowl is consumed by how many people now? Television, remember the TV? Other sports -- the same thing with soccer. I was shocked that the word 'soccer game' is like worth billions of dollars. God, what do these guys do? I can never understand. Television, technology -- so even if they are small, niche talents, if you were talented in one thing, in one area, but if you were in a village, nobody can consume you. If Madonna had stayed in Bay City -- I think that's where -- yeah, in Michigan. She would probably -- I don't know, be singing Christmas carols. That's the only thing she could do. But look at her.

So on the internet if you have talent, you can always find someone to come to value. So that's where it comes to the big shift of those things: opportunities and challenges. So we've lost a lot of jobs, but new possibilities emerge.

Now let's take a look at our education system. Our traditional model, you know, remember we have to agree upon this one now. All children are born diverse -- different -- so I want to go back to actually this idea about multiple intelligence again for you to think about. Multiple intelligences implies that you cannot be great at everything, aptitude wise. So they do not expect you to be great at everything, okay? And this, in time, that means you cannot be bad at everything, either. So this is a very interesting. I'm only thinking about your ability in that one

domain. So if you are good at something, you have to be bad at something. If you're bad at something, you have to be good at something. That's really what we know.

The second piece, that's what we're born with. In life, what you are born with, the genetics -- the nature -- can be either enhanced or suppressed. According -- based on what you're born with. Like for example, I might be born with a great talent in music. I always thought I could have become the Chinese Justin Bieber. Did not work out for me because I never had a chance to sing music, so that pattern may have never -- may have never been triggered. It's the same thing when you have some corn and if you plant it, you have no water, no sunlight, it won't grow. It's as simple as that. But at the same time, if you are born with something, you happen to be in an environment, a family, a neighborhood, a culture that celebrates that, you can become great at that.

But that greatness also comes from -- at a cost. You have heard about this idea of the 10,000 rule. You've heard about that? If you want to be great at something, 10,000 hours is a necessity. You may not be 10,000; it could be 7,000 hours -- but a lot of time. But how many 10,000 hours do you have in life? If you spend 10,000 hours on this thing, you can't spend the same 10,000 hours on something else, so you have to make a choice. That's why today we cannot be generically good anymore. You have to be great and celebrate. Then as I was showing you before, you may be differently talented. But our society always attempts to define what talent is valuable, what talent is not.

So our education system is built as one to homogenize talent. Your response to defined value -- of talent value. So like you may be great in music but hey, we think that's peripheral. That doesn't matter. So our education has always followed the sausage-making model, okay? That we've been making sausages for all the time and which is actually is fine. Everybody loves sausage. This is what our education has been like with all -- this is our model.

Now, we start by defining what talents are valuable, what skills are useful, record them with the Core Curriculum. Remember that? We saw math, we saw language arts. Why do we always use math and language and reading to define our students? You guys know this? That's what we always do. They come to school, you feel good at what I think is valuable, the core subjects you are called 'gifted'. And if not, sorry, you go to special ed. Remember those kind of things? If you do not do the certain things. So this is how we define people. Schools have been a place to label people and sort people, you know. You may be a great piece of bacon, but you are not sausage, so sorry, but we don't want you. And we do this in a silly way that is we want you to -- to become not only a good sausage, but become a sausage at the time I want you to become a sausage. Remember that? That's how we have these grade level expectations. We test those things.

You know, that's [INDISCERNABLE] and basic idea. Psychologically speaking, and in human development, we never grow the same way. You know, we don't. This is what we traditionally call the 'science of the average,' not the science of the individual. So we do; we believe that everybody develops the same way at the same time, and if you are not, we consider you need some fixing. It's a deficit; we need to fix you. That's always about fixing people and that's all this stuff.

By the way, I've been thinking about this. You know, in America we call it the 'science of average', you know what the average height in America? Probably 5'-7", because I'm 5'-7", so everybody should be 5'-7". That's why there's the Common Core idea: you should be 5'-7". Okay, if you are not -- well -- but think about 5'-7" as average, then you go back to by age 16, everybody should be 5'-7" and if you're not, you have a problem.

