



Stanford eCorner

Pursue Passions with a Vengeance [Entire Talk]

Melinda Gates, *Gates Foundation*

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Through stories of creating meaningful impact around the world, Melinda Gates explains how the Gates Foundation seeks to solve global challenges through innovation in the areas of health and education. Gates also shares life experiences and insights gained on working with others, pursuing life passions, and being committed to volunteerism.



Transcript

So as Heidi said - well, first of all, it's great to be here today, great to see so many of you here. I've never seen such an attentive group three minutes before a class starts. So I certainly wasn't quite like that in college. As Heidi said, and you probably know that the mission of our foundation a belief, a deep-seated belief that Bill and I share in common is that all lives have equal value. And when we say all lives, we mean all lives. It doesn't matter whether you lived in Boston or Bangladesh or Burundi. We think that all lives have value. But we don't think that everybody has the same chance to grow up and live a healthy life and yet we think they ought to have that and we think there is something that our foundation can do about that in partnership with a whole host of partners around the world. So when I talk today about the foundation, I want you to know that there's not a single thing that we do that is not in partnership with others. So when I say we, I don't just mean the foundation, I mean with everybody that helps us carry out this work.

So you know what the mission is of the foundation, All Lives Have Equal Value. And you may know a little bit about the 'what' and how that plays out and I'm going to get more to the 'what'. But I want to give you a little bit more of a personal view about how I think about the foundation, because I'm guessing that all of you have read at least a little bit of something about my husband and maybe even a little bit about how he ran Microsoft or maybe a little bit about how he thinks about the foundation. But we are very much co-chairs and co-equals in running the foundation and that's a really important premise for the two of us. This is our lives' work going forward. And so I need to take you back in time a little bit, maybe with a couple of stories so that you can understand a little bit about how I think and how we think together. And then I really want to talk about innovation, because we believe that it's true innovation that really is going to help lift people up all over the planet, and I want to talk a little bit about why that is and how that plays itself out. So just to take you back a little bit in time, when Bill and I were first dating, which was very briefly after I was at Microsoft in 1987, we were in that getting to know one another phase, right, and so when you're getting to know one another phase, you're trying a lot of new things together and I was at the store late one night, I think it was at a drug store picking up some stuff and I happened to go by the aisle where there are puzzles. And I thought 'hey, this is something my family has always enjoyed doing which are puzzles. Maybe - I don't really know if Bill likes puzzles, but I will take one home and see what he thinks, right?' So I picked up a 1,200 piece puzzle, one of those little cheap cardboard ones, it's rectangular, et cetera, and it was the Eiffel Tower and with a beautiful sky behind it, blue sky, very few clouds.

So Eiffel Tower, blue sky, 1,200 pieces. And I take it home and I take it to Bill's house and my family whenever we used to do puzzles when I was growing up, we would dump them out on the dining room table and over a series of a whole host of weeks and months you would come by and you would put five or six pieces in and then you come by and put a few more pieces and maybe a couple of months go by and it's all done. Well, I came home and Bill was, he's like 'yeah, yeah, I'll do a puzzle, I love to do puzzles.' I said 'okay, great' we crack-open a cardboard box Thursday night, we throw it open on his dining room table. And one thing I didn't quite understand about Bill at that time was that by gosh, when you sit down to do something,

you are going to finish it and you're going to finish it then. 1,200 pieces, the Eiffel Tower, that's not doable in a few hours, okay, and I'm pretty good at puzzles. It turns out, so was Bill. We've actually have a few puzzle competitions just for fun of like equal puzzles of same number of pieces, but that's another story. But anyway, so we dump this puzzle out and we get going and hours and hours go by and I'm exhausted and I'm like 'okay, give it up' and we're going away for the weekend actually to do something fun with his family and there's just no way that we can keep working on this thing because it was on the dining room table. So we go away for the weekend and we come back, well, another story which I won't go into, but we were - had a little competition going on that weekend too on a Northwest game called pickleball and I dislocated my shoulder, I was with him, I was on his team. So we come back at the end of the weekend and I'm hobbling like this with my - can hardly move my hand, because this dislocated shoulder's in a sling and we come back to the puzzle and we are going to do this puzzle.

And what I learned from that is A) we both like puzzles and we like them because they're challenging and they're interesting and there's some similarities about what we both like about puzzles. But if we're going to do a puzzle together, we now do ones that are 600 pieces, because you can do a 600 piece puzzle in one sitting. And today, we do puzzles that are - we don't have a picture for, that's our favorite, they're often wooden. If you're doing a picture that's say of Napa Valley completely irregular shaped edge, there might be a whole vine that goes around it and you don't know it, there might be pieces where there are straight edges in the middle of pieces, pieces where the puzzler has left holes in it, we love those puzzles. And that's a good metaphor for me about how we work together and how I think about problems, which is, with a puzzle you always know that there's an end solution, that the person who created one of these jigsaw puzzles has an end thing in mind. And you're going to get there. But along the way, you're going to experience a lot of frustration, you're going to have to look at things from different points of view. So sometimes Bill's working on shapes and I'm working on colors, sometimes we switch, sometimes we'll notice something the other person doesn't notice, sometimes you'll have a different perspective, sometimes you will step away for a little while to get a different perspective and you'll come back a few minutes later. But you have to trust yourself when you're doing a puzzle that you're going to get there. And you have to push through the frustration.

