

THE BROOKINGS INSTITUTION

CAPITAL HILTON HOTEL

BACK TO SCHOOL:

PROMOTING ATTAINMENT AND ACHIEVEMENT IN K-12 EDUCATION

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Welcome and Introductions

ROBERT E. RUBIN
Co-Chair, Council on Foreign Relations
Former U.S. Treasury Secretary

ROUNDTABLE: SETTING THE NATIONAL BAR FOR COMPULSORY SCHOOLING TO 18
YEARS OF AGE

Moderator:

MICHAEL GREENSTONE
Senior Fellow and Director, The Hamilton Project
The Brookings Institution

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PHILIP OREOPOULOS
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Discussants:

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ROUNDTABLE: GENERALIZING THE LESSONS OF SUCCESSFUL CHARTER SCHOOLS

Moderator:

ROGER C. ALTMAN
Chairman, New Visions for Public Schools
Founder and Chairman, Evercore Partners

Author:

ROLAND FRYER
Robert M. Beren Professor of Economics, Harvard
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Discussants:

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Houston Independent School District

RICHARD ROTHSTEIN
Senior Fellow, Chief Justice Earl Warren
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ROUNDTABLE: UNLEASHING INNOVATION IN K-12 EDUCATION -- THE PROMISE OF
EDUCATIONAL TECHNOLOGY

Moderator:

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Featured Remarks

THE HONORABLE ARNE DUNCAN
Secretary
U.S. Department of Education

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P R O C E E D I N G S

MR. RUBIN: Good morning. I'm Bob Rubin and on behalf of all my colleagues at the Hamilton Project I welcome you to today's discussion entitled Back to School, promoting attainment and achievement in K through 12.

The Hamilton Project began about six years ago with a perhaps unique combination of policy experts, academics, business people, all forming together a governing advisory council. The guidance and participation of that council has provided a wide range of experience, viewpoints and exercise and expertise and gives the Hamilton Project a pragmatic and I think very special perspective on policy issues.

We started by putting together a strategy paper -- a broad strategy paper. And then within that context we've conducted events around specific areas, bringing together again academic and policy experts and practitioners from around the country to provide a forum for policy ideas and a forum for serious policy discussion. We do not endorse specific proposals, but we conduct extensive outreach to bring that thinking to government and to the media.

When our events involve policy papers, as is the case today, they are subject to rigorous peer review. We believe that the objectives of economic policy should be growth, widespread increases in income and economic security. And we also believe that all of these objectives reinforce each other. We also believe in market based economics, but we believe equally in a strong government to perform the functions that markets by their very nature will not provide.

Clearly the hardship that many Americans are experiencing today and have experienced for quite some time and the likelihood that economic conditions could well remain difficult for quite some time to come calls for intense policy analysis and a serious commitment to sound and effective policy decisions.

Before proceeding let me make one observation that is beyond the ambit of this program, but that we believe is highly germane to the hardship so many Americans that I just mentioned. We believe that the debate about choosing between current job creation and growth on the one hand and deficit reduction on the other hand is a false choice.

Deficit reduction and an act to know with enforceable implementation, a limited period down the road would provide time hopefully for recovery to take hold and could contribute significantly to that recovery by generating economic confidence and by creating a fiscal context that would allow for a moderate up front stimulus.

More broadly the Hamilton Project is convened policy of the liberations on various aspects of our broader, shorter term duress, including stimulus and mortgage relief, but our primary focus continues to be long term economic policy. Turning to the longer term our country has enormous strengths, dynamic and entrepreneurial culture, vast natural resources, the rule of law, flexible labor and capital markets, and so much else. Thus, though our immediate hardships must be addressed, we are well positioned to succeed in a transforming global economy; however, realizing that potential requires sound

fiscal conditions instead of the current unsustainable and dangerous fiscal trajectory, strong public investment in areas critical to economic success and reform in non-budgetary areas, such as healthcare, energy, immigration, K through 12 education and so much else.

There are, as you know, enormous policy differences in all of these areas, but substantively they could be bridged to move forward effectively in each area; however, that will only happen if our elected officials are in the final analysis committed to effective governance and that means working across party lines and different opinions to make politically touch decisions. And takes us to today's program.

Any strategy for the long term success of the American economy must focus on K through 12 education in today's highly competitive global economy. There is an enormous amount of activity, as all of you know, going on in that area. And with the purpose of contributing to that activity the Hamilton Project has conducted two events on K through 12 education with papers and panel discussions and today is our third event.

Let me outline our program, but first, let me strongly recommend the paper that's in your folders entitled, A Dozen Facts About K through 12 Education. The paper presents interesting and in some cases unusual facts in ways that a particularly salient and then draws them together to provide special and I believe useful insights.

We have with us a truly outstanding group of individuals. The moderator of each panel will introduce them, the authors and the panelists. We

will not go into their resumes because they're in your materials.

Our first panel entitled, *Staying in School: A Proposal to Raise High School Graduation Rates*, discusses a paper by Phil Oreopoulos, associate professor of economics, University of Toronto. The moderator is Michael Greenstone, director of the Hamilton Project and 3M professor of environmental economics at the Massachusetts Institute of Technology.

Our second panel entitled, *Learning from the Successes and Failures of Charter Schools*, discusses a paper by Roland Fryer, Robert M. Beren professor of economics at Harvard University. The moderator will be Roger Altman, chairman of New Visions for Public Schools and founder and chairman of Evercore Partners.

The third panel entitled, *Harnessing Technology to Improve K through 12 Education*, discusses a paper by Ronald Chatterji, associate professor, Fuqua School of Business, Duke University and Ben Jones, associate professor, the Kellogg School of Management, Northwestern University. The moderator again will be Michael Greenstone.

Finally, we are deeply honored to conclude our program with remarks by the Honorable Arne Duncan, Secretary U.S. Department of Education. He will make his remarks and then he will entertain questions from the floor.

This is a truly remarkable program and it will give all of us the opportunity to listen to and engage with important thought leaders in this absolutely critical area. For developing the intellectual construct for this program

and then for bringing the program together let me thank three people, Michael Greenstone, the director of the Hamilton Project, Karen Anderson, the managing director of the Hamilton Project and Adam Looney, policy director of the Hamilton Project and senior fellow Brookings Institute.

Let me also thank our enormously talented and hardworking staff without which nothing that we do at the Hamilton Project would occur. With that, I thank you for being with us and the podium is yours Michael.

MR. GREENSTONE: I think the reason we're here today is the history of America has really been one of having a K to 12 system that is the envy of the world. And I think unfortunately over the last several decades that has ceased to be true. There's a lot of different statistics that one can use to demonstrate that. Test scores have been flat for several decades, spending has been up, college completion rates, we used to be number one in the world, we're now, I guess, number 16 is the famous statistics. High school completion rates have roughly been flat for 25 or 30 years. Bill is going to tell us some about that.

And I think the consequences of what has not been as this decline in American education system are revealing themselves in our society. We can see the unacceptable levels of inequality, the decline incomes for many American families and that's why we're here today.

So we have a really fantastic panel. I'm going to introduce the discussants as soon as Phil is done so for now I thought I would just introduce Phil Oreopoulos, who we're very fortunate to have. He's a world expert on high school and college completion. He teaches at the University of Toronto and he's

going to tell us a little bit about his paper and his proposal. Phil?

MR. OREOPOULOS: Okay. Thanks very much. I'm really delighted to be here. I'm delighted to be a part of this and I want to thank the Hamilton Project, in particular Michael Greenstone, Adam Looney and Jeremy Patashnik for helping me out with this. And this paper report is joint with Derek Messacar. And I only have seven minutes so let me start right away.

So composite schooling in particular the minimum amount of time required to spend in school before being legally allowed to leave is often motivated by the possibility that youth who disengage from attending school may in fact be better off from staying on. So here's some examples from New Jersey.

A person who stops attending school at age 16 will always lack the skills and preparation to successfully complete in the workforce and function in society. From Maryland, symbolically important for state laws to indicate that kids shouldn't be leaving school before they receive a high school diploma. And from President Obama, when students are not allowed to drop out they do better.

So what's the evidence of this? Well, these laws have been around for a long time and in fact, some of them have been around for more than a hundred years. And we can take advantage of that by looking at what happens, or what's happened to individuals when these laws have changed. And many studies now have shown consistently and robustly that when compulsive schooling has been increased we see that on average lifetime wealth has improved.

And increasing compulsive schooling laws have been linked to

many epicurean and non-epicurean outcomes that we may be interested not just from an individual perspective, but from a societal perspective as well. These include lower unemployment, lower crime, lower teenage pregnancy, better health and more civic participation in terms of higher likelihood to vote and more neighborhood trust.

High school dropouts increasingly struggle in the workforce. On average, annual earnings over their lifetime don't exceed more than \$30,000. Some states have responded in recent years by deciding to increase the school leaving age to 17 or 18. And we can again take advantage of these changes to see what has happened. And again, consistent with previous studies later social economical incomes have improved. High school completion rates have increased and even college enrollment has increased, perhaps because the path to college becomes easier once overcoming the hurdle of high school graduation.

The attainment impacts are moderate. In part because some of the law changes were not accompanied by resources to implement them, but for those affected the increase in present value of lifetime earnings was on average about \$100,000 easily offsetting the per pupil cost associated with more case workers and higher attendance. And that's not even taking into account the possibility of non-epicurean benefits as well.

So what might be going on here? If a teenager doesn't really want to go to school why would nudging him to do so make him better off? There are many reasons of course for dropping out, but in general it's helpful to think of it as a slow process of disengagement. The past studies I mentioned suggest that

this disengagement occurs for some at the expense of long term benefits later on. And it may come as no apparent surprise that youth are particular predisposed to impulsive behavior, especially when faced with immediate sacrifices for helping realize long term and uncertain benefits.

Focusing on a current dislike of school may lead to missing out on rewards in the future. Compulsory schooling laws provide also the opportunity and resources to address disengagement. The laws are not just about getting kids in school by imposing fines or penalties. When a child becomes truant under the minimum school leaving age the first step is often of principal or a counselor contacting the child or parent to figure out solutions for increasing attendance.

This report is based in large part on the facts that high school dropouts face enormous hardships in today's labor market, while past and recent studies have shown that these students would benefit at least on average from continuing with school. At the same time, administrators should try to address reasons for disengagement in the first place. We think policies to raise the school leaving age to 18 while allowing for some exceptions and while developing programs to reengage at-risk youth will prove cost effective strategies and fostering improved lifetime career outcomes.

Some evidence based strategies for addressing disengagement include coaching and guidance programs that address disengagement early. Small classes for at risk youth that combine academic curricula and real work experience and setting high expectations while providing coaching and tutoring

support for those who need it.

We think the time is right for setting higher expectations for virtually all students to complete high school and consider college given evidence of higher returns from doing so and increasingly competitive labor market conditions. Raising the school leaving age is a realistic policy for all states to consider. Thank you.

MR. GREENSTONE: Thank you, Phil. Okay. Our first discussant we're very fortunate to have is to my left Terry Grier. He has almost an unparalleled set of experiences in the American school systems. I'm going to try and get this right. I'm missing at least one. You are the superintendent of the Guilford County Public Schools --

MR. GRIER: Greensboro, North Carolina for eight years.

MR. GREENSTONE: -- Greensboro, North Carolina for eight years. Then you went to San Diego.

MR. GRIER: Yes.

MR. GREENSTONE: You were there for 18 months.

MR. GRIER: Yep.

MR. GREENSTONE: That's not that long.

MR. GRIER: Not that long.

MR. GREENSTONE: You know, the weather there is very nice. And you went to Houston --

MR. GRIER: I've heard the weather there is good.

MR. GREENSTONE: -- where the weather is very pleasant in the

summer.

MR. GRIER: Yes.

MR. GREENSTONE: And so setting aside Terry's strange weather preferences I thought we might ask him to talk a little bit about his experiences and I believe in Guilford, I learned this morning, you had the lowest dropout rate of any big city school system.

MR. GRIER: Sure.

MR. GREENSTONE: And one thing I want -- I hope the whole panel will be able to address, you know, so I have children and you'd look at Phil's numbers and they're just astonishing. You know, you're going to earn \$15.00 an hour when you're age 50 if you drop out from high school, that's if work. You'll probably be -- there's a good chance you'd be unemployed. There's a, you know, one out of 25 are incarcerated. How are these -- why do people make these decisions and how did you get them to change them?

MR. GRIER: Well, it's very hard. When a child decides to drop out of school it's a hard decision. Some people think it's easy. It's one of the toughest decisions a kid is going to make in their lifetime and they really get to the point that they've decided to give up. Now before I jump into saying a few things, it's about people. Houston is about people. It's the greatest city in the country. My wife and I love living there and the weather doesn't equal San Diego's, but the people are fabulous.

So it's interesting when I in Houston in 2007 the dropout rate there was 22.5 percent. Today it's an 11.8 percent number. So we've cut in half, as

we did in Greensboro, North Carolina and as we were getting to do in San Diego.

I think first of all, it has to be a priority at the board of education and of the superintendent that those type of statistics just simply can't stand. And so to us as a focus, to us we hold people accountable. We looked at it from a short term and a long term perspective.

Long term we quickly realized that the kids that were dropping out of our high schools regardless of whether it was in North Carolina, California, or Texas simply most of them could not read. They're reading two, three, four grade levels below. So in all of those districts, and again, here in Houston this past year, all of our kindergarten, first and second grade teachers went through a five day reading program training, where we trained them how to teach disenfranchised kids how to read.

It's a different skill set if you're trying to teach a child that shows up in kindergarten with a five to 7,000 word vocabulary who has some phonemic awareness, who understands colors and shapes, versus a child coming into kindergarten with a 1,500 to 2,000 word vocabulary with no other skill sets, where there's no books in the home and there's not much reading going on. And our colleges and universities simply are not preparing young teachers to address that particular problem. So that was a big issue with us long term.

We got into our middle schools and we quickly recognized that students that had been retained two or more times, the chances of them graduating from high school were just almost non-existent. So we went back and did a deep dive look into when children were being retained and what we had

done for those kids prior to holding them back a year. That was quite revealing.

Then at the high school level when they got into high school we established a dropout intervention teams at each one of our high schools and each time a child dropped out of school that group met the same day or the next day and started looking at why that child dropped out and started developing and identifying patterns for us.

We established in each one of these school systems where I worked twilight high schools. In Houston we have six. These are high schools that start at 4:00 in the afternoon go to 7:30 at night Monday through Thursday and then all day on Saturday. So students that have to work to earn income for their family or kids who are just one or two courses short that need to graduate can come back to those schools in the evening and get credit recovery to graduate.

Each one of our high schools, and we started this in Guilford County back in 2001 and we've carried it all the way through California, San Diego and now to Houston, we established dropout intervention courses in our high schools. We call them grad labs. The school district purchased a bank of laptop computers for each high school. We handpicked a graduation coach and kids who had failed courses before versus having to sit in a classroom and repeat the same thing over for 180 days with usually the same teacher that had failed them the first time could actually go online and could do credit recovery online. And last year in Houston we recovered over 9,000 lost course credits.

The software program that we use is accredited by the Western

Association of Colleges and Schools. And we're pleased with it. We begin each one of our school years after the first ten days of school on a Saturday we do a big walk, dropout recovery program. The kids who have dropped out of our schools and have not returned we actually go door to door and knock on doors, ask kids why are you not in school. What can we do to get you back in school? And this past year during my tour we knocked on six doors. One kid was absent. The five students we talked to first of all if you could see the level of poverty they lived in it would shock you.

The second thing that we learned is that many of the kids only needed a half unit of credit or one unit of credit to graduate from high school. Many had already passed all of their exit exams. They just were tired and they didn't want to go back to a traditional school day where they had to sit for seven periods and sit there all day long and take six courses they didn't need. They were usually older. They were embarrassed.

What's fascinating about it most states the kids if they come back to school for just one period or two periods, school systems do not get state funding for those kids. So it's an extra cost. And so a lot of states don't really put a lot of emphasis on trying to get those kids back. Our place, we don't care that it costs extra. As a matter of fact, we tell the kids you don't have to come stay all day. You can come and stay one period. We will work your schedule so you can be here first period or you can be here the last period, or you can come have lunch with us and go to school the period before or the period after lunch.

Finally what we are doing in Houston and I could talk about this all

day because we're doing so many different things, but the things we're doing are strategic. They are well thought out. They're strategies that build on each other. They're not just shots in the dark. We know that there's no one silver bullet to address this issue, but one of the things that we have done in six of our high schools this year we have started a pilot program where we work with U.S. Bureau of Labor Statistics and we identified vocations, avocations in the Houston area. Jobs that are going to be there 15, 20 years from now that require at least a two-year associates degree.

We talked about student engagement. Giving kids a reason to stay in school. Jobs like pharmacy tech, x-ray technician, logistics tech and so in these six high schools we established this year a pilot, 50 different slots for kids. So tenth graders would compete for those 50 slots to be a pharmacy tech at their particular high school. The kids that were selected their summer between their 10th and 11th grade they go to a two session summer school. A double session and the courses they take are blended learning online courses through the community college.

We hire a teacher who tutors and mentors them. And those particular students when they get into the 11th grade half their courses are taught by our teachers and half are online courses through the community college. Another double session summer school between grades 11 and 12. Twelfth grade again half and half taught by our professors and our teachers and half by the community college professors.

And then the year they graduate from high school they come back

to school and another double session of summer they have completed a two year associate's degree at no cost and they have their senior year engaged in mentorship and shadowing programs. And our goal is to have them all job opportunities when they leave high schools. We're into -- we've been in school 25 days. The attendance of the students in the program so far has just been phenomenal. It is just absolutely been phenomenal.

And then the last thing and we'll talk about this on another panel, is we've been engaged in this program with Dr. Roland Fryer from Harvard to turn around our 20 lowest performing schools because when you look at where kids drop out of school you do find that you have middle schools and high schools and yes some elementary schools where you have a higher percentage of kids leaving those schools than you do in other schools. And a lot of that comes back to having a quality teacher in every classroom. And that is a huge, huge goal of our board of education.

Our board is so serious about this issue that I can't tell you how proud I am of them for their willingness to let us engage in some pretty creative approaches.

MR. GREENSTONE: Thank you. Sounds like you guys have a lot of innovative ideas there. So our next discussant is Elena Silva, who is a senior associate at the Carnegie Foundation for the Advancement of Teaching. And when we talked briefly before this morning I was reminded -- I assume this has been attributed to every single American president, but the one I've heard it said about is Andrew Jackson. When told that the Supreme Court had issued

some law or rule said well, why don't you tell the Supreme Court to come down here and enforce it.

And I believe your view on compulsory schooling laws might have something to do with that, but I will let you speak for yourself.

MS. SILVA: Sure. Sure. Well, excuse me. Let me begin by saying, Phil, I very much enjoyed your paper. I think it's a fantastic analysis. And there are certain pieces of it that I very much support. I also think it's the right problem. This is certainly the right problem to be tackling. We can't have a third of our nation's children dropping out and we know what happens if you drop out you end up in low wage, inconsistent work, or no work at all. So again, this is the right thing to tackle.

And it makes sense to target the problem, or target the solution where we think, or where we see it happening. So we see 15 to 18-year olds dropping out of school and we want to stop that. We want to stem the tide, but we need to consider the root of the problem. So let's consider that problem for a minute.