Imagine we hold every parent accountable for making sure their children are 5'-7" and grow 5 inches every year. What would happen? Actually, I think it's a reasonable request. I think, you know, don't you want your children to be healthy and -- and you know, like other people? You know, that's great. So if you did that, we would be doing the same thing as in school. This is what we'd do. We'd prepare for a test.

So this is the traditional model, and the traditional education model has worked beautifully in the past because before, we could actually define what knowledge is valuable, and we knew in the past that Honey BooBoo would not be very valuable. Lady Gaga would not be very useful for Henry Ford. Can you imagine Lady Gaga on the assembly line? No one wants the bad car assembled by Lady Gaga, you know? You got five wheels there and that might be different.

So this model has been used to judge our teaching. This is what we are doing now. This is I've been talking about why American education is worse than other countries. Why we won't hold our teachers accountable; we want to hold our students accountable to this model. We want them to acquire the same thing at the same time, making the same progress. Therefore, we judge people by their deviation. We judge people by saying, "How good are you is based on how well you adapt to become the average."

And this is come about actually from some research work from Harvard. They have a new center called the Harvard Center for Individual Opportunities, so they've been talking a lot about -- I want you to read this if it comes up. So this is from the Harvard Center of Individual Opportunity. They said, "The science of nobody for the past 150 years, we have used averages to understand individuals. The assumption has been that either the average itself represents everyone, or else it is your deviation from average that defines you." I think special education has been practicing this for a long time.

Today, the average determines how we stuff individuals, what way we design institutions, and how we measure potential and performance. There's just one problem with this approach: it is fundamentally wrong. That's -- that is. And so if we take that idea, why we're still pursuing this, and I can show you some evidence to say why it's wrong. In America's schools today, a lot of the justification of Common Core and other things is about we have to beat other countries. You hear this all the time, saying American education is getting worse, is in decline, and I can tell you that's not true.

American education is not in decline, it's not getting worse; it has always been bad. Yes, it's been bad for a long time -- a long, long time. And how long ago? Well, if you want to look at test scores, since the 1960s, American student scores have never been good. 1964, first international mathematics and science study, American 12th graders ranked 12th out of 12 countries. That's pretty bad. Twelfth out of 12 countries. We've never been good. We've never been good. So according to this prediction, America should not be here anymore. Don't you think? If an education mattered? No.

Why is America still here? That's the question everybody wants to ask. And not only here, well, I've actually looked at some of the data. Obama actually said, "America still has the largest, most prosperous economy in the world. No workers are more productive than ours." This actually is true. Today it's even more true in 2014 and these are facts. Well, more factual than some -- some of Obama's other facts, but you guys have to believe me.

So if you think about this thing, how did it happen? Well, there is a lot of different things. So let me explain: one of the reasons is that America is what I call a broken sausage maker that makes some bacon. The saddest country: it did not homogenize everybody. This is what they call the traditional virtues of American education, which has been ignored and has been abandoned because of the last year's -- last two decades -- of reform.

What kind of strengths do we have? Number one, American education, public provision -- number two -- public funding. You know, why does that matter? America is one of the very few countries in the world that allows everybody into our school system. What does that mean? We do not select. Our public schools are not a country club that we do not select people based on what gifts are like us. This preserves huge diversity, because you don't know who is our next great inventor. You don't know who is our next great leader.

And this is very powerful; in many other countries, they select. They pass a test. They only said, "Okay." If you select, what do you do? You are selecting people based on the criteria of the past, because you don't know what the future needs, so you cannot plan for the future. So in that case, any of those so-called meritocracies select people to preserve the past, not invent the future. America has this great thing, so I'm very concerned about the loss of our public nature of our schooling system. Now it may not look very efficient but that is the power of it. So tolerant of different talents and diversity.