And to me, that's part of the fun. So to take you back and this will get to the Foundation, because this has a lot to do with how we think about things at the Foundation. But before I go there, I want to take you back even a little bit further in my history, which is I grew up in Dallas, Texas, I'm one of four children. My parents, Ray and Elaine French, we grew up in Dallas. My dad was a mechanical engineer, he went to Georgia Tech, came to Stanford for his graduate work in mechanical engineering. My mother did not go to college, her parents didn't believe in her going to college, so they put her in the workforce right after high school. She always wished she'd gotten a college degree. So when I was growing up, it was deeply embedded in the four - in my three siblings and I that we were going to college - going to college. And my parents, that was not going to be easy on an engineer's salary to put four children through college and they were determined that we could go anywhere in the country that we could get into and that they were going to pay for it, we weren't going to go on financial aid or scholarships. So my parents set up a family business.

They bought and rented out properties and then would sell some of them as the market increased. And as a young student in high school, I mowed lawns at these rental properties, I painted, I cleaned up after people left, so I learned what it was like to work hard. But my parents also invested early in a computer. They bought one of the Apple IIIs that were sold, there were only about 2,000 of them ever sold, we owned one. They still own it, it's in the closet somewhere. And my sister and I kept the books and we learned what was then the spreadsheeting program VisiCalc. I learned that thing inside and out. I could program the cells, I got interested in computers and I understood the flows of money. So my parents also put us in high school. My sister and I - there's a big gap, two girls and then two boys.

They put us in high school in Dallas, Texas, a Catholic high school, all-girls Catholic high school. It wasn't the best high school in the city. And that was a little bit frustrating to me, so I knew I had to work really hard at this high school to get noticed by any college. But along the way, I met a math teacher. She was getting her PhD at night in computer science, single mom raising three boys. And she saw that I was good in math and she said I am going to make sure you always know you're good at math. And she helped guide my career through the hardest math subjects in high school. In my junior year of high school, she bought 10 computers, Apple IIs. She went to head nun of the school and said, I want to get these Apple IIs, I want you to invest in them, she convinced the nun to invest in them and we had 10 Apple IIs. And what she let us girls do was to get out ahead of her in computer programming.

She taught us what she knew and she let us run wild. That then turned into a summer job for me where I was teaching kids both math, tutoring them and how to program, and it led ultimately to a computer science degree at Duke and ultimately to a career at Microsoft. And I tell you that because when you get into computer science, for those of you that have done it, and in engineering, as you know it's a lot like a puzzle except that there's not often a closed end solution. There might be somewhere you're trying to go, but there are many possibilities to get there and you have to have a lot of creativity and you've got to go through a lot of frustration, you got to keep your curiosity up and you got to believe in yourself when you're programming. And I went through college when there were very few women in computer science. After freshman year basically none. I programmed with guys all through Duke and I learned how to be good at managing teams. So when I got to Microsoft, I had to

make sure that I remembered those skills. When things were tough for me at Microsoft - I loved it there, I worked there for nine years, but when I would get unhappy a little bit, because I would think, 'gosh, I have to be like somebody else', 'I have to manage like that person manages that team.' I had to realize, no, I had to go back to who I was in manage in my style from what I'd learned in college about forming teams and moving forward. So for me, puzzles and getting into something that's pretty unknown is something that gives me a lot of discomfort, but is also something that I realize you got to work through and at the end you can come up with unbelievably elegant solutions if you bring the right team together and you guide them in the right way.

So now, Bill and I are involved in this foundation, this very large foundation. And everything we do at the foundation - it may look to people like it's a large foundation. In terms of resources, it is the largest foundation. But in terms of the problems that we are trying to tackle in the world, we are absolutely tiny, because we are going after 27 different and distinct strategies around problems around the world. So whether that's malaria, trying to eradicate malaria, whether that's trying to find an AIDS vaccine, which is something we're deeply involved in, whether it's trying to wipe polio off the face of the planet and we're in the last mile of that, whether it's getting contraceptives to women or vaccines to children or trying to fix the U.S. education system, you want to talk about an enormous problem. We are a tiny little piece of that puzzle, but we believe that if we can bring the right innovations and the right things to life and get the right partners together focused on these goals, that some of these goals we will get in our lifetimes and we think that that can change things for a whole host of people around the world. So what I thought I would do is take you through basically two very large areas of the foundation. As I said there are 27 different areas that we're involved in. But I thought I'd take you through two to give you an example of innovation and also a little bit about how we think about or I think about the problems.

The first one is, when Bill and I first got in this work, we got really puzzled by this notion that so many children were dying a year. We looked at basically deaths around the world, adult deaths and children's deaths. And to us, we read a New York Times article and then went and got the backup data and we learned that children in the developing world were dying of diarrhea. We scratched our head and we said 'are you kidding me? Almost 2 million children a year die of diarrhea?' When in our day and age you go down to drug store and there's a solution for it? That just shouldn't be. And why is that? And we started to learn from experts and take apart the problem. And we started to learn that millions of children were dying from a whole series of things. Children, when you look at childhood deaths, you measure childhood deaths under the age of five years. And there were two things that befuddled us really. One was, why is it that this innovation, this amazing innovation of biology that we have in the United States and we take so for granted or in the U.K. or in Japan that a vaccine - that you grew up and got as children, why does it take 15 to 20 years for that to get to the developing world? Why is that? And that shouldn't be.