There are a lot of reasons why kids drop out, but the typical dropout actually is more predictable than perhaps we once thought it was. We know these dropouts. You picture -- imagine a kindergarten -- I have one at home -- super excited about school. Loves school. Really eager. Third grader -- by third grade you've got this student -- I have one of those too, who at this point should be reading, maybe starting to get engaged, or maybe starting to get disengaged.

At this point as you move forward you start to see kids who are going to drop out. It's pretty clear who they are. And there's a lot of research to back this up. By middle school these kids are pretty disengaged. They're not showing up at school all the time or not showing up for their classes. By high school, by let's say ninth grade they fail in English class or they fail in math class. Those kids are going to dropout.

We know that those are the dropouts and so the question here is where that problem really starts. And the research -- so Johns Hopkins for example, Bob (inaudible) and Nettie Lecors and other colleagues there have done quite a bit of research that shows exactly how we can track -- notice and track these indicators.

The ABCs, attendance, behavior, course completion and course progress, those are the three things that you look at to find out if a kid is going to drop out. And we can do this as early as middle school. Okay. If one of those indicators is off track by the time a kid is in sixth grade, the chances that that child is going to graduate plummets, which means all of that is to say that we can know. We can identify and we can do something about the dropout track.

And there's been a lot of good work out there. Many of the programs that Terry just referenced. There are ways to prevent dropouts. There are ways to identify these kids early. There's a recent research paper out by Donald Hernandez, I believe it is, at Hunter College that tracks graduation all the way back to third grade. Proficiency in third grade, if you're not reading proficiently by third grade, your chances of graduation drop.

If we know that we should start targeting it there. We should be putting our efforts there. We should be focused on how to make sure that the kids at the earliest ages that we can identify what they need and we can target interventions that work for those kids. The strength of this proposal is that it recognizes that. So if you read it carefully and I encourage everybody to read it, it does combine both this raising of the age requirement with a lot of supports.

My issue primarily with that, is that the focus on requirement, which is in turn about enforcement. Is about changing behavior through a mandate and that's not primarily the way behavior changes. I'm a sociologist by background so we, you know, we differ a little bit the way we come at this, but behavior, particularly with disengaged youth doesn't change because you require them to do something.

I imagine that there are some students and there's some evidence to support this that would be -- that would feel that pressure and might stay a little longer because they feel that pressure. Although developmentally the later you get in those years the less likely it is that they're going to respond actually to that pressure. But even if there are some students who will respond to that pressure, by and large I think we'd see high rates of noncompliance. That it wouldn't really change student behavior. That we wouldn't really see states enforce it at that point. We're not really going to see states fine families and give fines to students. And if they did I don't think it would be effective.

So it's not actually the idea that kids should graduate from high school that I would take issue with. I think the federal government should send a

very strong signal every single state, every single district, every single school should send a strong signal that graduation -- high school graduation is necessary. It's the minimum. And we should send that signal in a lot of different ways. But we've seen a lot of states try to do this. Try to raise and focus on compulsory age requirements. A lot of them haven't gotten there. It's politically difficult to do. It's practically difficult to do. And my biggest concern is just that we have other places where we could be focusing our energies.

There are ways to prevent dropouts. We know what those are and those ways actually improve the quality of education, the quality of instruction. It changes what happens inside schools. It's not about the outside requirements. It's not about time requirements. It's about actual learning and instruction inside schools. It's a problem we're solving absolutely, but there are specific pathways I think to solve this.

We should establish early indicator and intervention systems. We should tackle chronic absenteeism, which is very related. Why don't -- why isn't chronic absenteeism a performance measure for schools? Why don't we track that? If we did we would know it's one of the ABCs. We would know and we would be able to individualize and personalize instruction and support for the kids who need it and then they wouldn't drop out.

We can design alternative pathways to graduation. And that's in relationship I think to what Terry was saying, there are a lot of different ways that kids are approaching learning particularly at that age. We are in a place and a time now with technology and data systems and blended learning where we can

provide education in a lot of different places in a lot of different formats that will engage kids. Those are things I think we should be focusing on.

MR. GREENSTONE: Thank you. We're incredibly fortunate to have Dennis Van Roekel with us as well. He's the president of the National Education Association, which I learned represents more than three million public school employees and is the largest labor union in America. Previous to that he was a teacher for 23 years, mathematics?

MR. VAN ROEKEL: High school math, yes.

MR. GREENSTONE: High school math. So I wonder if you could talk a little bit about if we have a bunch of new students staying in school longer presumably I think we'll probably have to have more teachers and if these are students who are maybe less excited about school, how that might affect the dynamics of teaching in the classroom.

MR. VAN ROEKEL: Well, let me first say thank you for the opportunity to be here. And as a 23 year high school math teacher this is a fun topic to be talking about.

Quick points about the report. I thought it was excellent. And the first point I'd make is that when we NEA has long supported extending the compulsory age to 18, but I think a really important thing it was -- Terry said it so well, it's not more of the same. If the solution was only to do to do the same thing longer, we would have done that a long time ago. And the idea that you have to do something differently to impact these kids and keep them in school and have success. That's a really important point.

And in the report it talks about raising the national expectation that everyone has to have at least a high school diploma. That's really important. You can't mandate that, but by your behaviors and actions you can create that kind of an atmosphere. They point out very clearly that it isn't just one policy change.

The second aspect of the report that I think is so critical is the point -- when it points out that the benefits so outweigh the costs. Education -- I think it's wrong when we think -- we talk about the cost of education. It isn't a cost to me at all. It truly is an investment. And when you look at all the economic studies that show the difference in life long earnings it's very evident that the investment you make in having a well-educated workforce and society really pays off in the long run. I think that's so critical to just start from the premise we know it cost money, but it is an investment that pays better. To the business people it's a better ROI than any other investment you can use with tax dollars.

Third aspect about impacting teachers. See one of the things is if you put those kids who wanted to drop out and you forced them to stay in my class, oh that would be a problem. But if you create an environment where they want to be I just -- Education Nation I was just -- I saw a video and I'm going to go there to visit. It's Wooster, Massachusetts and it's their tech high school. It's unbelievable. They have 24 different career choices. They have an onsite. They have a veterinarian clinic, where kids actually work on live animals not stuffed ones. A 16 bay auto shop. And the list just goes on, but it's the different not more of the same.

But there's one thing that I -- in the report that I think although it wasn't the focus it is so important and it was mentioned by both panelists, the early intervention. See I'm a believer in systems. That you can't take a piece of a whole system tinker with it or even change dramatically one piece and assume the whole thing will change. I don't believe that's true. And when you read systems theory, the thing about public education in America that's most troubling to me is when they say no system can produce anything other than what it was designed to produce.

So in this country when we graduate 75 percent of the kids year after year after year, unless you're African American or Hispanic, then it's closer to 50 percent as the report points out. That rate doesn't fluctuate like the Dow Jones average. It's constant, because the system was designed to do that. So what we have to do is talk about what changes in the system have to occur so that we get different results. And that early intervention is absolutely the key.

See when this system was designed -- by the way nobody did anything wrong. There's no one to blame. It was a different time. They needed everyone to have a basic education. They needed some to have more and a very small group to go on to college and get a very well developed education. That's what the times needed and it worked unbelievably well.

In the 21st century I don't believe that purpose of education remains the same. We can't just educate basics for all and some get more. We're going to have to provide much more for all. So how do you change that system? How do you do the interventions because it's so true. They may leave

in high school, but they dropped out long before that.

And when I taught freshman general math versus a pre-calculus course those are worlds apart. Because if you're a freshman in high school and you're still not even in algebra, the reason you're there is not because of math. It's because you have not been successful in math and the idea that I, the magic teacher in ninth grade, am I going to do something so remarkable that it's going to erase all of your history and now I will do well in math is crazy. But what you need to do is to focus on that student to create that connection between where they'd like to be and what I'm teaching. If I do that the math is easy.

So I think the intervention, the additional policy is really the answer is early childhood. There is no research that exists that doesn't tell you that that's the answer. That you've got to start. There is no class in school from K to 12 that has a greater range of ability than kindergarten. The further they go the classes get more homogenous, but that kindergarten class we have got to provide that for early childhood and I think as we look at the range of public policy that's the one we need to focus on.

MR. GREENSTONE: Thank you. Phil, you might like to have a chance to reply to some of the points that were made --

MR. OREOPOULOS: Sure.

MR. GREENSTONE: -- in particular I thought you might talk a little bit about some of the historical evidence that you're drawing on and why you think that's relevant and some of the benefit cost analysis a bit.

MR. OREOPOULOS: Sure that'd be great. And I want to thank

all the panelists. It's been a great privilege to have a chance to interact and hear what you have to say. I thought that they were very good points.

I think it's clear from my paper that I don't view compulsory schooling's mechanisms only through simply sending a letter saying we're going to fine you if your kid is not going to school. We're going to send you to prison. Compulsory schooling is the issue is really about addressing the engagement, as everyone has been saying. And when we see chronic absenteeism, even early, that is a compulsory schooling issue. It's not just about never showing up to school. It's about, you know, not attending, not showing up on that day.

And what I think the laws provide is a mandate for addressing disengagement whether it be through -- it provides the opportunity for schools to realize we have a problem here, not just, you know, we care about this, but we also have, you know, legislation says that we need to care about this as well. And one of the reasons why we observe when some states raise their school leaving age above 16, not only did we see high school completion rates increase, but we also saw the number of people dropping out at really early ages decrease.

And I think it was because that when these policies became more restrictive they simultaneously also increased the awareness of principals and schools need to address engagement. And as I said in the paper I think the ways to address disengagement there's many ways and it does have to start early.

That doesn't mean that there's no hope for addressing

disengagement as starting late. In another series of studies, you know, I've shown that providing simple assistance in filling out the college application form is enough to make the difference between many people going to college or not. There are opportunities for nudges even at later stages which can make the difference even for these older kids.

At the same time that doesn't mean that we don't address early disengagement. We address both. So I think that's the main point I want to made.

MR. GREENSTONE: Terry, I know Texas had -- they already have a age, I think, compulsory schooling law. Is that relevant in the way you run the Houston district?

MR. GRIER: Texas is a 16 year --

MR. GREENSTONE: Oh, 16?

MR. GRIER: -- 16 and quite frankly I wish it were 18. I'm a proponent of having a higher graduation standard. I understand everything she said. I can get on both sides of that coin and argue both sides. And certainly engagement is a big key. The interesting thing is most of us in education know what the problem is. We even have a reasonable idea about the solution.

What bothers me is that we don't have more people that are passionate about addressing it. I really think that this ought to be a national imperative for all of us to really address with vigor. The hard piece becomes the end. We've got our dropout rate down to 11.5 percent. The low hanging fruit is gone. Now the hard work is in front of us. And to me if having an 18 compulsory

attendance law would help me get that 11.5 percent down to 10, it's worth it.

Now, you say well gee whiz, how are we going to enforce it? How do we enforce it now? How do we enforce it now? We have kids that drop out of school in Houston before they're 16. Go try to find them and see where they are and try to enforce that. And we have that as an issue too. So, you know, yeah I understand how hard it would be to enforce, but it's hard to enforce the 16 year. And if it's -- to me if it's just one more tool in the tool kit then I think it's worth -- if it saves another one percent, two percent it's well worth that.

MS. SILVA: If I could just respond. I think that's right. I wouldn't disagree with that, but policy, I think as we all know, is about making choices. It's about picking the policy that's going to have the greatest impact on this problem. A problem that we all agree needs to be solved.

My sense is that there -- a lot of the interventions that you spoke of are where the policy should hit. And that if we focus instead on the compulsory age, again, send the signal. There's a lot of ways we can send the signal. It's not politically easy to pass this. This isn't an easy small dunk. And so if that's the case we're going to focus our efforts and our attention on raising the compulsory age. I think that's the wrong place for us to focus. I also think it sends a message while signaling that high school graduation is important. It also sends the message that is actually the attainment of that certification, of graduation.

And so we do need to ask what that means. What does -- is graduation the right measure because to your point about 16-year olds, there's

plenty of 18-year olds who graduate from high school, who employers are not pleased with. They don't have the skills they need. They don't have quality education. They are unprepared. So if we are going to focus on anything it needs to be ensuring that they're actually learning. This is why our nation wants a different standard -- well, except Texas, right? This is why we're engaged in this project to try to have higher, better, improved standards to do just that.

MR. GRIER: That's interesting. I just want to pop back in real quick. You said something that just made me go like this. We have employers all over Houston, all over America that are hiring these kids. One side of their mouths says we want kids that have higher skill sets. The other side they're hiring these kids knowing they're high school dropouts. And I promise you in Houston, Texas if I could have every employer in Houston, Texas, just from a moral perspective say, that if we're going to hire a kid that's a high school dropout, we're going to insist they go back to a twilight school in the evening and finish their education --

MS. SILVA: Sure.

MR. GRIER: -- or guess what? We aren't going to pay you. We aren't going to hire you. And when you start talking about it's hard to pass legislation, that's why it's hard to pass legislation because you have lobbyist in the labor movement around the country that are lobbying against it because they want these kids to be able to do subpar work.

I can remember at a much younger age in a small school district when I was a superintendent and we were really attacking this dropout issue and

I had a leading citizen from the community ask to see me and he came to see me and he said, look, I think you're working too hard on this dropout issue. And I said, what do you mean? He said, well, you know, if you keep these kids in school and you try to convince they can all go to college who's going to work in our pulp wood factories? Who's going to run our cotton gins for us?

Now, this was in a different state. It was a different time, but this has to be something we can't just sit around and say it's important as educators and as college professors. This has to be important to America. It has to be important to our employers. And once we get everybody together on a team we're going to be able to tackle this problem with much more I think ease.

MR. VAN ROEKEL: And I think with students, I never tried to establish that graduation was the end in sight. It was the means. It's not an end. So I used to say to my students so what would you like to achieve in my class and they'd say oh, I want an A and I'd say that's it? Your life would be complete if you got an A in my second year algebra class? You're setting your sights way too low, because what I have is not worth busting your buns just to get an A. But what I have, what it's worth is where you're going I can tell you how it'll help get you there.

So as much as we absolutely support the age of 18 because they can get more of what they need to go where they want to go, we just can't make it sound like if you complete that now you're done. You've done well. You've got a high school diploma. It is always about it is your means of getting somewhere. And the more we can get establish that and instill in kids, that education is a

means not an end, I think we absolutely gain.

MR. GREENSTONE: Thank you. Okay. So before we go to, I know there's a bunch of people who want to ask questions. I'm going to make one suggestion. You have this stubborn 11.5 percent and you have to be one of the leading reform superintendents in the country. I can guarantee you between Phil and Roland Fryer and a series of other impressive education researchers if you let them run some randomized control trials you could figure out what works and what doesn't on the stubborn 11.5 percent. And then everyone would have the benefit of knowing that.

MR. GRIER: There's no question. And they all know me well enough to know that we're more than willing to do that and we have been doing that.

It is stubborn. It's very, very stubborn. Other thing we've done this year we have a new teacher and a new principal evaluation instrument in Houston. And they both are weighted very heavily toward student performance. And the principal evaluation instrument includes a component on student dropouts. And at the elementary level it contains a component on the percentage of kids reading at grade level.

So again, focusing the light, being strategic about it, all of the research most of know it's tough, hard work, but a lot of it is political will. And believe it or not a lot of it is working in an educational environment at least in public schools where you have a board of education that this is a huge priority.

When I went to work in Guilford County, I can remember it like it

was yesterday, when the board interviewed me for the job I said, what is your big priority? And they basically said, dropouts, dropout prevention. And I said what percentage of your budget is committed to addressing that issue? Either short term or long term like we were talking about and it was so small it was hard to find.

And so if this is a big issue for all of us we must align our resources to address this problem. At the early age with intervention. Attendance we know in some of our schools we know that we have problems with ninth grade attendance. You were talking about that. How many attendance incentive programs do you have in the schools where you have those kinds of problems? We all know that if you speak Spanish as a first language if you miss four or fewer days each semester during kindergarten, first, second grade at the end of the third grade there's as much as 38 percentage point difference in your reading scores.

How much education are we doing with our Latino parents to make sure they understand the importance of their children being schooled every day at a young age? I mean, we know all of these things. The political will to do what we know sometimes maybe a bigger issue here than we're willing to admit.

MR. GREENSTONE: Thank you. Okay. I think we have time for a couple of questions from the floor. I see that there's -- I think the people will be here with the microphone in a second.

MS. WORTH: I'm Mitzy Worth I'm with Enable Post Graduate School. I'm John Dewey educated. He was my god father and my mother's

mentor. And it's all about learning by doing, which gives meaning and I guess I have a question that is multifaceted.

First of all, I think you're absolutely right it's about systems so there's not one thing you can, but kids need to learn systems, process, context and consequences. I can't find that in any program. And I watch it at an adult level and see why people make terrible mistakes.

Texas, I was looking at this 20 years ago, sort of controls the content of the school books, right?

MR. GRIER: Yes.

MS. WORTH: So if you could start rethinking what would be put in the curriculum which could get them to think about problem solving. A friend of mine are talking about writing books for young kids where they have to be part of the answer. You start with Sammy comes down for breakfast and there's a peach and a bowl of cereal. And Sammy asks, where did this come from? Well, my mother got it. Well, where did she get it? Well, she had -- I mean, you have to build up -- you have to make learning an exciting discovery adventure. And I don't think that's being done in most schools.

MR. GREENSTONE: Okay. Thank you. Let's see who do we have next? If you could state your name and then given the short period of time, the more you can direct a question to one of the panelists the better.

MR. REED: Hello, I'm Bob Reed with Healthy Teen Network and our population of focus for us is expectant and parenting use. So dropout is a very large problem for them.

I wanted to hear panelists view on kind of going the opposite direction. I was at a session on disconnected youth a few days ago where they were talking about I think it's in Texas where there's a state law that permits funding of -- I'm using high school funding and I don't know all the details, up through age 26. And so it's a honoring that the k through 12 system funding potentially should be made available for older students. I don't -- I'm curious if that's not another way to think of this, rather than to just trying to get 18 as a compulsory. Maybe it's about using elementary and secondary education funding for older students.

MR. GRIER: Well, there's -- real quick, in our twilight high schools if a student is 21, 19, 18 we don't really ask age. If they need one or two courses to be completed they can come in and do credit recovery in those twilight high schools and receive their diplomas and we're very happy and proud to do that. Give me the choice between having all day pre-K and moving money towards the 25, 26 year olds kids or adults I'm going to pick the pre-K every day.

Texas last year in budget cuts eliminated funding for all day pre-kindergarten programs. Our school district, our board of education we decided to take money off the top from Title I and fund all day pre-K across the district. That reduced Title I funding to our high schools and middle schools, but we thought it was the thing to do.

MR. GREENSTONE: Okay. I think there's a question here.

MS. AMY: Hi, my name is Amy. I work on Capitol Hill. I watched the Front Line documentary on Tuesday and it was fascinating and scary, but

great. I saw a lot of adults making significant efforts to intervene in children's lives and I just wanted to know how do you prevent burn out for these people who are doing incredible things? It seems like they were doing just a significant amount of work to actually make things happen for these kids, but I'm not sure can we sustain that?