Another thing we've lost but traditional -- traditional strength is called local control and teacher autonomy. We are losing that. Now we have more local control over finance, but not local control of curriculum. While America has about 200,000 school districts, now about 14,000 school districts, now our school system evolved to serve the local community, the individual. You know, many other countries you serve the government, the branches of the government, so we are not preparing people to be workers; we want to liberate every child.

So with local control and teacher autonomy, you can choose to emphasize on different kind of things. You preserve -- I know there are bad teachers. There are bad many things. But this is actually great power allowing individual teachers in with the school district have special features. So even all the system, you know, imagine the fifth person of the system fails, we've got a fifth person to be successful. But you have one nice new system, if you fail, you fail all. And this one, we allow those people to do this, and this is in one of my great teachers -- not mine -- my son's grade teacher one time, she was really good. She really got us talking about America's education in terms of celebrating diversity reflects in all the school talent shows. Do you guys know? And most of them miss it.

And what does a school talent show do? It's locally controlled, we do not prescribe what's talent and what's not. You know, you've got the piano player, the violin player, you've got all kinds of players, but everybody's get to called talent. I've seen some talents, I'm not really. My standards I'm not talented but I let them do it. You know, just -- another thing is called open and forgiving

system. Our -- do you guys notice for a long time our schools, we do not -- we do not test our kids every year, every week. We allow them to run through the course for 12 years. That's really amazing. And what does that do? That gives our chance to forgive our children's youthful transgressions. I bet many of you did something you still haven't told your parents yet. Remember that? Allow forgiveness. Today, we're losing that. We're adding more -- remember, I was -- I'm serving on the working group of the National Technology Plan in education and they're making a new plan from the US Department of Education. We want to have a teacher record for all children and keep it going for all their life. I said, "No! We should allow them to -- kill it!" We should allow people to abandon their records. There are some records you don't want to keep, you know? And that was supposed to be but it's very different. Now today, we're forgiving all of those. As a result, this broken system gives us what? Gives us really bad test scores on average, because test scores represent -- represent how well you comply, but it gives us something else.

So compared to many other countries, America never tested very well. But all other countries like east Asian countries, think about Singapore, China, Korea, Japan -- all those countries have scored very well. But there's something different. One thing we show that difference is what they called confidence versus scores, and American students, all are testing, especially in math, have always scored lower than Asian kids. Asian meaning East Asian kids. That's why Singapore Math has become popular. You know what those do? They've always been number one.

But all of the international tests, they ask another question: it is called confidence. So as you can imagine, you can guess this now. American students, we're mathematically incompetent but we're mathematically confident. So we may be stupid, but we're good, you know. Now that is -- we think we're good at this, you know. So we out-confident most countries and this is actually quite fascinating data to look at. That is, you know, our countries -- our students have driven this negative correlation. Countries have higher test scores have always shown -- consistently shown lower confidence in their students and the students report that they enjoy the subject less.

Now what is more important? So I just showed -- this is 2001 data and 2006. We have 2011 data and it's the same thing if you look at specifically the top countries: Korea, Singapore, Taiwan, Hong Kong, Japan -- all east Asian countries. The math scores are much higher than a traditional Anglo-Saxon countries and much higher. Now you want to see the second column, that is their confidence is much lower. It's very interesting, right? It's much lower, so I called the chopstick-using countries have higher scores but lower, you know, confidence. It matters what you use to eat with.

Now how do we explain this data? American students, government, and policy makers look at this data. Our children are too happy for their own good. We gotta correct that. They said, "Why are our children's scores so low but they're so confident?" They said, "Because our children do not know how bad they are." Why don't they know how bad they are? Because we have lower standards. We don't test them very often. That's why the last round of reforms for the last almost 30 years is about raising standards, about giving children more testing. Now we're talking about bring global tests to our state now. Do you notice that? You know? We want to make sure our children know how bad they are, you know? Not only the worst than people's kids in Ohio, but kids in countries we don't even know how to spell their name. You know, but that's fine. But that's our idea.