What is it about the system that makes that happen? And we said, as we started to learn about it, we said 'we can do something about that. That lag should not be 15 to 20 years, it should be a year, basically, or less. There's just no reason. And the second thing is we started to say some of these huge childhood deaths that are going are because we have vaccines that don't get out to the developing world, we have solutions, but others are like rotavirus, the huge diarrheal disease, we don't get it essentially here in the United States or you don't die of it in the United States if you're a child, let me say that. You get it, but you don't die of it. So there were market failures, why a vaccine? There was no rich world market for a diarrheal vaccine or pneumonia vaccine. And again we thought we could stimulate the pharmaceutical companies through public-private partnership to start to create vaccines. If we could guarantee them a market of millions of children getting this vaccine and then being paid for in the developing world that paid just a little bit over cost, but millions of doses. If we could commit to a market and we knew that the demand would be there we could incent them with the right research dollars to actually create those vaccines. And that is in fact what has happened.

There is now a rotavirus vaccine on the market and there's now a new pneumococcus vaccine. I was in Kenya over a year ago and it was less than a year from when the new pneumococcus vaccine came out and it was being rolled out in Kenya with the right strains from Kenya. And what that means is that when I was growing up in early 1960s, 20 million children died every single year. So when you look at all the children that are born in the world, 20 million die. Now the majority of those deaths happen of course in the developing world and Bill and I said 'well that shouldn't be.' But the way we track whether we're making progress is 'are those childhood deaths coming down' and I'm happy to tell you that last year there were less than 7 million childhood deaths because of that innovation of vaccine being taken to the developing world. So that's a big scale problem. When I try to explain to you - if I tried which I won't to explain to you, why is it, how hard is it for Kenya to get the vaccine out to the most remote area? What does it take in terms of keeping a vaccine cold in Rwanda? It is incredibly complicated. But a system is setup that can work. But I want to talk to you and challenge you about innovation and challenge your minds to think about a slightly different kind of innovation as well. So when I talk about these childhood deaths under five years old, 20 million back in 1960 we're now down to 7 million for children under the age of five years.

One of the things we didn't do as a world was take the problem apart further, until about 2004. And in 2004 we started to look, and when I say we, I mean the global community, we started to look at those childhood deaths and realize we were only going to get the deaths, what we're down to, the 7 million deaths - from 30 days to five years of life, you can get a lot of those

deaths with vaccines. But guess what, 40% of those 7 million deaths happen in the first 30 days of life. And a vaccine isn't going to make a hill of beans worth of difference for a new born. So what will solve the first 30 days? We have to look at what those children are dying of in the first 30 days and that innovation has nothing to do with technology. That innovation is something I'm very, very excited about, which is behavior change. So let me give you a concrete example. There's an amazing researcher working in Northern India where a lot of these deaths happen, he happens to be from Johns Hopkins, his name is Vishwajeet. And what he has learned is that if you teach women essentially four things to do when their baby is born, if you understand where they're coming from culturally and understand why they do - they have very good reasons for believing certain things in doing what they do. But if you can help them culturally understand how to change those practices and them to spread the practices in a culturally acceptable way, you - he has proven through great research - that you can bring down those deaths by over a half just in 18 months.

So what do you have to learn? We have to learn why the women do it. In these northern remote villages in India, a lot of times the babies are born and who's called in to attend the birth? Well the mother-in-law is there, because she's part of the power structure, she's the one that usually controls the daughter-in-law. The lowest caste member is brought in to attend the birth, because this is considered a very dirty event when a baby is born, in their culture. Because there's a lot of blood, there's a lot of placental fluid that comes out. And what happens is that lowest caste member comes in, the baby's born, they put the baby down in the dirt and they tend to the mother, because they're so afraid - they've seen so much maternal death, they are so afraid the mother's going to die, they tend to her first. And so they put the baby aside and they let the baby get cold. By the time they come back to the baby, the baby's cold and then the lowest caste member, her job is to scrub that baby with a gritty, sandy paste that she makes up, made of usually the soil and hand the baby back to the mother-in-law. And unless every piece of vernix is off of that new born baby, she hasn't done her job and she is not paid by the mother-in-law. So what we have to teach women is that the culturally appropriate thing to do is we ask them, 'when you come out of the river and you've bathed, how do you feel?' And they say 'cool, my skin feels cool.' 'What you do? You put your saree on.' We say 'when the baby's born, you can tend to the mother, but put the baby on the mother's chest, wrap the saree around the baby and the mother' and that kangaroo care that we've also now learned works in the United States, we've engineered backwards, that will keep the baby's heart-rate going, it will keep the baby warm, the mother's milk will start to flow.

Immediate, an exclusive breast feeding is the right thing to do so the baby doesn't get diarrhea, isn't fed dirty water, which often happens, keeping the baby warm, teaching them to clean the baby was something else other than gritty, sandy paste. And they were putting an emollient on the baby, a mustard seed oil, they've done it through centuries that grows in their village. And when we were able to realize that if they put sunflower seed - if they still want to put an emollient on the baby, there's good reason for that, but teach them that something else that grows like sunflower seed oil is actually good for the baby. If they do those four things, they will save half the babies' lives. And when you go and talk to the villagers, in these villages where they've run these pieces of research and the villagers see the change, and you sit with a group like this; I've sat under the trees with a group of about 200 men and women and you say 'what changes have you noticed in the village?' And they'll start talking and talking and you'll say - you'll ask them how many of you had - have seen a baby's death in your life time, so many hands go up. How many of you seen a baby's death in the last two year - three years, still a lot of hands go up. How many of you have seen a baby's death in the last year, there are so few hands, because half of their children that are born are living now. That social and cultural change, when you talk to the women and you say to the Indian women 'how do you spread this?' they say 'we'll spread it' and you say to them 'how will you do it?' Well they have all these social networks, like we have social networks on the computer, they have unbelievable social networks. They go back home often to their own village to birth. They said 'we'll tell our sisters, we'll tell our mothers, we'll try to get the news to our mother-in-laws.' They will spread these cultural practices - if you get the mother-in-law sold into too, to part of it, all the power structure's around them - and if they can tell the stories in their own way and they come up with amazing ways to tell these stories in their own culture that spread the news about using sunflower seed oil or immediately, exclusively breast feeding, those practices we know are going to be the way to tackle this global problem of these 40% of the deaths in the first 30 days of life.