MR. GRIER: It's interesting anyone that's done this kind of work, Seth will tell you from his democracy prep, anyone that does this kind of work burns out. Preventing burn out is not possible. What you have to do is develop networks where people know each other and care about each other as people and they spend time talking and reinforcing each other, but burn out is going to occur.

MR. VAN ROEKEL: I think the other aspect of that is not to expect all the things that a child needs to be provided be done by one person, sometimes the teacher. I know my first year of teaching by Christmas I went to my old hometown doctor and he thought I was developing an ulcer because what I was doing is internalizing every single problem that a student had and taking it on.

You have to learn to not do that, or you can't survive. But when we talk about the intervention programs like an afterschool program, it need not be the people who taught all day long. Then you do an intervention after school and then you do evening work. You can't do that. Not if you have a family and you have your own children.

So we've got to devise a system that I think honors the people and

the work they do, but don't expect them to do something that is not sustainable. I don't think the solution is a system that burns people out and then we replace them. I think the solution is create a system that allows people to have that passion and that commitment and do their work and yet know that it isn't the only thing they do in their life. No one could sustain that.

MS. SILVA: And I would just add again, just to reiterate, the early intervention -- early indicators, early identification in intervention, the problem is it builds, right? So a lot of the time you're seeing the problem has been building and building and building so anybody that's going to be trying to help these kids is dealing with a whole host of problems that might not have built to that point if we had started a little earlier.

MR. GRIER: In our dropout program, the Pilot 20 Program, we do with Roland Fryer from Harvard, those 20 schools they together collectively came up with a mantra that's spreading across our districts and simply goes, together we can, which gets at the burn out issue. Whatever it takes and no excuses. And you put all three of those together and you live that it becomes very, very powerful. Whether you're talking about early intervention or whether or not you're talking about long range strategies.

MR. VAN ROEKEL: I wanted to end on the early intervention. I hate to use automobiles in comparison to kids in school, but when we first started in this country finding that we were behind in the quality race one of the things they found in this country is that outside of the assembly line there were parking lots for all of the cars that were coming off the assembly line that weren't right

and needed to be fixed.

When they went to Japan and other countries then it started this quality movement sooner they didn't have a parking lot. They go well where is it? They go we don't have one. They go well what do you do with all the cars that come off the line that aren't right? And they said, we stop the line when there's something wrong. So the focus was that as you move you take care of those situations. So the workers had the right to shut down the assembly line because a car they were working on something wasn't right.

Now don't adopt, but adapt that to the concept of education and early intervention. Don't wait until they're all 15 and 16 and dropping out of school and create these incredible programs to try and bring them back and get them back on track. The systems that are successful, for example, in Finland when I visited there, when a child is having trouble they immediately have an intervention. They have a team meeting and they determine whether the child needs a small group, whether they need a small group of adults to work with them, or whether they need one on one, but we deal with it right now.

And I think that deals with not only intervention, but the burnout issue because you're dealing with the issues as they come up. A far better solution.

MR. GREENSTONE: Okay. I think we're out of time unfortunately. We've had -- been fortunate enough to have four people here who are focused on what has to be one of the nation's most important problems. Twenty percent of our kids don't finish high school. In some groups it's as much

as a half. And if you could join me in thanking these four experts who put forward that idea.

(Recess)

MR. ALTMAN: This panel is going to discuss one of the biggest and one of the hottest issues in education policy today, namely charter. As Roland Fryer's paper points out, and I really urge everyone to read it if you haven't yet had a chance to do so, it's really quite important and excellent.

As it points out, charters are perhaps the most important innovation in public education over the past generation in the United States. But there are many myths and many misconceptions about charters and about the motivations and the goals of many in the charter movement.

You saw some of that play out in the recent Chicago teacher strike. Beyond that, there are just many people in the United States who think that charters are either an unmitigated good or, alternatively, an existential threat and the reality is that they are neither of those.

Now, we're exceedingly fortunate to have Roland Fryer with us today. And I'm just going to introduce Roland before I introduce the rest of the panel after he finishes. The Hamilton Project has done considerable work with Roland over the last couple of years. We're very fortunate to have been able to do that. As I said, he's prepared really quite an extraordinary paper which he's going to summarize.

I just would say that Roland's resume is a little hard to read. You

think it must be some fake or something like that, how could anybody have done so much so quickly? I particularly want to know what a titanium lion is, but I won't dwell on that here. But he is doing extraordinarily important and vital and groundbreaking work in this subject and I'm just going to reveal my own bias right at the outset here.

If we are going to ever turn around the decline in median incomes in this country and actually get back to raising living standards for Americans, we are only going to do that by lifting up and truly changing public education in this country. That's the only way it's ever going to be achieved. So with that, let me just introduce Roland. And he's going to summarize his paper. Apparently he's going to do 34 slides in 7 minutes. As you know, I think he will take a little more than that. But, please, we're happy to have you, Roland.

MR. FRYER: Thank you very much, Roger. And it's great to be here again and to see so many familiar faces in the audience and on the panel. Michael Greenstone, who's the director of the Hamilton Project, emailed me this morning and ask that I speak for an hour and I don't think I should do that, so I'm going to try to do it in seven minutes or so, Michael, okay.

The slides are up. Start with Alpin. Oh, I got it, okay. Good morning. So how have you been? We all know that education in America, the statistics show that our performance has been flat over the last 30 to 40 years, okay. And if you just look at the latest statistics of how many schools didn't make AYP, I believe it's 48 percent of schools didn't make AYP in 2011. If you look at the NAEP data, the National Association of Education Progress, it shows that

roughly 40 percent of our eighth graders are proficient in math or in reading.

One of the things about NAEP that's most disturbing to me is that, of all of the school districts that participated in NAEP, there is not one of them in which more than 25 percent of black or Hispanic students are proficient in math or in reading. And, in fact, in places like Detroit, roughly 3 percent are proficient. So over breakfast this morning I tried to calculate how many kids that might be. It's roughly 132 that are proficient in math in a place like Detroit.

So over the past few years, I have tried to figure out through lots of failures and a tiny bit of progress what we can actually do about those facts. And roughly two years ago, I stumbled on the work of Geoffrey Canada and the Harlem Children's Zone.

And when we did his evaluation, I was pretty blown away to see that after four years, his students, who were lotteried in, good for them, sucks for the people who were lotteried out, after four years, he had erased the achievement gap in math, between the average black student who applied for his lottery, and the average white student in all of New York City, and he had cut in a third the gap in English/language arts. And I thought that was real progress. And I wanted to understand how we could do that for all kids.

And so we went and we – it reminds me really of my grandmother's baking. I see a lot of people in the audience, I'm sure you can cook well, but I'm pretty certain you have nothing on my grandmother. At least I need to say that on CSPAN just in case she's watching.

But anyway, my grandmother makes this absolutely fabulous

coconut cake, okay, and one Christmas I was kind of alone in Cambridge and I thought, well, I'm feeling the holiday blues, I want to make my grandmother's coconut cake, as well.

My grandmother was an educator for 37 years. My great aunt, who also raised me, was an educator for 51 years. And I called my grandmother and I said, hey, I want to make your cake, and she said, oh, it's really simple. You start with two cups of sugar, you boil it until it spins a thread. I said come again. And she gave me directions that sounded kind of like people who run great charters like Seth say when you ask him how they run their schools, you know, a cup of this, a palm of that. I said whose palm, what cup?

At any rate, around Thanksgiving I went to my grandmother's house and I just annoyed the hell out of her in the kitchen, frankly. But she would grab like flour with her hand, and I would put a cup underneath, and I would sprinkle the flour in, and I backed out the recipe. Again, it annoyed her, but I have a resume that I can now give my children and my grandchildren.

So we spent two years trying to do something like that with charter schools, okay. The average charter school is no better than the average traditional public school. I don't want you to get that fact wrong, it's an important fact. But what's interesting about charters is that there's a huge right tail of charter schools that are doing phenomenal things for kids, just phenomenal things for kids. There's a left tail of that distribution that if I weren't with you, I'd probably try to be shutting them down this morning because they're not doing good things at all for kids.

But as an economist, what we want to do, kind of like my grandmother's recipe, we said, wow, there's a distribution, these people are freed up to make choices, right. No one remembers that the second promise of charter schools was to be an incubator for best practices that could be then used in public schools.

So we took this freedom and this variance in the outcomes and we really just wanted to understand what makes some good and others not so good. And essentially we found that five things explain 50 percent of the variance in what makes some charter schools good and others not so good. Now, 50 percent of the variance, some of you may be saying, wow, you were at Harvard and you can only explain 50 percent. Others of you may be saying, wow, if I could explain 50 percent of the daily variations in the stock market, we could own a few islands. Thank you. I was dying up here.

So we use this data to come up with these five things. Now, I'm going to say them, and I don't want you to leave the room, just bear with me, okay. And this is all off. I think it's like a cruise ship. I'm a couple moves behind, but all right.

I don't want you to leave the room when I say them. So the first one was how often schools gave teachers feedback, okay, feedback on their instructional practice. The second one was how they actually use data to drive and alter the pace and scope of instruction.

Now, we talk about data a lot in school and the education reform right now. In fact, there's so much data, it actually might be a liability more than

an asset in some schools. In fact, I'm pretty sick of data walls at this point.

What's interesting about the effect of schools that use data was that they're not only plastered all over the walls so that visitors could see, but what they also did was, you could talk to the teachers and they knew how to alter their lesson plans and instruction as a function of the information they were getting in, okay. The third thing was how they broke students down into very small groups of tutoring, like, you know, groups of six or less for four more days per year.

The fourth thing was just instructional time. And the fifth thing was high expectations and really a no excuses culture. And that's pretty personal to me because high expectations I think are very, very important.

I'll just tell you one tiny story. They're already giving me the – When I was 15 and I went to my high school, my father had just gone to prison over the weekend, or been convicted over the weekend, and I went to school on Monday like it was a regular old Monday. I mean I'm not trying to be funny or flippant, but in my neighborhood, you know, one guy went in, it was just not that big of a deal, okay.

So I went to school and my guidance counselor, who was the most well meaning guy around, came up to me and, you know, had these kind of sad eyes, right, and he said, Roland, we saw what was in the newspaper and we just think this is awful, and I said, it's not so bad, and he said, well, we were thinking, given the extraordinary circumstances that happened, you shouldn't have to come to school all day, and I said you know what, it was kind of bad.

And he said, yeah, we got this new program, you can come to school late and you can go home at noon, and I said, you know, it's so bad, I was thinking 10:30. High expectations. If you talk to the leaders of these effective schools that we surveyed, the kids will live up or down to whatever expectations we have for them.

So what we did was, we looked around the country for someone willing to let us implement these five things, and, frankly, it was very, very difficult. This is difficult stuff to do. And then I ran into Terry Grier. I knew I was going to get married two years ago, I just had no idea it was going to be to Terry Grier. We're still honeymooning, aren't we? Yeah.

And so we implemented these 5 tenants in 20 of the lowest performing schools with Terry in Houston, and 7 of the lowest performing schools in Denver, and I'm just going to show you the results quickly and then I'm going to shut up.

So on the slide here you have the Harlem Children's Zone results. These results, just again, for context, the math results are enough to eliminate the achievement gap. In four years, the reading results were enough to reduce it by a third in the same time period.

Then I have the average KIPP school done by an evaluation by Mathematica. And then I have the Houston and I have the Denver first year results up there. Will this continue? How do you continue it? How do you scale it? All that, I'm sure that I'll be beat up in a second about. But what it shows is that you can take these strategies, these basic, basic strategies of teacher

feedback, teacher professional development, which I'm a huge proponent of, implement them in regular traditional public schools where people do not sign up for lotteries, where you take the kids you get, you know.

Folks always ask me, well, shouldn't the sixth tenant be parental involvement, and maybe it does, but I don't want folks to use that as an excuse. I'll tell you and I tell the folks in Houston all the time, the parents are sending you the best kids they've got, they're not hiding the good ones at home.

Now, you may be thinking, hey, that's just test scores, we're not interested in test scores, and I'm with you. I'm a little worn thin on test scores, as well. We have just completed a bit of a longitudinal survey of median term outcomes of kids from the Harlem Children's Zone who went through it in 2004 and 2005.

So with the generous help of the Ford Foundation, we spent a million dollars tracking down 500 of their first cohort kids. And these are other outcomes that we're observing in the data from the impact of attending this school, okay. So all I want you to see here is that the Harlem Children's Zone and Denver and Houston had very similar results, and we don't have these median term outcomes from Houston or Denver, it's still too early, but we do have them from the Harlem Children's Zone. What you see is that there's an 80 percent increase in who took the SAT, a 60 percent increase in being accepted to college.

Other outcomes were also positive. I'm going to point to two of them which I think are both phenomenal and distressing to me at the same time. Number one, pregnancy. So we tracked down – just imagine this for a second.

April 14th, 2005, kids sit in an auditorium in Harlem, in Central Harlem, half of the girls get a ticket to go to a high quality school. The other half go to whatever school they're going to go to. Seven years later, the ones who didn't go to that school are five times more likely to be pregnant.

For the boys, those who did not go to that school are four times more likely to be incarcerated, okay. So this is not just about test scores, right. I totally agree with the folks that say high test scores for kids who are in danger or likely to be in prison, not so interesting. A bunch of kids who are locked up, I'm not interested in that. What I am interested in are these types of long term outcomes.

So in the end, these three pieces of evidence give me incredible optimism and a concrete proposal for how I think we can move forward. It's not perfect. We need a lot of work on reading, Terry will tell you. We think we're on the 40 yard line with 60 yards to go. But we have these three pieces of evidence. One, we have a sense of what makes some schools effective and others not. We have it all figured out. I told you, 50 percent of the variance.

Second, we know that if you take these things, there's nothing special about them being implemented in charter schools. When you take them and put them in traditional public schools, you get similar results. And third, those test score results, at least in one sample, seem to lead to better outcomes.

So the proposal on the table here is to take the bottom 5 percent of schools to implement these strategies. Let's just at least come together for those because those are the kids who are the most vulnerable.

We can argue, I mean I'm at Harvard, that's all we do. We can argue over the other 95 percent all day long, but let's take the 5 percent in the bottom, try to do these strategies to turn those kids around because there's 3 million kids in those schools. Thank you.

(Applause)

MR. ALTMAN: We're joined on the panel by Terry again, to my immediate left. That's Seth Andrew to my right. Seth is the Founder of the very successful Democracy Prep Schools in New York which were founded in 2005 and had been a model for a number of the things Roland has discussed. And Richard Rothstein on my far right who is a research associate at the Economic Policy Institute and also at the Warren School of Policy and Law at Berkeley Law School and has published very extensively on education, and very importantly.

I'm going to start with Terry, if I may. One of the most important things Roland effectively just said, and certainly his paper says, I think at least, is, the great promise of charters is that they provide us certain lessons as to what works, and Roland has identified five, which can then be ideally deployed in district schools or traditional public schools.

And by the way, I might point out Roland's paper says that if you tried to actually – if your goal was to have every public school tried in America in a charter school, it would take 100 years to do it at the current rate, so that's obviously not a viable goal, nor is that the goal of most people in the charter movement, I might add.

But in any event, my question, Terry, is, where does yours and

Roland's experiment in Houston go from here? What additional time -- my comment on this if I could, what additional time is required in those 20 schools to prove out the points that, Roland, you just made, and if they do prove out, what would it take and what are the chances of doing it to extend these five practices a lot more widely in Houston? And, Terry, if you would start with that.

MR. GRIER: It's hard work. There's no question about the fact that it's hard work. I've been talking to Geoff about his experiences in Harlem. Like after the third or fourth year, he just went in and fired everybody and started essentially all over again. This is hard work. And you're basically talking about a shift in culture and you're talking about a major shift in expectations.

These schools did not get this bad overnight. Many of these schools were fading schools 12 years ago, 15 years ago. And yet we didn't have the political will to do things that we're talking about doing here to change this.

So changing public education is tough. That's one of the reasons I think you don't see a lot of success in some of the charters. Some of the charters are basically just kept doing the same thing that the people that were running them did before they became charters. And the effective charters like Seth's schools, you have innovative, creative leaders that are not going to keep the status quo.

In our school district, we're spending about \$2,000 more per student in these charter schools, in probably 20 schools than we do in our traditional schools. We added an hour to the school day. We have tutors who tutor all sixth and ninth graders in math, 70 minutes a day, 1 tutor per 2 students.

These kids go to school two weeks longer. It takes more money. What people I think sometimes forget about public education is that it just simply no longer can be a one size fits all model. Some kids simply need more time, they need more help. One of the things that we struggle with, Roland will tell you, in Houston, when we turned around these schools, we required all the teachers to reapply. We replaced as many as 80 percent of the teachers in some of those schools. We replaced all the principals and the assistant principals.

One of our big challenge is to find the human capital, people, teachers that can go in with the missionary zeal and teach these children and have these high expectations and have the ability to be able to differentiate learning to the degree that we need to these schools has been a big, big challenge for us and it's something that takes a lot of political will to do.

What I worry about sometimes is finding enough of the talent that we need long term. Now, in Denver, Roland has an idea that he started a school up there where they're doing a lot more tutoring. It's almost a tutoring school, which is getting some interesting results, and we want to find out more about that, as well.

But we in education have got to get away from this idea that we fund schools on a per pupil basis. I happen to think that, Roland was talking about this bottom 5 percent, I think the bottom 15 percent in all states, those children ought to be funded at a much higher level, but you don't hold superintendents of school boards accountable for how those dollars are spent, making sure you're getting a good investment on the return.

One of our biggest criticisms people have said to me is that, well, how are you going to sustain this long term when this three year program is up? We've raised about \$18 million through our Houston School District Foundation to fund this program. We've spent some local and state dollars, but the bulk of it has been through money that's been raised.

Well, someone said to me, it's not sustainable. The person that said this to me was one of the big, big supporters, financial supporters of our effective charter schools in Houston. I said do you want to tell me how long that charter network could be sustained if you didn't raise money? If you weren't giving a million dollars a year of your dollars to it and others weren't giving money, how long could Seth's school be sustained if he wasn't having to go out and raise money?

And I'm not critical of that. I think it's absolutely sad that he has to do that. The children he's educating require more time, they require more assistance, more tutoring. They're doing a phenomenal job. It's one of the best charter networks, if not the best in the country. But why should Geoff Canada have to go raise that kind of money to education these children down at the bottom? All of our children deserve a quality education, all of them. Some just take more time, some take more resources and more energy.

MR. ALTMAN: Okay. I want to turn to Seth. Seth, just tell us more about the Democracy Prep Schools. Tell us how many there are. Tell us the mix between elementary and other levels. Tell us a little bit about the last point Terry was talking about which is a really important one in this debate,

namely cost. How much are you spending beyond what district schools spend? And how are you financing that?

MR. ANDREW: Great. Well, thank you for having me. It's a pleasure to be here. And Democracy Prep started, as you said, in 2005, has consistently been now the highest performing charter network in New York City on the Chancellor's Progress Report, which is a metric that primarily looks at student growth over time, which is one of the reasons that Doctor Fryer's research is so powerful, is that what he's looking at is the growth, the impact that a school would have on the scholars who get into our school by a random lottery rather than those who don't.