Asian countries took a very different spin. Asian -- you cannot read this, but it's -- well, I'm going to -- it's media reporting from Asian countries. Well, the basic Asian countries I can read this to you, from Japan, from Singapore, from Korea, they say, "Our kids, despite of their good scores, suffer from lack of confidence." And they believe entrepreneurship and future success and creativity comes from a confident person. And also believe that great scientists comes from those people who love the science, not because they have good test scores.

So all these Asian countries have been worried about how do we -- how do we change our education from focused on test scores to focus on the non-cognitive interest, value, and confidence. And all the Asian countries have been reforming in that regard. And this is not only true for Asians. It's true in Finland as well. You heard Finland is a great country in all those things, but in the Finland students have problems in science -- not scores, value. They don't value science as much as others, and the Finnish government said this is a national security issue. Because if you don't like science and you don't value science, you are not going to become a scientist. And Finland is extremely worried. I mean, Finland is a very small country of 5 million people. They lost Nokia now. You know, they don't have Nokia. Finland is living on Angry Birds. You've got to think of it. They have to have new scientists come up with new things. It's very important to rethink.

So now, with that said, what do we need to do? This is the next step to say how do we build a Google Car? How do we build a Google Car, okay? How do we change this? Now if we believe education is about not everybody's valuable, it's about enhancing every strength, so we have to accept this fact now. Number one, we accept all human beings are diverse. Number two, we accept the fact that every diversity is valuable. We have to accept that one, you know. Remember if Honey BooBoo is valuable, everyone is valuable? We always have to accept the fact that today information and technology makes our learning in a very different way and we have a global -- globally accessible learning environment. So I want you to agree to these four things and then we'll talk about how we prescribe a better learning environment.

Do you know known knowns? I stole this from Donald Rumsfeld. Do you remember Rumsfeld? Donald Rumsfeld. Our American politicians are very inventive linguists. They always come up with something really fabulous to say I learned. Remember George Bush said, "Do not underestimate me"? Do you remember that? Misunderestimate. It confuses me. I'm an English language learner; I don't get it. But you know it sounds very cool. And I think President Bush also said, "More and more imports are coming from foreign countries," which is actually true.

But anyway, now with Rumsfeld -- Rumsfeld actually says something very logical. And when he talked about Afghanistan, the situation with Iraq is that there are known knowns. There are known unknowns, there are unknown knows." Remember those things? So known knows basically means things we accept in education today. So I want us to accept this. Human nature, we are diverse, we are creative, and we are curious. This is I think true. No one can deny that. You know, just look at your own kids. Come over here.

And number two, the economy has changed. Traditional routine jobs, homogenous jobs, that require similar skills at the basic level -- is gone, especially in developed countries. We have to cultivate a diversity of talents and creativity and make sure that everybody is great. But those come at a cost, we call it a side effect. You gain some then you lose something. And today,

information is truly everywhere because of digital technology you can access. This is only recent in ten years, right? You can carry this stuff. You can't believe what you have here right now. And also on this tool is great for creating, you know. The iPhone is perhaps worth half a million dollars in 1950s in terms of its ability to create video image and a broadcast. Can anybody believe this in broadcast? YouTube can be more powerful than Fox News, by the way. You know, no one is truly more powerful than Fox News, but you know, you can try. You can try to beat that. But actually, you can actually reach a global audience with this thing. It's amazing.

And then we live in a globalized world. So what does this mean for all of us? It means our education needs a paradigm shift. A paradigm shift is not tweaking; it is not doing the wrong thing more right. It is not fixing the past; it's inventing the future. Now before I allow you to do that, I want to ask you another question to rethink: How many of you are still using this Nokia phone? I mean when I said Nokia is almost dead, is anyone still using this, guys? Do you remember those phones? Remember them? Yeah, okay. But you're not using this anymore, right? Not anybody.