So to me, those are innovations. They're different kind of innovation, because we have to think very differently about what will save children's lives and how you create social and behavioral change. We know from centuries and centuries about how cultures change, that it's doable, but those practices have to be spread and spread in a culturally appropriate way. So I'm going to shift for a minute. And we have - I have lots of examples of innovation from the foundation, but rather than taking you through another one I thought I would shift for just one more section and talk about family planning and how I got into the work of contraceptives. Again, when Bill and I started the foundation and decided we were going to get involved in global health, we were primarily interested in two things, vaccines, which I just talked about, and also population. Why were there are so many children being born on the planet? We started down on that path, both vaccines and population and we decided to really push forward on vaccines. And then we got involved in malaria and HIV and a whole host of other adult issues. But we've always had this other issue on the back burner and for some internal reasons we didn't push forward on it. But once we felt in the last few years that we had the right team and the more and more I traveled, I would be out - for the last 15 years I've been traveling on behalf of the Foundation - I go everywhere.

I go to really, really remote villages in India, remote - I go to the slums in Bangladesh, I go to the slums of Nairobi, I've been to probably two dozen African countries. And I always try to sit down and talk to the women. You learn so much talking to the men and the women together, but also the women in separate groups will tell you a lot. And I sit down on a mat with them often. Me on one side and them on another and I always try to put myself in their shoes. And I just go in as a western woman in a pair of khakis and a t-shirt. They don't know who I am, I'm just a western woman who is there to learn and help. And when you talk to the women and I will be trying to talk to them about childhood vaccines and what they know, which is a lot, and the distance they'll go to get one. They kept saying to me 'but what about that shot, what about that shot I used to get. Well, how come, when I go to the clinic now, it's not available?' I have to go four times a year, every three months to get it, it's a - they get an injectable shot.

They said 'I go to great lengths, I have to hide it from my husband, I have to take a day off from my farm. I take my new baby with me' but they said 'I go to the clinic and I may walk for miles and get there and it's not there. And now look how many children I have.' And I was blown away by the places I was that the women kept asking me about this injectable. Because they consider - it's a shot just like we give them childhood vaccines, shots for their children. And so as I started to learn more, and learned that there are 215 million women who would like to have access to contraceptives who don't today. And I started to think about what that means for women, the number of pregnancies that happen that women don't want to have and they will tell you they don't want to have them. They can't - when you talk to women in the developing world and men, their goal, but particularly women, is to educate their children. To be able to let their children grow up healthy, to be able to feed them, so they can put them in school, they're all about the next generation. But they will tell you in many, many countries 'if I have too many children there's no way I can feed them.' So as I started to learn more about this, I kept saying to myself 'but why? Why is this not on the global health agenda. What is about the history of contraceptives?' When you just take the U.S.

alone and you think about the difference that contraceptives make for women here. And when I say contraceptives, I want to be really clear here. As I said, I'm catholic. I grew up catholic, I'm a practicing catholic. I am not talking about abortion. I'm talking about contraceptives, the things we go down to the drug store to get or we talk to our doctors and we get. The things we use, the tools of the U.S. But why is it the 215 million women are telling us they want access when you interview them and they can't get it? That just shouldn't be, and it makes such a huge difference in their lives. So I set out on a learning journey, again kind of like this puzzle analogy that I used at the beginning. And I was pretty frustrated, because I felt like 'gosh I'll never know enough.' But I kept thinking somebody has to speak out and I kept looking for the person who would speak out on this topic.

I kept thinking that person will do it or this person do it. And I realized at some point there wasn't somebody and that that had to be the voice of our foundation and specifically probably me, because it's a women issue. So I went back and I learned the history. I learned what had happened to take it off the global health agenda. What was the ugly history of coercion in my own - our own country down in Mississippi. What happened in Peru? What happened in India? What happened under the LBJ administration here? What happened when UNFPA was setup? Why is it that certain religious groups are in favor and others are not? Why is it that it's so controversial in our country that we can't even discuss it? I mean we can't even have a logical conversation, not about abortion; but about contraceptives. And so I decided that this was going to be one of the goals in my life's work. And so with DFID, which is the development agency in UK, we decided that we would put it back on the global health agenda and we set out to raise \$2.3 billion to buy access, voluntary access to contraceptives for women with the goal being to get 120 million new women on contraceptives, if they chose, by 2020. And I can tell you that this journey was not easy. I can tell you that the London Family Planning Summit where we announced this in July, in March we didn't have the money.

In May we still didn't have the money. When we got on stage - we were still counting the pledges leading up to it. When we got up on stage, we were able to announce that we'd raised \$2.6 billion for contraceptives. This is squarely back on the agenda. And I feel so strongly that we need to get this out for women, and it will change their lives. We can avert 30 million abortions. Women don't want to have an abortion. But you put them in that situation if they can't have a contraceptive. We can avert 3 million children dying. Children that were part of unintended pregnancies.