So we're proud of the growth our kids made, but there's a long way to go. Our first kids have not yet graduated college. They're about to graduate this year. I have Jade and Omar with me today who are in the college class of 2018. But you'll note that that's a long time away still. So we have to measure the metrics that Roland is talking about to make sure this works long term. We have a lot of early indicators that look good. And Roland's research shows that and the Chancellor's research shows that. But what we actually have tried to do at Democracy Prep is something different than what's been done before. So I just want to shift right to this funding question.

What we've done at Democracy Prep is taken the great work that's happened at charter schools before us. And charter schools, just to reiterate what Roland said, on the whole, charter schools suck. So I want everybody just to hear that from the guy on the panel who's supposed to support

charter schools.

MR. ALTMAN: How do you spell that?

MR. ANDREW: S-u-c-k.

MR. ALTMAN: Thank you.

MR. ANDREW: And that's an important thing to note. But that's not why we have public charter schools. Public charter schools are the innovation laboratory for American public education to figure it out. And even if we assume that the Credo Study is right and 50 percent, 70 percent are equal to or worse than district schools, what we're finding at some schools, and that's why Doctor Fryer's paper is so powerful, has the ability, if scaled, and there's a big if there, to impact the lives of the 3 million kids that we're talking about today. The thing that I think a lot of people say is the barriers, the one that you've just raised, and, Terry, I'm going to unfortunately disagree with you, is money. Money is not the issue. And anybody who leaves here thinking that money is the issue is not listening carefully enough.

Democracy Prep spends less money per pupil than New York City Public Schools, spends less money per pupil than charter schools in New York. And get this, once we open from day one, we don't need a single dollar of philanthropy to run our schools.

And I would actually argue one of the reasons we have done so well is because my focus has not been on philanthropy. I don't raise money. I don't have to talk to you, to anybody else to raise money. I can actually just go and focus on running great schools.

The talent problem that Terry talks about is the problem. We don't have enough great leaders. We don't have the principals, the school leaders, the teachers, the grade level leaders in this country right now and the pipeline of the caliber we need to grow to serve 3 million kids right now. So that's where I see the biggest barrier in scaling this up, is not in money. We spend less money and can do it on public funds. Let me just give you one quick example so you walk away thinking about it in concrete terms. America spends about \$10,000 per pupil on education per year, on average. That's a lot of money. That means that a classroom of 25 kids spends a quarter million dollars a year. Where is that money going? Let's hire a teacher and pay him \$75,000 a year like we do. Let's hire another teacher for that same classroom and pay him another \$75,000 like we do. Let's put in benefits. We're up to \$200,000 a year. And then let's say, okay, we also need some administrators and some extra support outside of that. But we're barely at \$250,000. And in New York, I get \$13,500 of public dollars off the top.

So where is the money going if we're not spending it on these five things that Roland was talking about: higher quality talent, more time, more rigor and high expectations, really joyous culture? We have 97 percent attendance, not because we force it, because our kids want to be in school. It's safe, it's clean, and that's where their friends are, right.

So that's where they want to be every day, because we have theater, art, music and all of the things that get cut out if you have a six hour day like Chicago. We have a 10 hour day. But that means that every kid gets all of the

things that get cut out if you have a six hour day. And so we can have the things that middle class schools or rich schools think about as after school, we just put them in the day and build them in for every kid. So this is a solvable problem, this is a scalable problem, a scalable solution. The thing that is missing is the political will. And so the last thing I'll say is that we are Democracy Prep for a reason as opposed to generic prep. And the reason we are Democracy Prep and not generic prep is that what we have right now, more than a problem of education, is a problem of our politics which are fundamentally broken.

The democracy that we live in is fundamentally broken when we don't have enough people like Terry Grier and others standing up at the political will to say we're going to try this, we're going to figure out how to do this, we're going to take big risks, and we're going to try to get these 3 million kids in the nation's worse schools to college and beyond, and most of all, to become great citizens so they can help fix the democracy that right now is broken for most of them. So there's that.

(Applause)

MR. ALTMAN: Richard, I want to ask you about this issue of cost and money and so forth. And Seth just made the point that that's really not the issue at all. And you can extrapolate his point and take Roland's analysis which shows essentially that the five initiatives, Roland, if I'm right, cost about \$1,800 a year per student, and you can say there are 3 million students, and therefore, it would cost \$6 billion a year in the United States to actually implement those for the 3 million students, and while that's not a trivial sum, it's really not a large sum

by the standards of the federal budget or the standards of the U.S. GDP right now. So, if you would, comment on this full question of cost. Because many of the people who don't like charters say, you know, that's just a bunch – I mean we hear this every single day of the week, that's just a bunch of wealthy people, you know, sculpting education the way they want it to be.

MR. ROTHSTEIN: Well, let me say first that the major issue in school funding these days, the phenomenal growth in per pupil spending that we've noticed over the last three or four decades is primarily attributable to special education, not to the kinds of things that Seth was talking about in a typical classroom.

What we've done in this country over the last 40 years is, we've made a commitment to educate to the extent possible children who 40 years ago were institutionalized, who were taken care of at home who are not in school. And so the biggest share of the growth in per pupil spending over the last 40 years in this country has been special education, not regular education.

But let me, if I may, forgive me, but I am not as enthusiastic about Roland's presentation and Seth's presentation as you are. It disturbs me greatly. And the reason it disturbs me is that it drives off a theory of American education which I find to be flawed. And there's a frenzy in this country now around this theory. Why Roland began by citing it, he said that our schools, our education outcomes have been stagnant, they've been – outcomes have been declining, it wasn't always so, his paper says, it used to be much better, and he cited statistics from the National Assessment of Educational Progress.

The reality is that our school system, our public school system, a regular public school system, has been improving the achievements particularly of minority students at a phenomenal rate over recent times.

I know you'll be skeptical of this because we're so convinced of this story that we never examined. The reality is that, for example, to take the most extreme example, our fourth grade NAEP scores, math scores for black students, and this is the most extreme example, the average NAEP score for black students in math today, elementary school students, is higher than the average white score was 20 years ago. That's a phenomenal improvement.

There's been a full standard deviation of improvement in black mathematic scores over the last 20 years. And it's almost as good in reading and it's almost as good at the eighth grade level. So where does this idea that our schools are failing and our regular public schools need some kind of outside stimulus to improve come from? It comes from the conviction, which I don't know where it comes from, that our system, which is, in fact, a quite successful system, is in a state of collapse.

Now, Roland pointed out, and you cited, and you cited, everybody has cited the fact that the average charter school does not only know better, but probably a little bit worse than the average public school. And Roland has a great bell curve showing the distribution. Some charter schools do phenomenal work and some charter schools do terrible work.

But if the average is worse, then you would expect, I would think, that there's also a similar distribution among public schools. There's some public

schools in the right tail that are doing phenomenal work for the same kinds of students and some public schools in the left tail are doing phenomenal work. Why is all of our policy attention not being devoted to those public schools which are doing phenomenal work? Why aren't we wondering what can the other public schools learn from the great public schools and only worrying about what can public schools learn from charter schools?

It presumably would be a lot easier to identify the characteristics of good public schools and transfer them to other public schools than it would be to identify the characteristics of good charter schools and apply them to public schools. Now, I'm not suggesting that these characteristics of great charter schools don't exist, but I'm saying we're not looking at the biggest source of ideas for improving public education, which are the public schools which are in the right tail of distribution and which are moving the whole – slightly the whole distribution slightly to the right of what the distribution in charter schools are.

So that's the fundamental. It's not so much, although I do have a lot of questions about the five characteristics that Roland mentioned and I can go into them if you want, but the fundamental question I have is the whole context of this story which is based on a flawed narrative about what the nature of public education has been and is and it's based at looking at a place which is not the most obvious place to look if we were really telling a true story about the trajectory of public education over the last 20 years.

MR. FRYER: May I respond?

MR. ALTMAN: No. I do want Roland to respond. And I'm going

to make a comment myself. Go right ahead.

MR. FRYER: I just disagree with Richard on many things, but particularly these two points. Number one, if you look at average NAEP scores for 9, 13, and 17 year olds in both math and reading over the last 30 years, they're exactly flat. You can just look at them, they're exactly flat. Number two, why didn't we use charter schools instead of public schools? The one thing I do agree with you on is that there is a substantial variance in public schools, and, in fact, the same variance that exists there. I mean Fairfield Elementary School in Richmond, Virginia is one of the best public schools I've ever seen, 99 percent free and reduced lunch, 100 percent of the kids are at grade level in the core subjects.

Here's the reason that we actually use charter schools, is because, number one, if you want to correlate an outcome with the other choices that they're making, charter schools, number one, you can have a better estimate of their effectiveness because of the lottery data.

It's very difficult for a traditional public school when you have their standard admissions process of public schools to actually estimate the value out of that school. Everyone should agree with that. I mean there are lottery based samples, which is like an experiment, and there's those that are not. I'd rather the experiment.

Number two, on the right hand side of that equation when you want to understand that correlation, you want as much variance as you can in the types of things that schools do. So Seth says, hey, I'll just pay my teachers

more, or the charter schools say I'll pay my teachers less. Rocketship Charter says I'll do stuff with technology. Other schools do this. There's a lot more variance in the charter on what they're actually doing. Some of it is successful. Some of it is a disaster. And we actually needed that to be able to find these correlations. So the correlations are a tremendous amount more believable, Richard, when you have, number one, a left hand side variable that you believe in, and second, more variance on the right hand side.

MR. GRIER: Another piece of that, too, is that I find it fascinating because if you know much about education at all, you reflect back, when you get to be my age and the age of some others, and maybe Richard is too young to remember this, but in the 1970's, a guy named Ron Edmonds at Michigan State University, and Larry Lezotte, Wilbur Bookover did a lot of research around effectiveness of public education, and all of their research was done in public schools.

And it's kind of fascinating to me because when I first met Roland and looked at the five tenants he identified, I thought he's been reading Bookover and Edmonds and Lezotte's work, because a lot of what he found is exactly what they found in great public schools back in the '70's.

And Larry Lezotte, Doctor Edmonds, of course, has passed on, but Doctor Lezotte is still doing that work. And he has an effective school network that a lot of good public schools use that, use those strategies to improve their schools today.

So I don't see the work as just, well, this is just something from

charter schools. To me, this is something that works. And you have to ask yourself the hard question, I mean what kind of rocket science is it that you need an effective teacher in every classroom? Do you have to be brilliant to realize you have to have a great principal leading every school if you want a great school? How many of us have ever seen a truly great school without a reasonably good principal?

I've been doing this a long time, I can't think of once.

So this stuff is not really magic. The hard piece for me is why it takes so much political will to do what we know. It's not that we don't know what works. It's not that we don't know that – we talk about funding, we're spending about \$6,000 per student in Houston. We don't spend \$13,000. Give me \$13,000 and I won't go raise money either, and I'll pay my teachers \$75,000 a year, too. I mean come on.

Again, this is not rocket science, but it is hard political work. The political will to meet the needs of children whose needs have never been met is tremendously hard.

MR. ALTMAN: Seth, I want to give you a chance to comment.

MR. ANDREW: Yeah, I mean Richard's argument to me is incredibly frustrating, and it's personal honestly, and it's because Jade and Omar are sitting here and their statistical likelihood of graduating high school in New York would be less than 50 percent right now. And we can't as a country sit around and say that's okay and we're making progress and now it's 52, like that's not okay. We have to take a totally different look at what we're doing in public

education, rethink it, and say how are we going to take the things that we found in pockets, in small isolated places, and figure out how to get them to millions of kids who need them, and that is a massive challenge.

None of us are under estimating the size of this challenge. All I'm trying to argue is that we actually have some really good indications of what those elements are. I had an IEP in New York City Public Schools, I went to New York City Public Schools from K to 12. The statistical likelihood of me graduating with a regents diploma at the time was 5 percent. Five percent of kids with IEP's graduated, special education students from New York City Public Schools with a regents diploma.

And, you know, I went on to do well, to graduate from high school, and had the luck of having great teachers and great principals. That is not something that should be determined by luck of a lottery, luck of who you're born to and your parents, luck of what school you will go to, or luck of where your zip code is.

It should be that the tenants of high performing schools are in public schools across the nation, traditional public schools and public charter schools, and we're giving parents the choice to pick what's the best for them. So I'll say just one last thing which is, we decided last year to try to understand turn around, because what we've done so far is started up schools with our model. And Secretary Duncan challenged us in the charter sector to turn around low performing schools.

And so we had the lowest performing school in Harlem, a school called

Harlem Day, it was in the bottom 1 percentile of New York City Public Schools overall. And we took that school over and we applied these five characteristics, the ones that Roland has found and Democracy Prep has used for the last seven years, and this year we will be in the 96th percentile city-wide.

We kept the same students with the same poverty and the same parents in the same building and what we did was, we changed the name on the door, the adults in the building, the leaders and the teachers, we changed most of them, and we implemented these five characteristics, and now those same kids are at the 96th percentile.

So we can't say anymore this is impossible. We shouldn't even say this is improbable. We should say that we expect that this is predictable and possible for every child in America and that we have an obligation to give it to them instead of letting us get off the hook by saying it's hard and we're spending more money on special ed. We should say this money is there, the resources are there, and we have to create the political will and get the talent there so that it actually transforms the lives of millions of kids and not just the thousands that I'm lucky enough to serve.

MR. ALTMAN: I really don't want to turn this into – we don't have a lot of time left so I don't want to turn this into a debate about Richard's points of view because that would take a long time, although I must say I'd like to know more about it. But I want to ask about something you just raised, Seth and Terry, and Roland's paper raised it. This is a difficult issue, but let's talk about it.

You just said you had to replace the adults in the school. And as

Roland's paper says, relative to the 20 schools involved in the experiment, that's also the case, okay, so let's talk about that. And I'll just ask each of you to talk about it. So, Terry, why was that necessary?

MR. GRIER: A lot of it had to do, quite frankly, about values and beliefs and believing that these children that are attending these schools can learn at high levels. And when we interviewed and asked the teachers a litany of different questions that – in their situation, interview questions, so the new teacher project they've come up with, it was fascinating.

The one question that had the highest correlation to student growth was this question: if we kept you on this faculty to help us turn the school around, which of your five colleagues would you insist that we also try to keep at all costs. And the more frequent that we had a faculty member's name included in that list, there was a higher correlation between that teacher's past ability to get kids to grow one or more years academically.

So what that told us quickly is that teachers know who the other good teachers are. They know who the teachers are that get good results. We also know that students and parents know that, as well.

So what we found is, in one of our schools where we replaced 82 percent of the teachers and kept 18 percent, the following year we hired an outstanding principal and brought some good teachers on, that following year we turned over 23 percent of those teachers. We didn't get it all right the first time.

MR. FRYER: I would say that the surveys and the attitudes of the teachers were huge. If you just correlate their answers on these things, when

teachers said things like what I need is more support, what I need is a principal and an instructional leader, their growth under this model was pretty tremendous.

For the teachers, and there were just a handful of them, but it just drives me crazy, we asked a question, what do you think you need to turn this school around, a handful of people just said we need smarter kids. And that kind of stuff drives me nuts. But what I really learned in Houston and Denver, and I think this is a really, really important at least growth for me and potential takeaway here is, you cannot cut your way to excellence, it's just not going to happen.

There's a lot of rhetoric in ed reform now that says if you just cut the teachers, you can open up a magical drawer of effective teachers, pull them out and stick them in. I have not been able to find that magic drawer. If you know where it is, could you please let me know?

What I have found is that, you know, in our turn arounds, if folks, for whatever reason, just don't think kids can learn, that's difficult to work around. But if they do believe that all kids can learn but don't have the support and the skills to do this work, then professional development and just tremendous support for the teachers can be very, very effective.

And Seth is even doing a turn around now where they're not replacing the teachers and just doing tremendous amounts of work on the professional development side. So you just can't cut your way to excellence. There's no easy way around this. We have to develop good teachers and make them great teachers.

MR. ALTMAN: We need to let the people in the audience ask

questions, but just make one quick comment.

MR. ANDREW: Well, Roland alluded to it, so I was fascinated by this work we did at the turnaround at Harlem Prep, which is one of the most amazing things I've ever seen in my career. And we decided to try this again with a low performing charter school that was on the cusp of being closed and said, you know, let's change the leader, let's change the curriculum, the professional development schedule, the Democracy Prep model, but let's keep the teachers in place that were the lowest performing school, and let's see how that goes.

We're in the middle of that right now. I don't know yet how it's going. I'm optimistic. I feel very good. But, you know, invite me back in a year and we'll see how that school is going where we've tried to change and develop the good teachers and even some of the bad teachers into good teachers and take the good ones to be great and I think we're going to have some exciting things to show you.

MR. ALTMAN: All right. Let's have some questions from the audience in our remaining time. Yes, sir, here in the middle.

SPEAKER: My name is Mark Nadell. I have a question for Seth. You said that the issue is not money, it's talent. But isn't the problem of talent also one of money to attract more of the bright, highly motivated graduates of colleges to go into teaching? Teach for America will take them for two years, but then they want to have a viable family life, or at least some of them. And my understanding is those teachers are incredibly dedicated 24/7, they're available,

they need a break. If you could pay them more, you could attract more people in and presumably keep them on more because you could add additional assistance for them. So money is an issue?

MR. ANDREW: So if I had to do what Terry does and do it on \$8,000 a kid, it would be tough to pay the salaries I pay. New York has a different cost of living and so we're able to pay our teachers incredibly well and attract great talent. So it's not to say that money doesn't matter, it's how you spend the money that exists that matters.

So what we do is, we build a longevity incentive model which basically gives our teachers raises every year based on their performance, not bonuses, but raises. So our highest performing teachers make a 10 percent year over year raise. And what that means is, if you stay with us for 10 years, you're going to make \$125,000 as a teacher at Democracy Prep. That's pretty good, right.

We can afford that on public dollars that are right now in our system, not adding any new money in. And the model is not that complex. It's not rocket science. I didn't need Roland to figure this out, right. I didn't need the Macarthur or anything else. This is math. And President Clinton said this, right, this is arithmetic, and we can take that money we're spending in the country, \$250,000 a year for 25 kids, and spend it more thoughtfully to get great teachers who want to come into the profession and stay in the profession. Our teachers don't work 24/7. They work a hard job. They work from 7:45 to 5:30 in the afternoon. Find me a doctor or a lawyer in this country who doesn't work about

that difficult, you know, hard work.

SPEAKER: Do they take phone calls at home?

MR. ANDREW: They can and that's up to them, but they can.

We give them a blackberry and an iPhone so that they can choose to if they want to. But at the end of the day, those are marginal, right. Those are tiny. They don't even show up in a study like Roland's, right, the phone calls home. It's symbolic. It's about saying to a child and a family, there's no excuses for you not doing your homework. Why didn't you do your homework? You could have called me. That's not actually what makes the difference. It's the expectation that you'll do your homework and that there's no reason for you not to show up the next day without it.

MR. ALTMAN: Yes, ma'am.

SPEAKER: I'd like to –

MR. ALTMAN: Hold on for a second, let's get the microphone.