You know, Nokia was the largest company -- cell phone company -- in the 1990s? It quickly got replaced by Apple, so we wonder who killed Nokia. Why did Nokia die? And people say, "Well Steve Jobs. The iPhone did." Well, not really. It's we call it Nokia killed Nokia, because Nokia was trying to continue its strength. So Nokia was making dumb phones -- stupid phones -- adding some smart features. Do you notice that? Nokia was actually adding smart features to its phones. Do you remember this one? But they were not inventing a new paradigm, so they were fixing an old paradigm. I will say they are trying the horse wagon and trying to get to the moon. Let's grow fatter horses so we can fly to the moon. That was their idea.

But Apple had a computer and they added a phone to it. It's a new paradigm. So now in our traditional education, I'm going to advocate for special education, for gifted education, and for the education of everybody. Let's push for a new paradigm; a paradigm that fits everybody, a paradigm that enhances strength, not fix deficit. And what that paradigm would look like, it's actually very simple. If I can find it, it's even simpler. Okay, here we go.

What if you imagined we do not prescribe a curriculum to define students? What if standards are something in the background to use to assess individual progress, not to judge if they're good or not? What if now we rethink, we look at every child. We start with what they're passionate and what they're good at. You do not look at what the child cannot do, but look at what the child can do.

Can I throw something really controversial? You might hate me for this again, but I'm leaving. So I've been thinking a lot about this. Do you think in public schools, when you impose one or two subjects with assessment and judge and label our children and recategorize them and devote most of our public resources to these two subjects, does that constitute discrimination? You know, we always talk about we forbid discrimination against people based on gender, based on national origin -- based on all sorts of things -- but not based on cognitive style and talents. Now I'm just asking.

When my daughter goes to school, if she wants to dance and does not want to take physics, I'd like the school to give her more dancing opportunities, not force her to take physics. I would like that. And my public daughter, why do you want to say, you know, why doesn't my daughter get

more recognition in that domain? So this is something for you to think about. It's maybe different now. I think traditionally, I would have said, "Yes, the government has a right to say maybe yes, physics is required of everybody, math is required, therefore, we should do that." You know, we could define it. But today, that might be different now. It might be different, okay?

So what I advocate, I think the new paradigm has us rethink about the three things in education -- three simple elements. Number one element in education, we always talk about it's called the curriculum. What should our children learn? Remember, we spend a lot of time debating that and we spend a lot of critical resources arguing over that and defining it, from the Common Core, to Pennsylvania, everybody is busy defining that. What if we way we don't define that? We allow our children to grow. We support them in a different way.

Because as you probably know, any standards curriculum were really agreed upon by people who are old -- by people who represent the past. Really, did you guys notice? You wanted to get on the committee, you have to be old. You know, you have to. That's the criteria number one, because if you're not old, you're not 'qualified' to sit on those things. Now in the time that changes so fast, do you really? I mean, for example, English language standards, they talk about basal literacy. I don't know if they really included any computer gamers on that. Now just think about it. Just so these [INDISCERNIBLE] it's also consensus. Remember, those standards are not divined. They're not, "God said you should learn this." it's not the argument. Remember the math standards? People argue it all the time, so why would one standard be better than others? And also, some children may need a different kind of standards and limit progress differently in that regard.

So should we think about an education as a personalized experience? Every child deserves personalized learning. And we need to personalize learning that supports individual strengths. That's special education for everybody. Don't you think? And personalization should not be a personalization of process only. With the first process we do individualization. It should be personalization of outcome. That means, you know, we now -- we have one outcome but we personalize the process. So everybody still has to meet my Common Core expectations? Well, it may take a little bit longer because you're dumber. That's why we're talking about it, right?

Now I want to say okay, what if this doesn't matter? Like this math -- by the way, I've uncovered -- I just wrote a book called *Counting what Counts*. Most test scores have no value in predicting a person's future. Actually, if you can think of an SAT score, we know that, right? So all these things, so why do we do that? So I want to say personalized learning, recognizing individual growth. The second thing is that student autonomy within a one piece, students take control of their own learning process. One big problem today is that we treat our students as employees. They come to our school, we give them a little job, they finish homework and they're done. Students should be taking ownership of their own learning.