We can avert 200,000 women and girls dying in childbirth every year. We would cut the maternal mortality around the world by two fifths, if we get contraceptives out, just the contraceptives by 2020 that I'm talking about. So we have 69 nations, developed and developing world who've come together. The developing world they're putting their national plans together, they're rolling out their own plans. We're supporting that with money. And as well we're supporting it with new research and new technologies. We're not investing in new contraceptives, but guess what, there is some exciting things that you can do in contraceptives long-term to make them longer acting, so a woman doesn't have to go in the clinic every three months to get a shot, so that she could have something that is much more readily available in their village and lasts a whole lot longer. So as Heidi said that will be my life's work and I have to tell you it's been quite a learning journey for me with a whole host of experts to figure out what's even possible in that area. And I'm glad to take more questions on that if that's of interest. So let me just say this in closing, one very brief story, which is when our first daughter was born, Jen, when she was really young and she was learning to tie her shoes and you know when you're learning to tie your shoes you probably remember you're not that

dexterous, you're trying to figure it out and it's tough.

And Bill and I passed by her room and she was in there, struggling, trying to learn to tie her shoes and she was so frustrated with herself and I kept hearing her go 'uh, uh'. And then we passed by her room a few minutes later and she was kind of getting the first loop done and she said to herself 'this is difficult' she said, 'but I like difficult.' And I would suggest you that there's not a person in this room that doesn't like difficult. You don't come to Stanford if you don't like difficult, let's be honest here. And so, I'll leave you just with the three quick thoughts, which is you're in an amazing moment in time to be here: and figure out what your passion is, and pursue it, pursue it with a vengeance; surround yourself with experts, there are so many unbelievable experts on this campus. I mean it's just an unbelievable place, so gather experts around you in fields you're uncomfortable in, things that you don't know anything about and that aren't in your major and see where you can go; and do something now, because I'll tell you it does get trickier if you decide to have a family later to balance the work and the family life, there's a time to always come back to it, but do it now, I guarantee you, if you believe in innovation there are things you can do to change the world. So I'll leave you with my favorite quote which was something I learned early in philanthropy from Margaret Mead, a former anthropologist. And she said "never underestimate the ability of a group of committed individuals to change the world, in fact it's the only thing that ever has." So with that, I will take questions. Thank you. You want me to take them for you or do you want to take them? Sure. It's up to you.

Either way. Questions? Here, over there. Melinda, so I was really impressed by the Gates Foundation and have spent a summer with Peter Diamandis like learning how incentive prizes work for a lot of new areas for fixing the global issues. So have you ever thought of coming up with this idea of Philanthropy 2.0 where you trying to set up incentive prizes to drive innovation to solve those big challenges? So I'm going to repeat... Yeah please do, great. ... for the thing. So the question is around incentive competitions in order to foster further philanthropy. So one of the things that we've been quite involved in is something called, that we set up, called the grand challenges. And what these are, are prizes for particularly faculty members and students who are young in their careers, who have innovative ideas but that their idea might not get to light without some initial funding.

When we first got into setting up, and these are - so we set out a series of grand challenges in health, these big large scale problems that we thought needed to be solved and then if you said 'hey, I have a great idea about how to fortify a food' let's say 'a food that a lot of people eat in the developing world that hasn't been done before' against these set of grand challenges. You could apply for a grant and through a pretty - we try to keep the process pretty light, you could get a first round of funding. Then if your idea as went along looked promising, based on the funding we've given you and you come back again and you're able to prove that you've gotten to a certain point we would cream that group down to a smaller group and then we would give a second round of funding. And what we've learned from that is that we were giving too large of grants initially and what we were getting where people who would have gotten grants anyway potentially from the NIH or others, so we've actually learned to make those grants even a little bit smaller. So that the first round of funding is a smaller amount of money, we're getting so many more ideas and we've planted this program not just in the U.S. now, but in China and in India and places, in Africa. So what we're doing is bringing ideas out of the lab and trying to bring them forward against these enormous global health projects, and then, again if you make it through the first round of funding and your idea proves out over say 18 months, then you can come back for another round of funding that's larger than the first one. So we do have - that's just one example of an incentive prize that we have. Why don't you pick? Oh, go ahead. I just want to - I want to know more about the motivations for the foundation.

Like where does that come from? A lot of people have done computer science, a lot of people have done coding, a lot of people have done jigsaw puzzles, but where do you go - how do you go from that to Every Life Has Equal Value? I mean that's a beautiful thing, but I can't see that coming from jigsaw puzzles. Yeah, yeah. So the question is, what was the motivation and is the motivation for the foundation? Yeah. So I guess one other piece of little history you have to understand about both Bill and me, is we both come from families that believe in volunteerism and embedded that in us very early on. Bill's parents were incredibly involved in civic philanthropy in Seattle and his mom sat on the United Way Board. So around the dinner table they talked a lot about philanthropy and what was possible. And in my family we believed in volunteerism. In fact the motto of the school I went to, this all girl's catholic school was serviam, which means to serve. And so I served in the local hospital, I served in the Dallas County Court House, I served in the local public school that was two miles down the road from my school. You want to talk about a different school than mine, all you had to do is go two miles down the road and I helped tutor in the back of the classroom.