MS. GRANT: Hi. My name is Cici Grant. I work for a congressman in metropolitan Detroit. I'd like to touch on something that Roland Fryer said regarding not being able to cut your way to excellence. It's really good when you're in a pilot program such as a charter school being able to cherry pick the best teachers. But when we're talking about taking the success on charter and making it large scale, rolling it over to a public school, how do you get the best teachers or how do you motivate the teachers who are already in the system where you can't cherry pick the best? I'd like for either one of you to address that question, please.

MR. GRIER: Yeah, it's tough. We just dispatched here in Houston -- training program teaching all of our kindergarten, first, and second grade teachers how to teach disadvantaged children to read. It's a very intensive five day training program. Then this year we're going to implement the training and the next year we're going to do five more days of training.

And the program we're paying for. It was optional for teachers. It was very fascinating. We've taken a first deep guide look at who's gone through the training over the summer and who signed up for the training per semester. And what's fascinating, and this won't surprise a lot of people, our teachers who got the very best results in the past two or three years, those are the teachers who quickly stepped up and went through the training.

Some of our very lowest performing teachers, for whatever reason, did not go through the summer training, have not gone through training as of yet. And again, a lot of that comes into values and beliefs and behaviors. In many situations in public schools where you're dealing with unions, you have a difficult time demanding and requiring teachers to go through training even when you're paying them reasonably sized stocks to do that. Seth's place, when he says you're going through training, you're going through training.

MR. ANDREW: So your point is exactly right. So you can't take Democracy Prep to scale right now because we select the top 1 percent of people that apply to us, right. I mean that's unheard of in public education, to be able to say that that's the kind of teachers we can expect in New York City Public Schools with 80,000 teachers.

So what we have to do is change two things. One is the way we train, prepare, and pipeline teachers, and that's something that is fundamentally broken top to bottom in this country, is the pipeline and the training of teachers coming into the profession. That's why we're doing this pilot with keeping the teachers that are in place.

But the second thing, and then Dennis mentioned this earlier, is about Finland. And there's two trains of thought on the way to think about international comparisons. There's the Finland people who think that that's the model. And Finland has always been rich. They're still rich. They're going to stay rich, right. Well this is much more like South Korea. South Korea was one of the poorest nations in Asia just 60 years ago. It was colonized six years ago. It's still at war technically. And what they did is, they elevated the teaching profession to the highest stature. They said teachers are golden.

In America, we give titles to military, to clergy, to elected officials. What do we give to teachers? Yo, Miss, yo, Mister, right. In Korea, you're sensing them. It is an honored and valued and esteemed professional so that everybody in college thinks about being a teacher, not because of the money, but because there is honor and prestige and respect in the profession of teaching. And we need to bring that to the country, and if we did that, we would see a pipeline change in who the teachers are in American classrooms, and that would change the game.

MR. ALTMAN: I might point out that Finland has approximately 4 million people and it's a rather homogenous society.

MR. ANDREW: Well, Korea is homogenous, too, right. This isn't about diversity, per se. What I'd say at Democracy Prep should apply to every kid in America. We serve black and Latino kids primarily, but this is good for everybody, right. More time, higher rigor, better culture, more data, like that's not bad for middle class white kids, that's good for everybody in the country. It's just that the kids who need us most are the 3 million that Roland was talking about.

MR. ALTMAN: No, I'm just pointing out that comparing the United States in any real respect to Finland is not really – yes, sir, in the back.

MR. CRAWFORD: Steve Crawford, George Washington Institute of Public Policy. Terry Grier emphasizes that one size won't fit all and you have to have individualized tutoring and all sorts of interventions, and yet most of the programs we're talking about and the interventions and lessons learned are for application within one school.

I have not heard much about variation among schools and allowing, the way Richard Kahlenberg suggested in *All Together Now*, this Century Foundation research, public school choice where ideally, over time, one school would be maybe the all boy's school which is best for some kids, or the school where they wear uniforms, or the math and science school, or the arts and drama school, and parents have choice. We know where they do this. Most parents get – 95 percent get their first choice school. I'd like to hear the panel's comments on the role of public school choice.

MR. GRIER: Sir, I did not set you up for this question. We just met earlier. Houston Independent School District is an open enrollment district.

You can attend any school in the district in so long as you can get transportation there and the principal decides to accept you. We have one of the best magnet school programs in the country. Choice is huge in our school district. But at the same time, one of the challenges that we have and the struggles we have is what happens to the schools that no one chooses? What happens to those neighborhood schools?

We have one of our high schools now that at one time had as many as 1,400 students. It now is down to about 500 students. It's one of our Apollo schools. It's now 34 percent special education. It's a huge challenge at that school, a huge challenge.

So choice is good. Choice is good if you're the one who gets the choice. But what happens when you're left in an isolated school and you're left there? And what happens when that school is not performing at high levels?

So we have all kinds of choice, we have all kinds of programs. We have an all boy's school. We have an all girl's school. We think we have the finest performing and visual arts school in America. We think we have the finest school that produces kids that go on to be doctors. DeBakey is a wonderful medical prep school. And I could go on and on and on.

Lamar High School gave out more international bacheloreate diplomas last year than any public or private school in the country that we could find. We have a lot of great choice schools. Parents can choose to go wherever they want. But the real question is, what about the schools that no one is choosing? Those failing schools didn't become failing last year.

MR. ALTMAN: I hope this panel illustrated how important this issue is. Charter is in all of the implications and the debate about charters. I want to thank Roland especially for the paper that you did which I found brilliant. And we really appreciate, Roland, the work you've done with us.

I want to, of course, thank Terry and Seth and Richard. Richard, I promise you, you'll have another opportunity to expand upon your point of view. But thank you all. And we're going to take a short break, five minutes, a short break, and then we're going to proceed to the third panel.

MR. GREENSTONE: Okay. It's time to get started with panel three. This is our exit let it take panel which was very excited to have. I thought I would just start with two confessions the first is I think I might have been one of the first either recipients beneficiaries or victims of Ed Tech I was in the six grade at the Ray elementary school in Chicago. And I remember those commercials. I'm dating myself from 1984 for Apple. And so the race school raised all kinds of money and we got Macintosh 512 K; is that right? And they put the wall of the room and even found a spare closet that had been used before and suddenly we had Ed Tech in the Ray school. That lasted for about a month. No one knew how to use the computers. There was like the thing with the discs and the in and out. And I think sometimes people have the experience with Ed Tech, that it promises so much and everyone feels like it should just work. And I think that's far we haven't found necessarily the special sauce. The personal anecdote I wanted to say about Ed Tech, just as a consumer, a potential consumer of a attack, I keep looking at our authors because they're going to solve this – as a

potential consumer of Ed Tech I have a six-year-old daughter who comes and reports all the time that club Penguin is a educational game and that she really needs to be allowed more screen time to plate club Penguin. Really, I can't possibly sit through hours of watching her play club Penguin to figure out if it's true, and so I more or less at her mercy. And I think that that's what your paper if you to solve today is that there's just so much hope and also so little information. You know like the kind of information you have on the car, the number of miles per gallon and things like that. None of that exists with EdTech except I guess the ratings for violence or something.

So we're very fortunate to have today with U.S. Aaron Chatterji and Ben Jones who have authored really a fine paper. And it's one of those papers or policy proposals that when you read it you think to yourself, my goodness, why didn't someone think of this sooner. Here's a lot of good intentions and a potentially very large market. And it's not functioning well. And here is a solution which seems like it should work. So I think Ben is going to give U.S. a little presentation on it, and then we'll have a discussion about it.

So Ben, I should mention Ben Jones teaches at Northwestern's Kellogg school and Aaron Chatterji teaches at Duke's School of Business. And both were at the Council of Economic Advisers during the Obama Administration.

MR. JONES: Thank you very much, Michael. Thanks to the Hamilton Project for helping my co-author Ronnie and I further develop this idea into a full-fledged proposal. Thanks to you all for joining with U.S. this morning.

I'll continue without slides for the moment.

What's the idea? Economists know that education is really a foundation, not only for individual opportunity but also for our collective success. As an economy if our towns and cities and regions can't produce an educated workforce we are less likely to succeed in an increasingly competitive global economy. And we've heard about challenges this morning in the education system. Economists know that, looking back over history our capacity to educate, to innovate, and to build is how we have developed the levels of economic prosperity, the world leading levels of economic prosperity that Americans have come to enjoy on average. The improvements in health and all the things that come with it. We also know that in these ingredients, in this mix of innovation, education, and building stuff that education, at least K-12 education starts to look like an increasingly weak link. Like a crack in the foundation. We've heard a lot this morning about the dropout challenges and all of the problems that are associated for individuals who don't finish high school. We've heard a little bit about some international comparisons this morning. And when you look at how U.S. students perform in different grade levels on international tests, common international tests, we're well behind. We don't do well compared to not just Finland or Korea, which came up earlier, but we're way behind in math and reading and science at various grade levels. So how do we overcome this problem? There's lots of important ideas. There's probably no silver bullet. We heard earlier that it's a system approach perhaps.

What's motivating Ronnie and my proposal is thinking well how do we take this signature American strength, which is innovation. This creative

engine that has created new industries for centuries now. It continues to create new industries that the U.S. leads on. How do we take that creative engine and get it hooked to K-12 education so that we can see the radical transformations and improvements in quality and outcome and achievement for our students.

If you look through history whether it's transportation. I flew here last night in a couple of hours from Chicago. A trip that would've taken much longer a hundred years ago. We radically transform our economy. Our children live to age five at rates parents could only dream of in the year 1900. We have longer life expectancy. We have computers. We have all sorts of new things that's radically reshaped our economy. That doesn't really seem to happen in K-12 education. By one measure, if you look at research and development dollars that are spent in K-12 education is 1/15th the rate. 1/15th the rate of the U.S. economy overall. It's 1/15th to 1/100th the rate of what we see innovative sectors like in health care. So the question that we started with is, well, what's the problem? Why don't we just naturally see this great creative engine we see in so many other sectors applied to K-12 in education? What's getting in the way? So what Ronnie and I have tried to do is first diagnose what's getting in the way. And by understanding that we can then say, okay, what can we do about it. And our proposal is essentially a light institutional layer that we hope can create a creative marketplace that succeeds where today it seems to be stagnant.

We have K-12 schools, 14,000 of them. There's 14,000 school systems on the one hand. We have would be innovators and entrepreneurs. But there's some gulf that seems to be separating them. What's going on in that

middle? I think when we go to the root of it Ronnie and I see -- and this is underlying a lot of other symptoms -- that really the problem is that people don't really know what works. Maybe some people might know it works. But even if they know personally, they have trouble convincing anybody else about what works, and we end up with these endless debates, okay. With education technology we have really no particular way to know what works and to evaluate claims. We have a lot of heterogeneity. We have 14,000 different school systems. Often they're very heterogeneous in terms of how they try to teach their curricular goals, their procurement systems, the technology platforms they use. Where does this end up? It ends up with huge barriers to entry for the would be innovator or entrepreneur. They can come up with something that they think might be a great tool in the classroom. But they have to go convince everybody that it actually works. And since there's really no way to convince anybody they have to go school system by school system and they engage in this in incredibly arduous in terms of time and money attempt to convince people to actually use their product. And then they often fail after a year and a half. And that's only one school system. Entrepreneurs don't survive very long if they can't find anyone to sell to, okay. There's just huge barriers to entry. If you look at healthy innovation ecosystems, take the smartphone markets. Many of you have smartphones now or tablets or the Internet before Smartphone. So when Apple came up with the iPhone and the operating system on the iPhone. And then shortly thereafter we'd have android as a competing platform. Within two years of the introduction of these new platforms we saw 80,000 different companies. 80,000 different

companies developing applications. Very low barriers to entry. Why does that not happen in education? Because there are very high barriers to entry. It's just not worth it. So how do we make it worth it? Our proposal is going to try to make it worth it. Now we're going to have to focus. There's lots of different kinds of education technology. Some of them are pretty hard to evaluate. But what we're trying to focus on is the low hanging fruit. And that's particularly digitally delivered learning tools. Things that come over the Internet. We have a great benefit which is that okay K-12 school systems now have access to broadband Internet fairly generally, a high function, high-quality, cheap, easy distribution platform that people already know how to use. We also have the benefit of Common Core State Standards where most of the country has now agreed to a set of very specific skills that they want to achieve in math and reading by grade level. For example in kindergarten it says you should be able to count to 100 by 10s. And there's many other particular standards for kindergarten math. Things that you can actually make a program and software that would engage directly. Things that assessment will become to be based upon as well. So what we want to do is create EduStar to work on top of the Internet and work on top of common core standards. What it's going to do is it's going to be an evaluation and a reporting platform. Think of like consumer reports which are going to go out and tell you do these things work. But it's more than consumer reports, is also rigorous evaluation. We've seen what we could learn earlier about charter schools from a rigorous, randomized controlled trial were using the lottery system that Roland Fryer was talking about before. The idea here is to use another

model. Many corporations every day when you go online and doing randomized controlled trials. They're giving some people one look at their website, other people at random a different look, and they're seeing how it affects things. The Internet allows you to do very low cost, real time randomized controlled trials. So the idea here is to bring digital learning tools into schools, allow some kids to use them, some kids not. We have a test bed in schools, and then report the results so we really know if a particular software really is good at achieving a goal along a particular core state standard. This is the evaluation system. You can't read that from where you're sitting. I put it up just to let you know that we've actually thought about this very carefully. It's a simple, we think, relatively low-cost way to do it. Not free, but far lower cost. And if we can lower those entry barriers, we're going to open up the opportunity for innovators to rush in. Ultimately it's a community proposition, right. We think we can do this for \$5 million to start it up. It's a pretty simple technology. Is used by corporations all the time. Consumer reports where it will be acting online. It will disseminate the findings to teachers. There are a number of funders we think that are out there. A lot of partners and content, LearnZillion is one example. Academy style lectures. Lots of digitally delivered content. There's possible technical support. Digital Promises league of innovative schools is a new collection of schools and school systems dedicated towards innovation. They're a natural place to think about building a test bed. It's not the whole country. Think about university hospitals where you do evaluations. Then every hospital gets to use them. We need a small set of schools who are willing to become part of a test bed to evaluate these promising

technologies. Catalysts. This is ultimately about tools for teachers. We think teachers are going to be a huge part of this as well as the doctors in terms of the tools they'll use in their classroom. Those are the source of great ideas in the same way that surgeons are the source of most medical device innovations. Teachers should tell us, I know how this works. Let's try to scale it. Let's create a tool that everyone can use, and we can deliver that. It's not a silver bullet. It's about a fairly narrow slice of education technology to start with. But we think and we hope it can make a huge difference.

Thanks.

MR. GREENSTONE: Thank you, Ben.

Okay. We have another really distinguished group of people here, and I will introduce them as we go down the row asking questions. I think we'll start with to my left Eric Westendorf who the former teacher, former principal of a very successful charter school here in Washington, D.C., and is the cofounder and CEO of LearnZillion, which is a learning platform form of software. I hope I didn't bungle that. So as someone who has created a product that in principle could interact with EduStar, I wonder if you could talk a little bit about what you think of this kind of wacky academic idea.

MR. WESTENDORF: Absolutely. So a little bit of background about where LearnZillion started from. So I was a principal at the school, E.L. Haynes Public Charter School here in Washington, D.C. And during that time as principal we were seeing some really good gains in terms of our student learning. And I attribute that to two things. One was just outstanding staff. Seth talked

about this in terms of democracy prep. We just recruited amazing teachers who work incredibly hard. In fact one of them is in the second row here, Amy Helms, who was our fourth grade literacy teacher when I was there. And the second is that we paid attention to data, right. So we were really deliberate about looking at where students strengths were and where their weaknesses were, and then being thoughtful about how we would address those weaknesses. And it was in that effort that the idea for LearnZillion emerged. Because I was frustrated that as we got better and better at analyzing the data, it did not seem that we were getting as good at turning those insights into very targeted action, both in terms of teachers and in terms of parents. So in terms of teachers, the teachers had a curriculum ahead of them that they needed to get to, right. And there was one of them 25 students. So giving the sort of targeted, differentiated instruction that all those students needed was really difficult. On the parent side so I should also say that two of my kids go to E. L. Haynes. And my daughter, who is now in the second grade, would come home and she would be working on her math. And here I was as a parent wanting to help her. I was her principal. I'd hired her teacher, and I had been involved in the decision around the curriculum. And I would sit there feeling like, I don't know how to help her, in a targeted way. Like this is absurd that I am in this unbelievably privileged position, and yet here this, one of the most important people in my life doing the most important thing in her life, getting an education, and it's sort of the one area where as a parent I do not have any transparency, even though I'm her principal and I hired her teacher, right. So that was striking. How do we provide, create that transparency in a

way that can target instruction to the needs of students. And so it was out of that question that I started talking with some teachers at E.L. Haynes and we said, well what if we were able to capture expertise that our teachers have in a way that could be accessed anytime, anywhere by the students, by their teachers, and also by parents, right. And so we started to create these screen casts, these very short video lessons based on Common Core State Standards, much like it is seen in Conn Academy, like that. But tapping into expertise of great teachers. And then it grew from there where we started to say, what if it wasn't just our amazing teachers at E.L. Haynes but it was teachers from top districts, schools, charter, private schools around the country and we did this in an organized fashion. So that's what we're doing right now with LearnZillion. You know what's interesting reading the report is that my first reaction was, this is exactly what Adam Frankel at Digital Promise and I have been talking about in terms of new technology how do we rapidly test it, right. And suddenly I see this paper, and I call him, I'm like -- And of course he already knew them and had been talking to them. So I think this is really important because entrepreneurs starting something new. I mean in many ways I was in a very lucky position because I was already in a school. So I was getting to prototype and test really quickly within several weeks' time what made sense and what didn't it make sense, right. And so that was something that to the extent that we can make that more systemic so that entrepreneurs who don't happen to be principals inside schools can get that sort of feedback, I think that's critical. I will say I think one of the challenges is from sort of my side looking at the prospect of the results suddenly

being made public. On the one hand I really like that because I think the results from students using LearnZillion would be very very strong. At the same time I also am a big proponent of the lean startup movement. And the main concept behind that is that you're not going to know the right answer when you start as an entrepreneur. You basically take a leap. You have an initial idea, and then you are rapidly learning and figuring out all the things you're doing wrong to try to create product market fit. And so I'm a year into LearnZillion. I feel like we're doing that every week, testing things. Seeing what teachers like. Going into schools. Talking with teachers about it. And it's a little scary to think that given that process suddenly we would be given a score, like this is it, that all sort of teachers, districts, and so forth would say, oh, that's the LearnZillion score. It's three stars. When I know that in a month it's going to be four stars. And if we're learning fast enough that we can ratchet up what we're doing. So that's the one part that makes me a little bit nervous. But the overall idea of creating an infrastructure where good ideas can be tested and folks can make really thoughtful, strategic decisions about that targeted action is real exciting.

MR. GREENSTONE: Thank you.

Were fortunate to have Dennis Van Roekel stay around for another panel. Now one thing when I was thinking about this is a lot of ideas come and go in education, and they all run through the teachers at the end of the day. So there was the new math. There was the metric system. There was the 1980s version of Ed Tech. I wonder if you could talk a little bit about how teachers today see Ed Tech and is it a compliment, or what ways can it be made

to be a complement to what they're doing.