And one of the problems today we talked about is our children are not motivated. Our children are not motivated. We have a lot of books and talk about how do you motivate children? Children are born learning machines. Every child wants to learn. You want them to learn, so they should take ownership. Do you guys notice how hard it is to keep people away from learning? You know, people walking in Philadelphia on phones? They're at risk of being run over by a car. They just kept looking at their phone. They're trying to learn something!

And you know, when our children, what's the worst form of punishment for young children? Time out. You know what time outs do? We prevent kids from learning, that's why there's this place. Children want to learn. The thing of the problem is we're not giving them the autonomy to define what they want to learn, how they want to learn, and how they want to get support.

Depriving a person of autonomy is perhaps the best way to demotivate people. You read that book on how to try to motivate people? You create the environment. You know, if you don't want your kids to play video games, make it an assignment. If your kids are really addicted to video games, then you've got to play 16 hours a day and earn so many points. Otherwise, no food for you. And they will get rid of video games really fast. You deprive autonomy. It's really cool. I mean, you can try that. If you can externalize a lot of those things, you can really drive them crazy -- kids.

Autonomy, personalized learning -- the second thing I think we can do, we have to move our learning for all our children into understanding that they are here to serve a purpose. Our children have to serve this society -- serve the needs of other people. That's why they need to make the authentic products and services. You know for 12 years, our schools, our children, do not make authentic products. They make something to be judged on. That's so -- you know in life, we never do those things. You do not write things to be judged on by people. You do things to make a thrill and has some purpose.

You know, in our schools it's almost absurd only in schools this happens. What's the capital Pennsylvania? You say Philadelphia. You say, "No, wrong." Right? But your life you said it's okay. Which restaurant do you want to go to? I don't know what's the food -- not McDonalds -- that's not a real restaurant. But anyway, just you can -- maybe Olive Garden. Olive Garden? You said, "Wrong. Wrong answer." You never ask those things, right? Your husband says, you don't do them. Those are inefficient. What we need to do is have kids make things. From first grade on, we want them to make things that matter -- matter to others. They need to identify the needs of other people. They need to know what they can contribute to. When children do something real, they actually serve a purpose and they're motivated, and all of this has to happen in a globalized environment -- a globalized environment.

So how do you do this stuff? I have a lot of kind of suggestions and -- but I want to show you it's possible that this can be done and has been done in many different schools. For example, you can imagine in terms of the student in that last part, do you not hear the student's voice? You know, how they want to learn, what they want to learn, in the governance of the school. Do you have a broad and a flexible curriculum that children can choose and reconstruct their own learning? Do you treat at your school as a personalized environment that teachers and parents trying to support every individual student? Product of learning, ask questions. Are your students making real products that matter? I mean, are they writing an essay that can be used as English textbooks by Chinese or Japanese students? Are they making a video explaining how to learn math for younger kids? You have a lot of those possibilities. Do you we have those possibilities? And are you bringing global resources? What I only think about your students, again, interacting locally, because they need to become global entrepreneurs.

So to end, I think special education you've been practicing what I'm trying to preach -- at least part of that -- but under extremely difficult situations. Now what we need to do is to liberate that thinking, to truly think special education is not a euphemism for 'dumb kids' or 'less capable

kids'. Special education truly is educating someone special. Your hands -- you may have some of the best leaders in the future. I think gifted education needs to be redefined as well, so now I think what we need to do is create -- remember, our new middle class -- our new middle class is to look at every child. Ask them what they're interested in, support them in what they're good at, forgive them if they are not good at everything, and that will give us the new America, new education, and that is how \$115,000 can buy and \$10,000 cannot buy. America's future relies on diversity, non-cognitive skills, confidence, perseverance, and all of the so-called 'soft skills.' Most important, it's the unique individual who can become great. Thank you. Thank you.