So Bill and I both came with those believes and literally during the time we were engaged, we decided that basically the vast majority of resources from Microsoft would back to society, it would just - it's hard to describe that that was just so natural for us and it seemed like the right, it just seemed like the right thing to do because we both had this belief that - Bill couldn't have done what he did except in the country that had some of the benefits that he had here, the great schooling, the great infrastructure that exists, et cetera. I mean as Warren Buffett will often tell you, his investment skills wouldn't work very well on a farm in Kenya, right. So we have benefited enormously from living in the United States and so that just, it was the natural for

us and the question so was not if for us, then, it was when. And Bill always thought it would be in his 60s, that's what he always said, and he say - his mom would actually kind of bug him about this when he was still early in his career, even when we're dating we'd go to dinner at his parent's house on Sunday night and his mom would kind of say 'why don't you be more involved in United Way?' He was involved a little bit. And he said like 'oh mom, don't bother me, I'm busy with Microsoft, I'll do it when I'm 60, I'm in 60s.' But as we got going after Jen was born and I stopped working at Microsoft, we just - we started to learn more, I was getting more time to travel and learn, I was seeing things in the field coming home and talking about them, Bill would get jazzed and read these big development reports and get the data behind kind of what I was seeing, right, which is fantastic, right, and we were learning together. And it just made sense to get going, and so we'd gotten going in a very small, small way right after we were married but we were getting inundated with all these letters, and things that you feel just - I mean it's heartbreaking stuff: a child that needs a liver transplant in the United States, somebody dying of cancer. But we started to realize very quickly that if we didn't focus on something we wouldn't have impact with this money, that you could give it away in all these little areas and they might be meaningful but you had to have a focus and you had to have a bull's-eye and then things would fall away and it would feel okay not giving a child here that needs a liver a liver, because you're saving a child from malaria in the developing world. So we just got going and it became more and more and it became more of a learning journey. And it was actually quite challenging, when Bill was working at Microsoft he absolutely loved his job but as you could can imagine, when we're going through - he's the CEO of the company, going through the DoJ trial and we've got a foundation in young kids. It's challenging and where do you find the time for okay, we're giving money away but we're doing it thoughtfully.

And so what I would say now, which is just beautiful and neither of us, neither of us would have known that this was happened is that Bill decided obviously to retire from Microsoft and devote himself full time, and he's obviously not 60 yet, and, because he is enjoying it so much and he realized I think also what a huge difference it could make. And one of the nice things was he had always talked about when we're dating and also in the early married years, that he really loved, he's always loved science, he's always loved innovation. But he always said I'd love to be around a group of broad scientists, I love the computer stuff but not just in the computer field. He loved biology, he was reading biology books when I was first getting to know him on vacation. And he is always love science and so now he gets that aspect too, he has got all these scientists who come through the doors of the foundation and who we go out and visit. So it's honestly been kind of a coming to for us where we had an end goal in mind but it's more become a learning journey and then it just, it builds on itself and next thing you know this is what we're doing full time. So - yeah, go ahead. Bill is one of the greatest entrepreneurs the world has ever knew, do you think spreading entrepreneurship in the developing world and enabling for the successful launch versus a scalable and the quickest way and is a viral way to lift people out of poverty? So the question summary is, is there an opportunity - Bill's such a great entrepreneur, is there such an opportunity to go out and spread entrepreneurship throughout the developing world as a way to lift people out of poverty? There is absolutely that opportunity and I would say if you have the passion to do that I think that would be amazing. We don't do that only because we - because, if you kind of look at, if you think of it from Maslow's Hierarchy, if people can't be healthy and they don't even have the means to feed their children, it's very hard for them to get an education to then go on to entrepreneurialism. And we believe in that whole virtuous cycle, that if you can get them on the right cycle of health which is why we do the health stuff, and then you can help them lift themselves out of poverty, get more money off the farm to then get their kids in school, you can start that virtuous cycle that they can lift themselves up.

But we feel like you got to - for us anyway, the piece we wanted to tackle was the health and then the agriculture, which is the lifting themselves up to get a little bit more means of income. But yes, I think there's absolutely room for entrepreneurialism but what we're trying to do is deal with the bottom 2 billion that - less than \$2 a day. But there's absolutely that role and that's why you're starting to see certainly, especially in the large cities in Africa you're seeing more of that. I see so much ingenuity, when you go out to India and lots of places in Africa, there's so much human potential and ingenuity and we have just got to unlock it and make it easier for people. We'll take someone from - probably coming from the back, some folks in the back, any more questions? Right in the back there, yeah, go ahead. Your reputation is as a very results oriented, curious learner, hardworking philanthropist and I want to thank you for that, I think it's elevated what philanthropy can do in this world. And my question is about teaching quality, so in your U.S. investment you have a new initiative trying to kind of uncover what a quality teacher is and how we need to measure it and then reward and incent that kind of quality teacher. And I just wondered if you could talk about any of the findings from that initiative? So glad you asked that question. The question being, you've studied a lot about teaching, what makes a great teacher and how one can spread that.