SPEAKER: It does kind of seem funny. I remember when we were fighting for the E rate so we could get Internet into the schools. And here I am sitting with these people. By the way I am an immigrant when it comes to technology, and my grandchildren, their native. But it's such a learning curve for all of us that are in a profession that is being dramatically impacted by technology. A couple of things. First of all obviously we support this. And one of the things that I always think about is making sure we're asking the right questions. Years ago -- I'm old enough that I remember when we were debating about calculators in the classroom. And there was this huge debate about whether or not students should be allowed to use calculators. People fought on both sides. It was the wrong question because it wasn't yes or no. What we should have been asking is, when is it appropriate for a student to use a calculator and when isn't? And I think that's part of this technology. It's not yes or no. It's when is it appropriate and to accomplish what purpose. So asking the right question as we go through this is really important. And I think one of the debates that's going on right now is like all or nothing. Totally virtual schools versus a blended. We're much more on the side of supplementing rather than supplanting. We believe that there has to be something in between, and so we see that. Another area that is very relevant to teachers is the whole issue of equity. On the one hand we see technology as a huge, positive tool for leveling the playing field. But if you're depending on students in their homes to have a level playing field, it will never happen. So how do we provide through education

a place where all students really do have the same shot. So that I'm not on a dialup and you're on broadband. It's such an unfair disadvantage to a student. So when people say what would schools look like in 20 years? I don't know. But it's hard for me to imagine that there won't always be a place in the neighborhood where all of us have the same tools as a student, the same opportunity to pursue a dream or the same access. On the EduStar I think one of the challenges is the incredible push for somebody to own that. Because it's a very powerful thing if you owned EduStar, that you were the one who decided who has a good idea and a bad idea. And it's going to be hard to resist that.

Another challenge that I see. And I mean teachers are so excited about use of technology. Your example at the beginning about the Apple computers, I can't tell you as computers went into schools how many schools you can walk into and see a storage room full of computers that were never set up. Because in the system someone figured out how to find the capital outlay money to buy them. But in that system no one ever said, gosh, do we have to train anyone on how to use this in the classroom? I was just in an elementary school that has a smart board in every classroom. Now if they brought those into my new classroom, where well I learn how to use that effectively as a tool to teach children? I don't learn that by osmosis. And when they unpacked the box it didn't come to me. And in my system I'm employed by a district for certain number of days, like 185, and 180 of those I'm in meetings all day long. I'm teaching. So when is it that I learn this new technology. And I don't want all of us who happen to start out as brunettes and become gray hairs to have to leave

because we weren't there at the beginning. I think we have to think about building into the system the time for training not on your own time, not evenings and weekends, but part of my job to know how to use this. I'm going to stop there. I'll just leave that there.

MR. GREENSTONE: Okay. Thank you.

Karen Cator is the director of the office of educational technology for the Department of Education. She previously worked at Apple. You can direct all of your compliments and complaints about Apple products to her afterwards. She's going to stand on the side.

Karen, I wonder if you can talk a little bit about the federal role in all of this.

MS. CATOR: Sure. And I just had one other piece to my background and I also spent 17 years in public education. A lot of times people skip that part. So that's actually pretty important, I think, in terms of the perspective of seeing how this actually can fully impact the opportunity to learn. Thank you to Ronnie and Ben for sticking with this. They've persevered on this topic for quite a while, really focusing on what are the barriers and comparing it to other marketplaces and then trying to come up with one accelerant that I think is actually really interesting. The other thing I really thank you for is articulating right at the beginning of the paper. And I want to restate it because it's an important notion and it gets to Genesis point about asking the right question. A lot of times people say things like how do we know technology works, right? Should we use technology in education? Or how much screen time is the right

amount of screen time? And the answers to these questions is that it depends. It depends on what's on the screen, what's going on now what's around, what's the interaction, what's the point, is it for learning, is it for entertainment? Is a good have a quiet dinner where children are doing something else? I mean there's a whole bunch of reasons. And so what they did is laser focused on instructional software or instructional tools. The second thing I want to say is that there are a few things that are happening in the marketplace that make this very different than the 1980s version of computers in the closet, not the least of which is a check minutes advancement in technology. So someone did recently say to me like our teachers don't know how to use iPads. And I said, really? Really. Like really, though not a turn it on? And they were like, yeah. So we still have these sort of miss that have hung with us. So if we think about any kind of Smartphone or tablet technology lots of the new emerging technologies are very easy to use and they don't require professional development to know how to use them in terms of what to point and click on, what to touch, how to turn it on. However, Dennis's point is incredibly important. They require a lot of rethinking about the kinds of things that students and teachers can do in the learning context when everybody is powered up with the Internet, with primary source documents, with explanations of complex concepts either from the teachers that J has identified from Cannes Academy, from multiple other entities. There powered up with animations simulations and models of complex scientific concepts. There powered up by accessing experts that can help them understand the bugs in their backyard or how hurricanes happen or whenever it

might be that they're interested in. So this whole opportunity to learn right now is incredibly powerful if we figure out how to harness technology and think about it within our current system of public education. Absolutely important point about equity. We can't just relegate these two, I don't know, we can do this. We don't have the equity, the digital, whenever. Public education is absolutely the place that we need to make sure that everybody is in fact fully connected and powered up so that they can participate in this opportunity to learn. One of the emerging gaps is the gap between people who use their technology for personal empowerment to apply for a job, to find information, to get health information or services and the like. To learn. And other people who use it primarily for personal and entertainment and maybe light communication. Education is the place where we can fully teach and work with everybody: teachers, students, parents, to understand how to leverage these powerful tools for teaching and learning. So in terms of EduStar, what I really actually like about it is is number one, the ways it focused instructional technologies. The second, that it pushes on something that's incredibly important that we don't have an education right now. And that this notion of smart demand. We don't have a whole population of people, professional educators, who have been actually taught how to or had to think about the kinds of materials they use because in general adopted materials were shifted to the classroom and that's what they started with. So we are at a point now where we can benefit from a much more sort of ratcheted up demand side and the kinds of information that they're proposing would be in a system like EduStar would be incredibly helpful. So you can cry out about source ratings

and reviews. You can do kind of expert puraction. And then you can do these kind of test bed, test kitchen types of environments where you can fully test things. There are lots of thorny bits around the edges. It's not as simple as all that, right. There's context. There is implementation. There is lots of other things, not the least of which is what you pointed out in terms of LearnZillion is that none of these tools are static. We're used to having things that you can hold still long enough to fully test them. And that's not the situation with online emerging digital technologies and environments. If we can create a system where the data produced is also feeding back to create smart supply, right, to feedback to the designer and the developers they'd have the best information about what's happening in the classroom by, as you said, observing, looking at the data, seeing what's happening, talking to users, seeing if they actually needed help navigating. Then that's going to create a much more powerful and intelligent supply. So all of this is really important. And the bottom line is it's important because previous panels pointed out we need to fully and vastly improve the opportunity to learn for every American from adults that are undereducated and need new jobs, to young children who are not having the same language exposure as their neighbors, perhaps.

MR. GREENSTONE: Thank you very much, Karen.

Our next panelist is Bill Tucker. He's a deputy director of policy development for U.S. Policy and Advocacy at the Bill and Melinda Gates Foundation. We're fortunate to have him here with us. And I thought that I would ask you, what promising technologies do you see out there and how might they

interact with EduStar. We're counting on you to be at the absolute cutting edge here.

MR. TUCKER: First let me say thank you for the paper because this is an incredibly important subject because no matter what the cool new technologies or ideas that are out there, if we don't have a way to make sure that they're actually helping students and helping teachers and they don't actually make it into not just one but many, many, many classrooms, then it doesn't matter. So finding a way to help break that sort of failure that you talked about is really critical.

I think there are a couple different kinds. Clearly there's a lot of interest in intelligent tutors that can interact with students and help provide feedback. And also I think the most powerful ones are going to work really closely with teachers, not replace teachers. But I think as Dennis says, is really help teachers. Help them with access to data. Help them use information and help them make better decisions. And that's what we see in other professions, that tools don't -- the autopilot does it replace the pilot. The autopilot helps the pilot with decisions and takes some of the burden off the pilot. And I think those things will be very powerful. I'm really excited about a lot of innovations that LearnZillion and others are doing around video and being able to actually see these types of practice. So both on the student side, wow. I can actually review and learn this lesson in a different way, maybe see this experience in a different way. But it's interesting. I had the opportunity to learn more about what Eric was doing I think a year and a half or two years ago, and I talked with one of your

lead teachers who was one of your best teachers who I think was trying this out. And she had this whole other perspective. She said, well first of all doing these types of videos helps her really think about her practice and how to really condense it down. So it improved her practice. But what I thought was even neater because teaching is so difficult. I don't expect that everyone is making videos on all their massive amount of spare time. But what was really neat is she talked about providing director's cuts. So it's one thing to – it's very difficult to get feedback. So to be able to watch someone who's just great at their craft and then hear them talk about what they're doing and why they're doing it is a really neat capability and something that has a lot of promise. So I think that has a lot of promise for helping with instruction. The final one that I'll mention is something that I think is really directly related to what you're doing in trying to solve a similar problem. And this is something that the Gates Foundation is invested in. And it's starting to roll out in several states and districts still pretty early. And it's one of those things that you don't see because it's sort of the underground. It's basically the plumbing to put all this together. Because a lot of what they're talking about is how do you -- so part of the promise here is that in these tools that the rapid testing -- you have a lot of data, and you can use that data to help make better decisions or help really learn things. Not just this binary all or nothing, it was effective or not, but to this depends. It was helpful for these students who started here or in this context so that again it's not just that judgment that you were talking about, Eric. But we get information that helps us understand which students and which cases. Oh, and how can this get better or

how can this be complementary to something else that we're doing. So one of the things that we're working on is called the Shared Learning Initiative. And this is a way to sort of take all of these bits of information that are sort of siloed. So maybe if you're a teacher you've got this one instructional program for this set of students for this piece, and you've got this for this piece, and all of that lives in separate places. So you never, ever see all of those things together in one place. It's like if your doctor kind of had x-rays over here and blood tests over here and you couldn't quite put them together in the right way to kind of get the whole picture of a patient. That's kind of the way we are right now. And to do that is incredibly expensive. And so that leads to a little bit of the problems that you talk about in your paper where, let's not worry about trying to get the best stuff. Let's just get the stuff that all kind of fits together and hooks in with our current plumbing data system. So that's one of the kind of geeky things. But I think it has a lot of potential to really open up better avenues for educators and districts to make better decisions and to help get evidence in a way. And in some ways that type of tool would make what they're trying to do a lot easier.

MR. GREENSTONE: Thank you.

Ronnie.

MR. GREENSTONE: I think you're the designated responder here.

SPEAKER: First of all, thanks to the Hamilton Project for you to get us such great panelists. I mean this is fantastic. There are so many good points here that we can bring in our paper. I'm not going to spend time

addressing all of them, but afterwards I'd like to follow-up with each of you because I think it's all going to make this proposal better and stronger. Just one note. I mean for the younger folks in the audience, maybe 30 years from now you'll probably be on a panel like this and somebody will ask you, what was life like before the App Store. And they'll sort of be shocked when they ask you the question. Not because you're old but just because they can't imagine that life existed before the App Store.

What you're seeing now is so incredible, right. And what made that market. Where did it come from? Where did all these entrepreneurs and companies come from? What it is, is transparency about what you're getting and lower barriers to entry. That's why the platform is out there. That's why you can download things on your tablet or your Smartphone. What we want to do with this proposal is take all the entrepreneurial energy and innovation, not just in the U.S. but around the world and use it to give teachers better tools in the classroom. And that's what this proposal about is the very essence. It's Consumer Reports for educational technology harnessing the entrepreneurial energy and innovation energy around the world. Develop better tools for teachers to complement the work they're doing in the classroom. So I think the panelists got it all right in terms of what we're trying to do. A few points I think that we're really thinking about hard. First Dennis raised the issue about power. Who controls EduStar. And the person who controls that platform will have enormous power. We need to be really careful. So our proposal now is to set this up as a 501(3)(c). We're going to be very careful about conflicts of interest.

We're not going to allow anyone at EduStar to have board seats or make investments in educational technology companies. That's at a very basic level. Consumer Reports has a great outline of these kind of conflict of interest rules. They don't take free samples for example. We're going to have those kind of strict rules in place to make sure that we're not biasing the test results and the evaluation results. Because if you do that, then the whole system starts to fall apart. So that's something we're thinking a lot about. The second thing that Karen brought up and Dennis was about equity. Equity, that's a really important issue when you're thinking about technology in the classroom. The issues around the digital divide. One thing that we are really happy with with EduStar is that the ability to pick up what we call heterogeneous treatments effects. A lot of people worry that a technology might work for one group of kids but not another. The wonderful thing about these kind of platforms is you can actually pick that up and figure out what works for each kid. Personalized learning. It's now against the personalized medicine revolution in healthcare. So really some of these equity issues we hope EduStar can actually contribute to mitigating those. And that's one of the things I think will be a big priority for the platform.

Just two other points responding to these. The lean startup world, as professor at a business school this is one of the most exciting trends right now. People thinking about how did you pick integration. Right now you build a company. You set up a product. You go talk to your customers. You figure out what works, and you go back to the drawing board. Wouldn't it be a shame if you came to this EduStar platform, you got a bad rating, and you couldn't come back

and do it again. So we're also going to have a system for prototyping. So our educational entrepreneurs, whether they be teachers or someone else, will come and try a version of the program, see how it does, go back and approve it, and then get back up on the platform a month later. So we hope that would facilitate the prototyping and the lean startup approach.

The last thing, which I really liked what you said about a couple panelists, including Bill, is sort of translating data into action. And you saw on the first two panels how many smart people we have in academia, the school level, the government, generating data about education. The question is how do you translate that data into action, into feasible action. And that's where we think EduStar could have an important role because it's a reporting layer, making sure that the data just doesn't stay on our computers, right, or on our hard drives, but actually gets out to people so they can make decisions, parents and teachers. So that's one of the things I think we're also trying to accomplish. There were a lot of other good points, but I'd rather hear from the panelists and the Q&A and then go on about it. But I really appreciate all the comments.

SPEAKER: One thing I wanted to add to it, one of the most positive things about when I read your paper and what you're doing is that for the practitioner you are meeting an extremely important need. And that is that right now there are so many innovators and ideas out there that they're everywhere. And there's got to be a way to sort through that. So I think that part of the EduStar concept is so, so important. Is like right now in most places you go people talk about the Common Core Standards, and those are done. They've

been adopted by 46 states. Now is the implementation. And it's a huge, important step. And what will we be doing differently in classrooms? Almost everything you see now says, aligned with the Common Core Standards. I don't believe that. But they say it because that's a good marketing line to go with your new software or curriculum. Part of the concept of EduStar that is so exciting is that somebody will be doing that, and they'll be able to tell you whether they really are aligned with the Common Core Standards or whether that's just a passing line.

SPEAKER: I think one thing to think about is to think about EduStar as part of the ecosystem of tools that help do exactly what Dennis says because we just slap that label on. And it was the same old stuff, new label, right. That's not what we want. And it might take some of the burden off. So this is one particular set of information, maybe quantitative information that comes from a set of tests. We also want information from the people who are actually using these tools. So teacher feedback, student feedback, that's going to be a really important component. It's probably going to be expert reviews that will be another important component. So I think one of the things that's really helpful here is to think about this in terms of, and we use this term all throughout education and it's important, is multiple measures so that we begin to get the full picture of a lot of these tools. The information about how it actually helps students achieve is absolutely critical. We can't do without that. But these other pieces I think will be helpful and I think probably might get to some of your concern, Eric, about it's not just that information. It's a little bit about, wow, how

did these things improve? How did they get better? How did they fit into the classroom? And I think I can give a more full picture.

MS. CATOR: One quick thing about data. And so in the previous panel I think Roland said we have so much data in education. And actually we don't have very much data in education. A lot of it's a manual. A lot of it's paper based. It's hard to get what happens in a classroom and understand much more. But what we will have as we move to a digital environment, we're going to have a deluge of big data. And that's going to be the rocket fuel of what can actually power personalized learning because we'll understand much more about, as you said, which students in which contexts and with which situations, lots more of sort of disaggregated -- the ability to disaggregate the data and understand much more about specifics. So I think that's definitely one of the important things. And the data will also help us understand more about how people learn in general. So will be able to understand about how do people actually tended to learn fractions. And people able to test some of the theories in a much more rapid format than our previous sort of manual situation.

SPEAKER: there seems to be some agreement that there's at least a kernel of a good idea here. I wondered if you could talk a little bit -- good ideas don't usually cost \$5 million or less. So how exactly would this work?

SPEAKER: When asked to think about a budget for a hypothetical organization we did what all good architects do, we started to put a blueprint together and think about what it would look like. So we think about first the type of staff you would need for such an operation and then where the money

would come from. So we've outlined this in the paper. But for those who are interested we're thinking about five staff members to start this: an executive director. A director of research who would work to collect the data that Karen is talking about. And also a director of outreach and interface with the schools because what we really want to get here is to not lose the voice of the teachers, both in the creation of the platform, the user ratings that Bill was talking about, and also great ideas about how to teach difficult concepts. So we're hoping through all stages that that director would interact with the school systems and have to aggregate that smart demand that Karen was talking about. You'll also need a person to work with the entrepreneurs and innovators. We think they're going to find this proposition very attractive. There are startup software companies all the country who are looking for markets to sell in. They might have great ideas aligned with the common core. But they don't have the sales force to go and sale to a bunch of different schools. Certainly not the 100,000 schools across the country, 15,000 school districts, right. So we think we also have someone to engage with them. Of course we'll need the administrative layer and someone to do the regulatory work. One issue that hasn't been discussed on the panel which I think we should bring up is there's lots of regulatory issues that need to be worked out. Ben and I on paper have tried to think about those, around privacy and parental permission forms. Schools like the school, the one in New York has sorted these things out in the past and they are ways and models that we can try to use. So these are some of the staff members that we're going to have. Now the 5 million, where would it come from.

And it goes back to Dennis's point about who funds you might have an influence on the results. We don't want that to happen. So we're looking for a few sources. One is foundations that already have an expressed interest in education. There are several represented here. And also not to look too directly in your direction there, Bill. And also the department of education, i3 Grants. Sorry Karen to look directly at you. So there are lots of different funding sources.

SPEAKER: But they're doing great work and funding great projects. That's how you get started on the scale of a \$5 million project. Down the road we want to build something that sustainable. That's what most social entrepreneurs are talking about these days. So we think about user fees that would be scaled given the size of the company. So eventually we hope will be sustainable without foundation or government funding. So that's how we're thinking of setting it up with the original 5 million of seed capital.

SPEAKER: I think the concept is really to leverage all the great ideas that are there. The reason this is relatively inexpensive, and maybe our estimate is incorrect, but to some degree. But it's certainly going to be relatively inexpensive because it's really about setting up a system of rules. The real innovation isn't EduStar. It's not about knowing what the right answer is. It's about creating a system where the right answers can emerge, right. It's about creating a system where great teacher with great ideas or other entrepreneurs, like LearnZillion can come together and say, okay, let's jump on this platform and find out what works and communicate that to the public at large. And when you look at healthy innovation systems, it's not about knowing at the center with the

right answers are. It's about creating a system which draws on the immense creativity, the different expertise, the niche expertise and perspectives. Some of which is going to be right. Some of which is going to be wrong. All out there. We have so much about this country. We have so much on our school systems already. How do we engage that and let it come to everyone's benefit. And that's why I think what were doing is cheap, but hopefully leverages so much of what's there already. Thank you.

Thank you.

SPEAKER: So Eric, would LearnZillion be willing to pay? I don't know, what's the fee to get evaluated?

MR. WESTENDORF: One dollar.

SPEAKER: One dollar.

SPEAKER: What's interesting I think in tandem with there being something like EduStar available is also -- just one of the reasons this is a problem is also the way the industry is structured right now where you have traditionally a situation where an entrepreneur comes up with a product and then realizes that for that product to be profitable they need to find that one decision maker who is going to sign that check and pay for it for an entire district. And this is why it's very hard for startups to get into this space because it requires this unbelievable sales force that is not only like widely dispersed but happens to have all the political connections. So you know so-and-so's uncle knows this person, so that now you can have that meeting and convince them that they need LearnZillion for their whole district, right. And so that's problematic because

it leads to all sorts of distortions around what works and what doesn't. It also leads to a situation where entrepreneurs are not spending their time focused on their end users. Right now all the incentive is around, how do I iterate around that decision maker who is going to sign the check. Instead of how do I iterate around the teacher who's going to use this as a tool, the parent who's going to use this as a tool so all my energy is not spent jumping through the district procurement hoops but actually spent trying to win over the hearts and minds of the users who should feel like this is a beautiful tool that just makes life easier for them and makes them more effective. And so it's also interesting that you're starting to see LearnZillion's one example of this where the freemium is starting to be used. So LearnZillion is free. And we do that on purpose because now we have a few district contracts that allow us to get great feedback from what districts want. But really we want as many teachers and parents using LearnZillion for free so that we can start to collect that data behind the scenes. And on our own since there isn't a EduStar. But even on our own start to use Google analytics, other tools to just find out what do folks actually want? What do they spend their time doing so that we can double down on those things and give them what they want. And I think that's new. It's not proven yet, and there's definitely a lot of skeptics around this idea of freemium where you start with something free, try to solve a problem for a lot of folks and then figure out how to layer on premium services. It's a new model. But I think it's very exciting in this space because I think to the degree -- this goes back to the last panel where the idea of respect for teachers. I think often also teachers are left out of these

decisions, and they're the ones who are actually using these tools. And when they're not the ones making the decision about which tools actually help them, it's problematic. And so there's an exciting opportunity to just go straight to teachers, give them something powerful, and then work on making it as useful for them as possible and then go up the district leader. Say, you know what, 20, 30 percent of teachers love this. Here's what we can do to sort of roll this up in a really compelling way for you so that it's not the enterprise sale. It's the bottom-up approach. That's working in collaboration with EduStar's type platform I think is really exciting in terms of a trend towards creating stuff that's really going to be helpful for teachers, parents, and students.

MS. CATOR: And this is a big yes, and. So it's almost like if we could do all of these things, the other thing that I would layer on that I just wanted to mention is this notion of sort of procurement reform. I know that sounds really exciting to everybody in this room. But we've been thinking a lot about all of the different kinds of things that will actually help people be smarter about what they're purchasing and then also help do things like aggregated purchasing. So if somebody finds something, they found that it's successful, how do we actually leverage the distribution power of the Internet, for example, to share that out broadly, widely, so other people can jump on. So aggregated purchasing is one. Shared RFPs. You know different states and districts spend a lot of time fine-tuning and honing RFPs. And we've been looking at this model of creating almost like an online wiki for RFPs so people can be making them better and better. And that kind of brings to a third point which is something called

advanced market commitments or advanced market requirements. If Terry Grier and a dozen other superintendents or if you got 100 teachers together to design what they would like. Like if somebody could build this thing for us, this is what would really like and could really start to get better and better at articulating needs and articulating what they would like. That would actually provide that to these entrepreneurs who are all over the place looking for great ideas. I've talked to folks multiple times a week that have ideas or are looking for ideas or whatever. People who want to do, to build something. So if this kind of information can get provided back, again, the whole ecosystem of supply and smart demand is going to be improved.

SPEAKER: So what are the real advantages? I love what you said about using the practitioners. That they're the ones. All of you have said that, and I was glad I didn't have to say that as a representative of over 3 million people who work there. What's really exciting to me is the ability to --when you say you don't have to find the person in the district is that when you look at every forum in this country, whether it be changes in technology and how we use that, the description I would use is we have all of these campfires of excellence all across the country. And by definition a campfire is not supposed to spread. It stays right here. And what we need is a brush fire. And what you're describing is a system that connects people who have similar ideas or similar challenges in the district. Maybe it's the districts that all of a sudden get a real influx of English language learners. And there may be in only two of their schools in the district. They've never had this before. What do we do? Well, it's a way of connecting

good practice with effective tools, whether it be curriculum or practice, professional practice to people who have like problems or who are like minded. And I think that's a huge possibility. What we always talk about, how do we gear it up? How do we move it out from these little places? And so I think there's a real possibility in creating the circumstance where you can, quote, go around those boundaries that currently stop us.

MR. GREENSTONE: Bill, I'm going to give you a chance to be the last person on the panel before we turn to the audience if you have something you want to add.

MR. TUCKER: Sure. There's so much to say here. I do want to focus just a little bit before we just are overly optimistic on one of the pieces that I thought you were really good about in your paper where you talked about the types of things that this would be good for right now. And you are really clear in your paper and I think in your presentation that this type of tool, at least right now, is good for kind of the point things that are sort of almost like the App. It would actually be great for these sort of App type of situation. I have a three year old and a five year old so I'm in your boat. But in other words the sort of single implementation or the piece, the real micro pieces. And you talked about sort of the micro skills or the small pieces. So I think that could add a lot of value. It doesn't, though. It wouldn't, though. There are all sorts of products. Like as we think more broadly and all sorts interventions that are more complex than that. And so I think this is a bigger problem. This is a piece of it. And this is a bigger problem that we need a lot of different folks working on and probably a lot of

different ways to slice it. And so while I hate to go last and throw cold water. But I just want us to be realistic about the challenge here because they've unearthed a huge challenge. And so don't walk out and think, great, those guys got (inaudible). This is kind of how do we make sure that the innovation actually moves forward and does a good is something we all should wrestle with for a while.

MR. GREENSTONE: Thank you. So we have time for couple questions from the floor. I think over here there's a particularly excited person.

SPEAKER: My name is (inaudible). Basically my job is to help companies that are somewhere between zero and 30 million position themselves to raise additional capital. And one of the things that I do in the course of that is look at the program and it task. And I would have to say that I don't think the problem that we face is fundamentally one of a lack of innovators or for that matter a lack of programs that have been proven to be effective in clinical trials or otherwise. The problem that I see is that for all intents and purposes program efficacy is a very small component of school districts purchasing decisions. One of the other things I do to help my clients is I look at, literally, I have a staff that literally reports to me on every single school improvement related RFP that comes out from the local education agencies, the state education agencies, and the federal government. And I look at those RFPs. And program advocacy is a relatively low component of the decision across the board. And I think if you do not have a demand that program advocacy be a component, a serious sort of entry component of the procurement decision-making process, all of the high-

quality evaluations in the world aren't going to make a whole lot of impact. And I think that's something you really have to address as a much broader question.

MR. GREENSTONE: I think that's a great question? Is there someone on the panel? Karen, it looks like you want to take it on.

MS. CATOR: So first of all, yes. We need to raise the bar and begin to ask for more information about the kinds of things we're purchasing. So absolutely. Right on. The problem that we have is it's very difficult to get this information, especially about learning technologies because they're rapidly changing. So our traditional clinical trials take a very long time to do. And by the time they're done, and we've done a lot of these. We paid for a lot of these through federal government. By the time they're done the product has likely changed, different, or gone, right? So this is an attempt to see if we can get some more -- economist. Some more -- better information so that we in fact can begin to ask for more evidence. I think all of us would love more evidence about the kinds of things that work, don't work, are promising, are promising in certain situations in certain contexts for specific students. That is absolutely an aspirational goal and we should build that. And we need more information. As everyone said, this is one element in a bigger ecosystem of trying to get better information.

MR. GREENSTONE: Just before I let them answer, can you just say that again? You wanted to hear from economists?

MS. CATOR: I do. I've come to respect my friends the economists.

SPEAKER: It's a rare day.

SPEAKER: It's a rare day. We should probably just go home and take a nap and celebrate.

SPEAKER: At a cocktail party I introduce myself as an economist people always turn to my wife and say, and what do you do? So in addition to what Karen said, put yourself in the buyer's shoes. If you don't really know what works, how can efficacy become a meaningful part of your -- I mean if you want me to choose between seven choices, I don't know which one is better in some level. I will choose on some other basis. And that's completely reasonable. No metaphor is perfect. But take our health sector for example. Here we have hospitals and insurance companies. Very different governing systems, procurement systems, very notoriously balkanized. We have doctors. We think of doctors as teachers with very different ideas innately about how to treat their patients, and there's lots of the debates, okay. Then you've that clinical trials which for a pharmaceutical company are absurdly expensive. And yet we see 100 times the R&D rate among pharmaceutical companies as we see in K-12 education. There entering because if they do prove it works, if they prove their medicine is better then guess what. Even though it's balkanized. Even though doctors don't normally agree, there is a demand, a smart demand is created and people actually will adopt it. So I'd take your plan. I think there's challenges for the buyer that are natural if they don't know what works. There are other considerations of course. But I think if we provide information we will only move in the right direction, whether we get to the brush fire or not or it runs up against

other kinds of fire retardants, as it were, will remain to be seen and we may have to come over those barriers as well. But I think without the information I'm not sure how we ever got to a point where efficacy is a meaningful or useful part of the decision-making process. I look forward. Thank you.

MR. GREENSTONE: Over here. The woman in red.

MS. KLINE: I'm Andria Kline. I'm a development consultant working with small businesses and small nonprofits. Two questions. One with regard to the 501(c)(3) itself. Do you have proposed bylaws with regard to the tenure of your board as well as your advisory Council, especially with regard to if your membership can't do activities, investments, and anything that's associated with the products. It's going to prevent them to do whatever it is that they do. And secondly, what are the conversations that you're having with let's say the trademark office, the small business administration, associations, and even let's say using Guide Star as a tool in increasing your participation of potential entrepreneurs as well as Ossie.

SPEAKER: These are great questions. So first of all, this is a proposal to launch the organization. So a lot of the questions you're talking about are things that are to be done rather than have been done. So I'll start with the second point. Whether it's USPTO or the small business administration, they just seem like national partners. Both to link small businesses and entrepreneurs who are working. Maybe got an SBL loan. Are working on these software to the EduStar platform or in the patent office, right. There's a lot of issues around patents and software that we need to learn about as we go through this. And I

think that's what you're alluding to, right. So these are all things that are on the mind, to the organization it's kind of get going. I mean these are conversations that will be had. So I can't say that we have a plan to deal with all of that yet before more information. The first thing with tenure for the board, I think it's an important concern to have the right kinds of bylaws just to make sure there's not basic conflicts of interest. I mean that's the issue that Dennis was raising about if the organization from the outset doesn't have credibility and people believe that the results are cooked, there's no way that we can build what works into this educational software. So that's our main concern with how we're are thinking about that. In terms of the rules to do that, there's a lot of different ways you can accomplish that. Right now we're just considering a menu of options, but we haven't settled on one particular kind of guidelines for the board. So that's the answer at this point.

MR. GREENSTONE: Can I just jump in as well? One feature of their proposal that I've been incredibly impressed by is the safeguards they're trying to put up against influence from the companies who would like to and principally be evaluated. The world is littered with examples of these kind of third-party certification organizations that get corrupted by the conflict of interest. And I think it's admirable how serious they've been about that.

Okay. I think there's another question here.

MR. WISE: Bob Wise with the alliance Bob Wise with the alliance for excellent education. About twice a week I get this inquiry where is there consumer reports for the technology that we know we're going to have to buy in

the next couple of years. And so thank you for this proposal and moving it forward.

So I have a question on what seems to me to be the double fire hose impact. Your chart showed a two ended process. Won't there be a fire hose at both ends? One is all the technology even is narrowly focused as Karen rightly points out that you seek to make it, that all the technology that's there ready to be evaluated. And then the other fire hose is all the folks that are seeking immediate reaction as 15,000 superintendents have to make, and teachers and instructors have to make very important decisions over the next year and a half to two years about how to implement the common core. So the fire hose is on each end. If you were in private sector that's great news. Businesses build of demand immediately.

SPEAKER: Were there excess demand for the platform. I'll count that as an early sign of success and a challenge as opposed to a total failure. I think it's a little hard to know how large scale the test bed needs to be. You have large school districts in this country. The very large ones have lots of students. It doesn't take too many large school districts to be able to have a sufficiently sized test bed to do this rapidly. The worse case you're suggesting there might be a queue that gets developed, and we'd have to work to overcome that. Again, hopefully we will find school systems that are willing to join. One avenue is Digital Promise's league of innovative schools which is already at a number of large school districts including Houston and Terry Grier's school district. This will be different. But perhaps those schools which have already signaled interest in

innovation generally and digital technologies would be willing, for example, to become part of the test bed. And that's a good place to start to look. So that's a problem we would hope it will happen, and hopefully we can overcome. But you're right, it will require some scale if we get a lot of excitement for the platform.

MR. GREENSTONE: Okay. Could everyone join me in thanking our excellent authors and are excellent panelists.

(Applause)

MR. RUBIN: As Michael just said: we're going to close today's forum on a truly special note with U.S. Secretary of Education Arne Duncan. Under Secretary Duncan's leadership, the Department of Education has worked to increase college graduation rates and expect by the end of this decade to have the highest rate through our country, and in that context of secured increases of Pell Grants and launched an income based student loan repayment program.

As you well know, Secretary Duncan has put in place and moved forward a reform effort, Race to the Top, and also investing in education. Secretary Duncan has also led the department in investing substantially in low performance schools throughout the country, a subject that we have discussed today.

Secretary Duncan has been immersed in public education throughout his career. He was the chief executive officer of the Chicago Public School system, and with enormous success, united the education community,

not always an easy thing, behind the school reform in Chicago.

Following his remarks, Secretary Duncan will take questions from the floor. And with that, it is my enormous pleasure to welcome to the podium the United States Secretary of the – I almost said Secretary of the Treasury – the United States Secretary of Education Arne Duncan.

(Applause)

SECRETARY DUNCAN: Thank you so much for that kind introduction. You definitely don't want me at the Treasury. I'm quite happy where I am. I'm going to keep my remarks pretty brief. I'd like to have a conversation with you. I'm just thrilled that this audience and this community is focused on education.

And obviously we think there's nothing more important to the country than being engaged in lots of challenges, lots of hard work ahead of us. But I really do believe collectively we have a chance to break through in a fundamental way. So I thought I'd give you a little snapshot of where I think we are, where we're trying to go, and what the next steps are.

A couple of numbers haunt me, keep me up every single night. A 25 percent drop-out rate in this country. That's a million of our kids leaving our schools each year. No good jobs out there for them. In many of our African and Latino communities, that's 40, 50, 60 percent. And we're devastating not just children and families, but entire communities unless we fundamentally challenge that.

Many of you guys know these stats. We used to lead the world in

college graduation rates. Today we're 14th. Thirteen other countries have passed us by and then we wonder why we're struggling economically. And then I continue to think about what I call the skills gap. In a time of high unemployment rates, we have as many as 2 million high weight, high skilled jobs that we can't fill. I think we in education have to look at ourselves in the mirror and say: what are we doing to close that gap? So those are the challenges. What are the implications?

Your reports have been so important on this, the economic imperative to get better. People have talked about the drop-out rate is having the affect of a permanent recession on our economy. You guys know that employment rates for college graduates versus high school graduates versus high school drop-outs. The dividing line in our country is absolutely staggering there.

So economic imperative, issue of national security, which I think more and more people are becoming aware of. And Condoleezza Rice has been so passionate and clear on this that it's real staggering. Seventy-five percent of our nation's young people can't qualify for the military service. They're academically unprepared, physically unfit or have a criminal record. That's simply not good enough.

And I've said repeatedly, I was in Topeka, Kansas as part of our two week back to school bus tour with Dennis Van Roekel, went to Topeka, Kansas, site of Brown versus Board. And I said there and I've said for years that I think this is the civil rights issue of our generation. And I'm just convinced that

the buy-in line in our country stays much more not race, not class, but around educational opportunity. And if we're serious about closing achievement gaps, we have to close opportunity gaps. And I don't think we have had anything near the sense of urgency and commitment to closing those opportunity gaps that we need to as a country. And at the site of Brown versus Board, obviously more than five decades ago, to look at the staggering inequities, inequalities and opportunities today by any measure, we have to get better faster.

So all of those things compel us to act. The president has provided just extraordinary leadership on this. He understands what's at stake. Congress, despite the current dysfunction in the past, have been supportive. And we all have to work on this together, put politics and ideology to the side. Together we have to educate our way to a better economy and get our country in a much different place.

How do we get there? I always talk about a cradle to career agenda. We have to start with early childhood education. I think I can make a pretty compelling case. That's the best investment we can make. If we can get our babies, our three and four year olds into kindergarten at five, ready to read, ready to succeed, we start to close those achievement gaps, we close the opportunity gap. If we don't do that, we are constantly playing catch-up. We play catch-up at every level of the education system, from primary to middle to high school. Many of our colleges today, 30, 40, 50 percent of young people are taking remedial classes in college. They're simply not ready. So an investment in early childhood education is so important.

I've been very public saying historically in many ways I think our Department of Education has been part of the problem. This is one of those areas where we simply didn't invest in early childhood education. With Congress' support over the past two years, over \$600 million are going to states that are willing to increase access, make sure it's high quality, and going to disadvantaged communities.

This is a long term play. We're not going to see the results today or tomorrow or next week or next year, but over the next 5, 10, 15 years, I think the implications there are huge.

On K to 12 reform; obviously that's the next step. Thanks to the Recovery Act, we were able to save about 400,000 jobs of teachers and educators. And while a country we lost about 300,000, I really do believe we stayed off an education catastrophe.

And it would have been just stunning to see what would have happened to class size, what would have happened to extra curriculums, what would have happened to more schools going to four day weeks rather than five day weeks, going the wrong direction, had we allowed this 400,000 teachers to leave our schools and go into the unemployment lines. So I thought it was a very important move at the time. Would love to have been able to do more, couldn't do more than that, but again, I think its stay it would have been an absolute disaster.

We've seen 46 states voluntarily raise standards, college and career rate standards that are internationally benchmarked. That was an absolute game changer. And I keep trying to get someone to challenge me on

this. I literally think this is the first time in our nation's history that a child in Mississippi and a child in Massachusetts is going to be held to the same yardstick.

And teaching to those higher standards is going to take a lot of effort. We've got to be much more thoughtful in professional development, getting parents to understand this, thinking about how students understand the work level that's going to be required there. There's a massive implementation and communications challenge that states are working through in a very significant way.