Can you talk that a little bit? Yeah, so that's been again, talk about a learning journey for us, the U.S. education system. Bill and I often say even these enormous bets we've got in things like vaccines and malaria and HIV, our biggest bet is the U.S. education system and probably the most difficult thing we work on. I think one of the most encouraging things though is exactly what you said, is great teaching. So I think we all inherently know when we have a great teacher and inherently when you put your kid in school you have a sense of whether that's a great teacher. But what we knew from good research is that a great teacher makes an enormous difference in a student's learning. They can get a year and a half's worth of gains in terms of what the student learns from beginning of academic year to the end, let's just talk about elementary school and high school for a minute, so I'm talking K through 12. You can get a year and a half gain, but a bad teacher - you're not even going to get a half a year gain for a student. So when you stand back from the U.S.

education system and you say, okay a third of the kids drop out before they get to the end of high school, and a third aren't ready for college when they get there, they're going into remedial classes in community college in particular. So we're only - this enormous public education system we have, we're only educating a third of the kids well, there's something broken about the system. And so what we started to realize is that the fix is making sure every student has one of those great teachers, every student. And as you look at the evaluation system across United States, 99% of teachers - 98.5% I'll be exact - 98.5% were being rated satisfactory. But if that's true, if 98.5% are satisfactory then why aren't 98.5% of our kids ready to go on to college? It just doesn't - the math doesn't work, right. So we started to say to ourselves, but what makes a great teacher, so what research shows there's a great teacher. Well there wasn't a research out there to show what an effective teacher was. So we kept scratching our heads saying, okay we need effective teachers, we inherently think we know what they feel like but we can't really quantify, we don't really know what makes a great teacher? So we got several school district 3,000 teachers to allow us to videotape in their room and we got to see what great teaching is, and the way we knew we were getting great teaching was they were able to take kids who were below a certain baseline coming in in a year, or either at grade level or below grade level and get them to the next grade level. They actually, when you tested the kids at the end of the year they had gotten their year and a half gain of learning. And so we said 'this is what great teaching is' and when we started to learn what great teaching is we said 'how do we spread the practice of great teaching?' And it comes down to creating a great evaluation system like a business would do that gives real feedback to teachers that tells them; these are some master teachers, let us have you go see them and see how they're teaching.

These are some things you're good at, these are some things you need to get better at, but a real evaluation system with real rankings and ratings. Not just based on kids test scores, we have to put a percentage in for kids test scores but let peer teachers who are trained come in and evaluate the teaching of those teachers, because now that we know what effective teaching looks like, we know whether we're seeing it in a class room or not. So train peer teachers to come in and evaluate, train principles to really come in and evaluate, not come in once a year and do a fly by that says 'is the classroom organized, a few other random things?' and that's it. And student surveys. It turns out that students do know whether they have a good teacher. It's not a popularly contest, do I like my teacher, do they dress well? It's not that. Does your teacher help you when you're confused? Does the teacher explain concepts to the class? Does the teacher go over the homework problems with you that you missed? Those are about three out of about six questions that are super indicative of whether you actually have an effective teacher. So if you create a really evaluation system with peer evaluation, principle evaluation, coaching and mentoring, some test score data and student survey data, we can get a real evaluation system that takes the teachers who are B minuses and moves them up to B pluses and take the Bs and move them up to As and take the Cs and move them up to Bs. We have a cadre of great teachers but we don't evaluate and give them mentoring and coaching and feedback and professional development. And that's what we're out to do, and we're on a journey on that through - across the United States and it's tough.

Uh-huh, over here? So you mentioned that one of the problems with contraception is not only accessibility but acceptance. And I was at a talk with Anne and Paul Ehrlich who work on population growth here at Stanford, and this is what occupies Stanford, and they mentioned that - can't remember exactly where this was, in a culture where women are typically married off, there was an experiment where they started producing radio novelas taking characters with extremely empowered women and seeing how that could affect how men and women perceive themselves in that specific culture. So are you - is the Gates Foundation doing anything to address the social aspect with contraceptives like you did in India with the birthing practices. And I'm not going to answer that because I can tell that you're close enough to the mic so go for it. Okay good. So, let me give you the most concrete example because I think it's super illustrative of your question, which is a great one. So I - right before the London Family Planning Summit this summer I went to Niger and Senegal. And I went to Niger for a very specific reason, it's the highest fertility rate in the world in terms of number of babies had by women, it's the highest desired fertility rate in the world in terms of how many births men want their wives to have, and the highest desired fertility rate in the world in terms of what women how many children they say they want to have. So I thought, okay, highest of all these things in the world, super poor country, is this even possible? Is this even remotely possible of bringing contraceptives? Because we know in society after society where contraceptives have come, if you look at France or Germany or the U.S. or Bangladesh, which has an amazing longitudinal study since 1970, that if you get contraceptives to women it used to be two generations before you saw a sea change in terms of number of children they have, it's now one generation.

And it spreads not on socio economic lines, it spreads on cultural lines. So I thought, okay Niger, can we possible get at this in Niger? Very polygamous society. So I sat down and talked with several women in their homes, I stood by the well, I was about an hour an half outside of Niamey, which is the capital, out in the desert, the absolute desert. And when I was talking to women about contraceptives, I said to this one woman, she had six children and she was using contraceptives. And I said to her 'well' - I'm saying to her about having some - are you going to have more children? She said 'absolutely not' and I said, 'what are you doing?' and she said 'I go to this clinic' and she was angry. She said 'why doesn't the clinic you were just at, I saw you there, near my house, I can see it from my house, why can't I get a contraceptive there?' Which I had actually just been haranguing the officials about that too. She said, I have to go essentially seven kilometers and walk in the heat, and last time I went I couldn't get the shot. She said 'can't you see? Can't you see that we're starving here?' she said 'we are starving,

starving, starving.' She said 'I can't feed my children and you're not getting me this shot, you're not helping me.' And when I said to her 'well okay you know about contraceptives' and they're actually where these village women and these healthcare workers who are starting to give contraceptive pills out, and they go through the dust and they hand you a little packet of pills not in the little plastic case, just - you get the pills. And so I said to her 'okay, you know about contraceptives, do your sisters in the village know about it?' and she said 'yes.' And she said 'the good thing about women is that we talk.' And she said 'we talk by the well, we talk when the children are born and we talk when we grind millet every day.' And she said, 'so we're talking about contraceptives and more of us are using them' and I said to her 'okay' - so this is a polygamous society, her husband's not there and I said 'so what happens if another co-wife comes in?' And she got very somber. And she said 'well I just told you I'm not going to have any more children', but she said 'if another co-wife comes in I will have to have more children.' Because it's a race between her and the other wife for who has the most children to then inherit the land.

And - but then she stopped herself and she said 'but there's nothing here' so she said 'and in my culture it's not if, we have to say - it's not when, its if a women comes in.' But she said 'there's nothing here so why would another woman want to have a lot of children.' But so I had to meet - so in terms of getting cultural change there what we have to do is we're setting up the country not - when I say we, the global partnership - but the country is setting up husband schools to teach the husbands first because they're the power structure in a polygamous society, about why having fewer children make sense. And that it is a decision. The women think there is no decision in this, it's just like if you' gone to France many, many centuries ago, women didn't know there was a decision that they could make about their bodies. So we have to teach the husbands first, get them involved. I met with a whole group of the Imam. the whole structure all the way up in the country of the Imams and they say 'yes, the Quran says we can do family planning and we need to teach that to all the Imams in the village and we need to get them to spread the word.' So that's the way in Niger to start cultural changes is the husbands and the Imams and then get the women talking and get the contraceptives in, and let them make the decision then. M-hm, yes? Thanks for initiative. So, yeah when you talk about contraceptive it's more like the pills or the injectables or - because I read some reports there's an association or a correlation between many of the increase of breast cancer or some side effects from contraceptives. So you mentioned that the father school or - that's awesome because I think one initiative maybe will start from the man because women alone definitely cannot do this. And also maybe some women can never accept it or their body won't accept it or the men cannot accept it.

So do you have like the complementary programs your initiatives to basically address that part of the population? Yes, so one of the myths in contraceptives, one of the things that was wrong with the system, is if you asked yourself are there contraceptive stock-outs in the developing world country after country would tell you 'no, we have stocks 80%, 90% of the time.' We had to dig deeper to find out that actually what they had in stock were condoms. There were lots of condom, because of HIV AIDS and everything that PEPFAR, the Presence Emergency Plan for AIDS relief, has done in these countries, there are lots of condoms. But women will tell you over and over again they have no power to negotiate a condom in their relationship. Because they said 'if I say' especially African women will tell you, they say 'if I say to my husband I want him to wear a condom, I'm either accusing him of having AIDS or I must have been - not been - I've been outside my relationships, I'm saying I worry that I have AIDS.' So she doesn't have that power. So we need to give her options that she can decide. You need to give - make sure she's got pills, she is got the injectable but a longer lasting injectable, eventually one she could give herself, we're working on that's a little blister pack. Implant, implants are very popular in many places in the world where you put a few rods in your arm and the implants last five years, we're bringing the prices of those down. Long-term, there's even talk - you want to talk about innovation of a microchip that could be put under a women's arm. Here in the U.S. and actually in Britain there's a microchip that's being developed to deliver an osteoporosis drug.

If that comes to fruition you could possibly also a contraceptive into it. So - and we have to look at - and believe we, we are part of studying the side effects of hormonal contraceptives, making sure they're safe for women, making sure countries follow their own policies, but there's a whole range of options if we invest in the right way. So one last question. Somewhere in the back? Yes. I know you're looking for understanding of the mission. What is your message for people who potentially can help you? Great question, and great way to close. Your message to other people, what would your message be for how they can help you? And you've got a good audience of very capable people here to tell them how they can help. Yeah, yeah. Well, I would say first; get involved. Start to learn, learn about something you're passion about and pick your area in philanthropy.

It doesn't have to one of ours, it might be one of ours. And then one of the fantastic things as you all know even better than I do about social media these days is you can connect via the web and connect in very meaningful ways. So I would say this. If you have the opportunity to go to the developing world, your eyes will be opened, I would just at least say in a way that probably you'll never be able to turn away. That's how I felt, that's what got me started our first trip to Africa, which was a vacation, I couldn't turn away after that. I went to see the animals, I loved it. But it was the people, you can't turn your back. So I would say, get involved. If you can go to the developing world, do. If you can volunteer in a school here, volunteer in a hospital, start to learn what the problems are.

But then connect via the web, DonorsChoose is a fantastic website. If you want to give \$30 to a classroom, a few dollars to

help a teacher buy a printer she needs for her classroom that's in a bad part of Oakland where she can't get a laser jet, help her do that. If you want to go up on Catapult and learn about projects in the developing world, micro loans for women, contributing to helping buy contraceptives for women or buy a vaccine for somebody, all of those options exists on the web and are very well researched and then placed. We're involved in a whole host of them, one of them's Catapult, we fund DonorsChoose, but there are lots of places you can go on the web if you want to donate money. But there's also donating your time and donating your energy and I would encourage you to do that too and do that locally. There's so many things to get involved in. Well, I want to thank you very much, we have a presentation. Please join me in thanking Melinda.