But we know over the past 5, 10 years, many states dummed down standards, went the opposite direction because it made politicians look good. So bad for children, bad for education, bad for the country, but politicians of both parties had some political benefit for saying the results were better. And to see states moving the opposite direction is a big, big, big deal. One quick example, Tennessee, and my numbers won't be exact, but in Tennessee, before they raised standards, they were saying I think it was like fourth grade math, that 91 percent of students were proficient. When they raised standards, it went from something like 91 percent to 38 percent. And achievement gaps, they were already large, doubled, achievement gaps doubled. But guess what. For the first time, they were telling the truth. They were setting an honest baseline and we can all work together from that point.

So implementation is the big, big challenge moving forward. But I couldn't be more proud of the leadership of political leaders, state

superintendents, folks across the country doing the right thing together in raising standards.

As mentioned when I was coming in, chronically low performance schools. Race to the Top has gotten all the press, that's fine; that was \$4 billion for the country. What folks haven't focused on I think enough is we also invested \$4 billion in the bottom 5 percent of schools, a massively disproportionate investment, not in the status quo, but in a very different division of reform.

We have 1,300 schools now across the country, elementary, middle, high school, urban, rural, suburban that are in the process of being turned around. It is very, very early in the first year or two, but in many of those schools we're seeing double digit gains in reading scores, double digit gains in math scores, graduate rates up significantly. The high school we were at talking to the principal in Topeka, in one year they've had a 90 percent reduction in violent incidents and discipline problems at the school. It's starting to be a climate which you can talk about AP calculus and physics and going on to college, a massive amount of change.

Folks at the local level, management, superintendents, union leaders are working and collaborating in really, really tough work with almost no drama. And the fact that people aren't yelling and screaming at each other, the press doesn't pay any attention. But I think this has been just an unbelievable profile in courage.

The NEA, under Dennis Van Roekel's leadership, is helping to turn around these schools. He and I visited a school in Prince Georges County

where they had moved out a significant portion of the staff, had brought in more social workers, more counselors.

At very public meeting like this, the head of the union, Lewis Robinson, stood up, said this is the hardest thing I've probably ever done in my career, but I had to do it, the kids deserve better. And we can go through other data. Because I talked to and I visited dozens of these schools around the country, to hear the students talking about what's different for them today is extraordinarily powerful. One young man recently told me he was a senior going on to graduate, said this has been fantastic, I wish you guys would have done it a lot sooner, I would have had a lot more of my friends with me instead of on the streets. And so we have to continue to push very, very hard in this area.

The final thing on the K to 12 side has been the waivers, the flexibility we're provided around No Child Left Behind. This has just been absolutely fascinating to me. It's been a joy to work on.

This was plan B. We wanted Congress to fix the law and fix it in a bipartisan way. The law has been broken in many different ways, but we can get into that in Q and A. And people might have differences of opinion, but I think the law was actually impeding progress and impeding innovation and stifling creativity.

We have approved waivers to 32, 33 states. We have another dozen that we're working through the process now. And to see these states just in so many ways showing great courage, moving away from just a focus on one test score, but looking at growth and gain, how much a student is improving, and

looking at a whole set of other metrics.

Are graduation rates going up? Are drop-out rates going down? Are more of our high school graduates actually are college and career ready, not having to take remedial classes? Are they actually going to college? Are they persevering? Some folks are arguing this is more complicated. It is absolutely more complex. But it's much more holistic, much more comprehensive. I always say if you have great third grade test scores but a 50 percent drop-out rate, you're not changing students' lives. Looking at long term outcomes I think is a huge step in the right direction.

What also came out through this process is, under No Child Left Behind, this gets a little technical because in many schools in size was pretty high, many children, poor children, minority children, children with special needs, English language learners literally weren't part of the accountability system, literally weren't – they were invisible under that.

And we have states like Wisconsin and North Carolina with 15,000, 20,000 additional children are now – the states are going to be held accountable for their results. That's a huge step in the right direction. So the benefits have been fantastic here.

Ultimately, we desperately hope Congress with reauthorize and reauthorize in a bipartisan way. And the President and I stand ready to spend as much time as we need to to help them get there. The best thing that could happen once we get to that point, again, whether it's now or next month or next year, whenever it might be, is that we don't design this law here in Washington,

we take the best ideas from the best states, and if you do that, you can have a pretty spectacular reauthorization. If we put our heads in the sand here in Washington, I think we'd do a disservice to the leadership that's going on around the country.

Finally, all of this is to what end? It's trying to increase access and completion rates in college. We've made a huge play around community colleges. We think they're this unrecognized gem along the education continuum. Put on unprecedented resources behind community colleges that are partnering directly with the private sector, where public/private partnerships and real training are leading to real jobs.

Some of my most inspiring visits around the country are the community colleges, and see 18 year olds and 38 year olds and 58 year olds retraining and retooling and remanaging jobs, and advance manufacturing, and health care and IT. It's amazing what community colleges are doing to drive economic revitalization, not just in their communities, but entire regions.

And so we want to continue to invest very, very heavily there, not just from our department, but in partnership with the Department of Labor, as well. One of the things I'm most proud of is with increase from about 6 million Pell recipients to 10 million Pell recipients over the past 2 years, that's more than a 50 percent increase, many of these young people are first generation college goers. A \$40 billion increase in Pell Grants over the next decade. We did that without going back to taxpayers for a nickel, simply stopped subsidizing banks. I hope I don't offend anybody here. Put all that money into young people, which I thought was

the right investment to make. That was wildly controversial here in Washington. We thought it made absolute common sense. We moved the ball down the field a heck of a long way through that effort.

And then finally in the higher side, we're promoting a big agenda around transparency. When costs are so high, everyone has to step up. Universities have to keep costs down; states have to continue to invest. Forty states cut funding to higher ed last year. That's not something that's good for us. We're trying to give young people and their families the ability to just basic information. What's a grant? What's a loan?

If I'm looking at these three different universities, what's the better financial package for us? There's been a tremendous opaqueness around that. If we can increase transparency, we think good actors will get more customers, more students going their way, bad actors where costs are too high, graduation rates are too low, we'll see less folks come their way, and hopefully some market pressure will come to bear there. So we have to continue to work extraordinarily hard. This is not simply about education. We are not going to have a strong country and a strong economy if we don't strengthen what we're doing at every level, early childhood, K to 12, higher ed. Those two things are inextricably linked.

As we move forward, we want to stay very, very focused on where we're going. Continue to focus on the early childhood investment; we're in that for the long haul. The K to 12 side, continue to drive reform. Think about how -- you're talking about technology, how can technology increase efficiency, better

outcomes, as well? Think about the next generation of teachers coming in.

And we've talked a lot about this respect initiative which I'm happy to get into with a million teachers retiring over the next 4 or 5 or 6 years. Our ability to attract and retain great talent now shapes public education for the next 30. There's a once in a generation opportunity.

And how we make a real profession or great talent wants to come, great talent wants to stay, gets recognized, gets compensated, gets rewarded, has the career ladders that are meaningful to them. A lot of work we can do together to make it a profession where we're not losing far too many of our great young talent and losing far too many folks at the front end that won't even think about coming into education.

So we're going to push very, very hard there.

And on the higher education side, we have to fundamentally break through on the cost issue. And with, again, 40 states cutting funding, more and more middle class families are thinking college isn't for them.

I told this story; I was in Iowa not too long ago at a forum like this. A young girl came up to me; she was a senior in high school. She said right then, she happened to have a twin brother, right then in her family at the dinnertime they're trying to decide which twin to send to college, she or her brother. That's just real. This is not a desperately poor area. No family should have to be in that situation.

So how do we get universities to keep tuition down? How do we get universities to build cultures not around just access, but completion? How do

we get 40 states to invest more in higher education, not less? I keep asking the question of governors if 80 percent of you cut funding to higher education, how many of you cut funding for prisons, for corrections? And the room always gets real quiet when I ask that question. So how do we collectively -- we want to invest in Pell Grants and other things, but we can't do it by ourselves. This idea of shared responsibility, how do we step up to the plate?

Ultimately, how do I want to be held accountable? The President has drawn a line in the sand. He said by 2020 we have to lead the world in college graduation rates. So that's the North Star. Are we graduating young people from high school college- and career-ready? And ultimately, if we had the best-educated workforce in the world, we're going to have a very strong country and very strong economy. If we continue to be 14th, 15th, 16th, we're going to continue to struggle for a long time. I think that's absolutely unacceptable to all of us.

But I'll stop there, take any questions you might have, and thank you so much for having me. (Applause)

You got a mic coming.

MS. SILBER: Diane Silber, clinical psychologist. I would like you to flesh out a little more how you're going to bring a new generation of teachers with more respect and a higher status in our society.

SECRETARY DUNCAN: Yes. So we're still working it through, and actually this is a conversation we're trying to help facilitate, but we really think teachers should be leading this. And we have held literally hundreds of

Town Hall meetings with teachers around the country, thousands of teachers, led by our teacher ambassador fellows. But what I fundamentally think is this entire pipeline is broken, so this is not an easy fix.

We don't have the right talent pool coming in. If you look at high-performing countries -- Finland, Singapore, others -- 100 percent of their teachers come from the top third or even the top 10 percent of their college graduates. We're all the way at the other end.

How we train teachers is woefully inadequate right now. Sixty-two percent of young teachers tell us that they're unprepared to enter the classroom. I always say if 62 percent of doctors said they were unprepared to practice medicine, we would have a revolution in this country. But the fact that it's teachers, somehow that's okay.

I've been very public saying we should pay teachers a lot more money. We need to have meaningful career ladders so that master teachers, mentor teachers, can stay in the profession for the long term. So this is, for me, what do we do differently from 18-year-olds all the way up to 58-, 65-year-olds?

Not an easy fix, but we have to challenge the status quo at every single level. We want to help facilitate this, but you have great teachers around the country who are starting to demand this. I think it's so important that we empower them and listen to them.

We're calling this the Respect Project. The President has asked \$5 billion from Congress to put behind this. We have lots of information on our website. This is still evolving as we think it through, but this is one where the

public, unions, management, parents, I think all of us have mutual self-interest in getting the next generation of great talent in and doing a much better job of retaining them.

SPEAKER: Mr. Secretary, the administration under your leadership, your commendable leadership, did a series of pioneering things during this first term, and you've referred to some of them: Race to the Top, investment in underperforming schools, student loan reforms, and the like. If there is a second term, can you give us a sense of --?

SECRETARY DUNCAN: When there is a second term.

(Laughter)

SPEAKER: When there's a second term, can you give us a sense of what the agenda might be in that second term in the same context of the types of pioneering steps you've so far taken?

SECRETARY DUNCAN: Yes. So we're still, obviously, fleshing that through, but I think the big thing I tried to allude to earlier is I really want us to stay focused. And for me this is not a time for us to make, you know, left turns. So I think continuing to invest in early childhood education is hugely important, thinking about how you drive reform on the K to 12 side, getting much better at getting graduate rates, reductions in dropout rates. We talked about the next generation of talent, thinking about how technology can play both there and in higher ed. And then ultimately, we have to crack the nut on the higher ed side of having many more not just disadvantaged young people, but middle class families think that college is for them and that it can't just go -- we have to

increase completion rates.

So how we get there, we need to think all that thing through. We had at the start of the administration, you know, \$100 billion in Recovery Act money. I would love to have \$100 billion again. That's probably not realistic. And so how we think about carrots in different ways, I'm a much bigger believer in carrots than sticks.

The waiver process has been fascinating to me that would provide this huge amount of flexibility and room to be creative. And we haven't done it perfectly and there's some lessons learned, but we did all that with no money, not a nickel out there. We provided a little bit more flexibility to states in how they use existing resources. But so how do we be creative with our rules, with our regulations? How do we become a much better partner to states and less top-down bureaucracy, much more, you know, focus on innovation and taking to scale best practices.

There are areas, the Investment Innovation Fund, the Promise Neighborhood stuff we haven't talked about. If we had more financial resources I would love to invest a lot more. There are so many good ideas out there that we haven't been able to get to. But I don't see us changing directions radically in any way whatsoever. How do we stay the course? How do we stay focused? And how do we continue to get results?

One quick on the turnaround stuff, turnaround schools and school improvement grants, I talked a little bit about the data. One thing I'm really proud of is we have 700,000 less kids today going to "dropout factories" than a couple

years ago. So that's a huge step in the right direction, but we still have so many kids going to dropout factories. So how do we get that number to zero as quick as we can? That's what I think we need to hold ourselves accountable for, how we implement it and how we're executing against it.

The last thing I'll say is that the common core implementation is a big, big, big deal. And raising standards is great, is the easy part. The hard part is getting everyone to work to those standards, how we all help real teachers in real classrooms with real students teach to these higher standards. It's going to take a lot of collective work.

MR. SHIEBLEY: Hi, Secretary Duncan. My name is Matthew Shiebley. I'm originally a Chicago Public School graduate, Whitney Young High School.

SECRETARY DUNCAN: Pretty good school.

MR. SHIEBLEY: Thank you. As you know, CPS has a pretty high dropout rate, almost 50 percent. Only 4 percent of people actually end up getting their bachelor's degree. And I wanted to know, we've been talking today about charter schools and failing schools, public schools, really good public schools, how would you recommend prioritizing limited funding? Do you support a school that's doing well, that's succeeding? How does that leave money for failing schools and then charter schools in this time of, you know, less financial resources?

SECRETARY DUNCAN: Yeah, there's so many debates in education that I just think, quite honestly, are false debates and sort of absolutely

miss the point. And I'll answer it in a second, but there's always this debate college versus careers. I think it's a crazy debate. We need so many more students prepared to go to college. We need so many more students prepared to go for careers. We're not doing a good enough job in either one of those, so it's not either/or, it's both/and. And, in fact, when you really look at it, the skill set needed for college and career is actually very similar, so we waste a lot of time there.

Charter schools, traditional schools, gifted schools, magnet schools, we just need more good public schools in this country. That's what we need. And I always say, you ask any seven-year-old do I go to charter school or a gifted or a traditional? They don't have any idea. Do I have a great teacher? Am I in a safe school? Does the principal know how I am? We need a lot more schools that look like that.

So high-performing charter schools, we need to replicate them, we need to help them grow, we need to learn from them. There's been so much tension between charters and districts; we've got to share better. One thing I tried to start to do at the end in Chicago, I think the charter school community has actually been much better at replicating success. We're trying to get districts to start to replicate success. So we starting replicating the high-performing district schools, mostly elementary, but we spun off in college preps, as you know, more like Whitney Young.

And so the more good schools are expanding, replicating, we know where we have waiting lists, and the more we don't tolerate failure. And we

have extraordinarily high-performing charter schools. When I talk about the 5,000 lowest-performing schools in the country, I think 200 of those are charters. And I challenge the charter school community there's nothing about the name "charter" that means quality. Quality means quality, and the charter school community has to challenge themselves to close down or phase out those schools that aren't working. So success, let's replicate in every form and fashion; non-success and failure, let's have a much lower level of tolerance for it. Our tolerance for failure has been far too high for far too long.

Yes, ma'am?

MS. WERTHEIM: Mr. Secretary, I'm Mitzi Wertheim of the Naval Post Graduate School. I'm a John Dewey-educated person. He was my mother's mentor and she typed her way through graduate school typing all of his books, so I'm just giving you kind of where I'm coming from.

SECRETARY DUNCAN: Wow, a little history there.

MS. WERTHEIM: Yeah. I'm a great believer in collaborative learning. In the complex world we live in today, just thinking if you're this good in math, but don't understand anything else, I think we're all losing out on that. And one of the things I've observed in a lot of these public schools is the job is to give the answer, not to ask the right question.

So my question for you is how do we open up curiosity and allow these kids to challenge and not be penalized because their teachers don't understand the answers? I mean, their job is really to say, well, who has the answer and where do we go find it?

But I see things -- I've been with the Defense Department of 35 years. Everything's siloed. Getting them to talk horizontally is really hard, and I'm hoping you will do something about that in our educational system, starting with kindergarten.

SECRETARY DUNCAN: So we're working on it. We're not there yet. A lot --

MS. WERTHEIM: How?

SECRETARY DUNCAN: A lot there. A couple things. Ultimately, the question's sort of what do we value? What skills are we trying to teach? And is it the rote memorization of facts that maybe you and I did some of and now you can Google anything and you need less ability to have all that stuff memorized? You know, penmanship, handwriting, you know, how big a deal is that going forward? But your basic point of collaboration, critical thinking skills, being able to work as part of a diverse team, as I go out and talk to CEOs around the country, every different type of sector that's what they're looking for.

And again, you have amazing schools, traditional schools, charter schools, high schools, elementary, literally kindergarten. We see remarkable work going on where teachers are fostering that curiosity and asking questions the whole time and teaching across the curriculum in very different ways. It is clearly not the norm. It is clearly more the exception.

I always get asked what's the appropriate federal role? I think about that every day. What's our role? What's the state role? What's the local role? One of the best uses of federal time and energy and resources, I think, is

for us to shine a spotlight on best practices to help to scale them with more resources, with more flexibility, whatever it might be. So where we're seeing those skill sets being taught, putting more resources, giving them more flexibility, shining a spotlight, convening groups of teachers and principals to talk about those things, we think are really, really important. So we can help to try and build that culture; a long way to go.

The other thing that's emerging that I'm really interested in that's related, but not identical, is we talked a lot about the cognitive versus the non-cognitive skills. There's a lot of work now around grit and resiliency and perseverance. I've spent my whole life working in the inner city on the south side of Chicago in a very impoverished community, and everyone came from a very tough spot. Those kids that went out -- made it out and did extraordinarily well had this resiliency and grit that is just mind-blowing. And so how do we start to teach those kinds of things, those skills?

A little thing I've tried to do just, you know, at home, I have two young kids at home, trying to ask them at night sometimes what did you fail at today? Sort of a nontraditional question. Not what did you succeed at, what did you fail at? What did you have to challenge yourself? What did you not get right? How was that?

And so I think we're just in a very different world in terms of the skill sets that our young people -- they have to be lifelong learners, and how we train teachers differently in the front end, how we get more employers building real partnerships with high schools and middle schools and elementary schools

in articulating this is really important.

The last thing, I don't want to go on too long, I went to a state where I met with about a dozen superintendents in a room and about a dozen CEOs. And this is sort of more blue collar, manufacturing, you know, that kind of work. I had a conversation and asked the CEOs how many of these high school graduates are ready to come to work for you? They said 50 percent. The room got real quiet. I said how often do you guys talk together? They said when the secretary comes to town. (Laughter) They had never met. They have never met.

So these are great educators, great business leaders, they're all in the same community, they're all invested, they're not going anywhere. We have to break those barriers. And the more of those we can help facilitate, but more at the local level those conversations are happening as well, we need that. We need business and education both to get out of their silos.

I'm getting the hook. (Laughter)

MR. RUBIN: No, no. Secretary Duncan, I don't know where you will fail today, but I know one place you've succeeded, which is in these remarks and your comments. You were terrific. Let's give the secretary a big hand.

(Applause)

Thank you. You were great, you really were.

And we are now adjourned. Thank you all.

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CERTIFICATE OF NOTARY PUBLIC

I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

Carleton J. Anderson, III

(Signature and Seal on File)

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