Raw file.

May 15, 2018.

1545 CET.

ITU.

AI for Good Global Summit.

Room C1.

Innovative applications of AI in education and youth.

(standing by).

>> I think we are ten minutes behind schedule. I think we should start. Good afternoon. Can you come to the podium, please? Dear participants, my name is Feng Chun Miao, I'm the chief of the unit for ICT education from the UNESCO headquarter, based in Paris. Thank you for joining this panel, this panel is about the innovative AI application for education, and the use.

I'm honored by the presence of six speakers. I would like to introduce you quickly to our speakers. We are still missing one

speaker, but I believe he is coming.

First of all, we have Miss Jayathma Wickramanayake. We have Matt Keller, project leader in XPRIZE Foundation. We have Sara, who is speaker together with her guardian, Elena Sinel. And we have our speaker from Korea, Republic of Korea, Dr. Jeon Gue Park. And we have the last speaker who is from China. Those are the speakers. I want to introduce you to the focus and objective of this panel. This panel is about how we could possibly harness the potential of AI for SDG4. You know the region of SDG4 is ensure equitable quality education and promote lifelong learning opportunity for all, and to achieve this vision, we need to break through a lot of barriers that deprive mainly for children, youth and adults for quality education and lifelong learning.

We believe somehow AI could help us to remove the barriers including the economic barriers, cultural barriers and also the language barriers, and we hope AI could help us to remove these barriers is. In this context the main focus of this panel will be to discuss and demonstrate some experience how AI could help us to remove this kind of barrier, secondly, how we should empower and involve the youth in the developing of the AI applications for SDG4 and also the other SDGs, and how we should involve them in creating sustainable society encompassed by AI.

With this in mind, I want to present several slides to set up the presentation. First, I want to recall you your memory of the

SDG4, the sustainable development 4 is for education 2030, and this context I want to promote a kind of concept, I call it because we are talking about responsible AI, actually when we talk about responsible AI, we mainly talk about AI in the developed world, how we make it responsible for the users in the developed country. But actually there is a lot of people in the developing country who don't have access to AI, we should think of equity first before we talk about responsible AI.

This is vision of SDG4. Because UNESCO is commissioned to coordinate the achievement of SDG4 we have set up 7 targets for SDG4 including the universal access to primary and secondary education and also including provision of a couple year of preschool education, and if possible the upper secondary education. We promote the technical vocational education and training and higher education if possible to expand access to higher education. We promote gender equality and sustainable development education. We are promoting the global citizenship. This is a new concept in the curriculum and for more sustainable society.

Beyond the school system we are talking about the youth literacy and we discussed relating to SDG8, the skills for decent life and work. We also set up three enabling factors including learning environment -- welcome. Also scholarship for higher education, of course, the call of the enabling factor for SDG4 is teachers and educators. My first question is that when we talk about the use of

AI in education, are we talking about continuing to use AI for those already reached group which means they already have access to education. They are living in the school, studying in the university, we are talking about how to use AI to fill already almost full stomach and kind of already we call it overexcessive education, of course sometimes not relevant to their life and work, or are we talking about the use of AI to deliver education for those excluded group, we are sometimes we call them vulnerable group.

Here is the facts. Still we have more than 260 million out of school children and youth. We have more than 600 million people have not reached the minimum proficiency level in reading and mathematics. More than 20 percent of the primary schools in the sub Sahara region don't have access to electricity. The major barrier to the access to education, including the poverty, the disability of the groups, and the conflicts, including the natural disaster and also military conflicts and of course the language barrier, because the majority of the content on land is still based in English and the majority language and also gender discrimination, so these kinds of factors are the main barriers to the access to education.

At the same time, even after the student graduated from school, we still have literacy rates very low especially in the developing countries, it's below 16, more than 60 of the people are not literate at the adult age. To achieve SDG4, we need almost 70 million new teachers.

So these are the fundamental questions we need to think if we are really going to achieve SDG4, if we only talk about how to use AI to push smart content in the classroom, in Europe, in United States, the SDG4 will never be achieved.

We need to think of the first principles of designing developing and deploying AI for education. So I summarize some of the fundamental questions, fundamental needs. We need to think when we design the AI applications, first of all how we could use AI, if it is a naive question to remove barriers to inclusive access to education and secondly if the children already reach education, how we could identify the learning pattern and push the relevant or sometimes we call them smart content, and also the smart pedagogical activity to the children to youths and adults. Education is not only to transfer knowledge, not only memorize factual knowledge, it is more social interaction of the can we use AI to facilitate the social coaching and social caring and of course the management and administration of education, including the routine task of teachers that they are facing. For example, we are asking teachers sometimes to improve more and more data to give them a lot of additional burden, that go beyond their workload. So how can we use AI to optimize the management and administration of the education.

And of course, we are talking about the new values, the rights and skill we should develop to the children, to student, but also to everybody, so that especially the new skills required by AI in

society. We don't need to, we should not forget the different layers of designing AI, including the legal framework, the infrastructure, if we want to collect the big data and use big data, and also of course the data we are collecting and then the official layer is the tools we are developing. And at the same time education also have different layers. So when we develop the AI applications for education, we need to think what kind of infrastructure we are facing, and whether the student have access to education or not, what kind of content and learning we are possibly talking about, and then how can we deal with the caring and the coach, and then the administration and the management.

So based on this, we need to think of the different words, what kind of algorithm we are using in the digital world and basically the different apps and platforms, and what kind of devices is the interface of the AI and the physical world and of course in the physical world, what are the applications, we call it use cases we are facing, and of course we have different opinions on the use of AI in education, including realistic example you will see quite soon during this panel, and also we have some optimistic view on the use of AI in education. We also have the future reason about the use of AI in education, but at the same time, the fundamental important issue is ethics, and sometimes many people still have the pessimistic view of the use of AI in education.

So based on that actually UNESCO is also taking some action in

response to these trends and challenge. First of all, UNESCO, the whole UNESCO as an organisation working in the area of education and science, culture and communication we are developing a normative instrument on the ethics of AI, secondly from education sector of UNESCO, we are building the capacity of developing country. Actually we are developing a policy guideline for the use of AI in education, including standard we could use to evaluate the AI platform, for the management, for learning system and for other purpose.

Then we are also promoting the use of AI innovation for Sustainable Development Goals and if possible we are promoting AI for all, we call it AI literacy for all programme. We also have a prize and actually I'm the manager of this prize about the use of ICT in education. We choose the topic of the use of innovative AI for to ensure education for vulnerable group is the theme of this year.

Then we have been organizing mobile learning week for 7 years. Next year is the 8th year. We choose the AI as the topic and the mobile learning week 2019 will take place at the last week of March, 2019. That is all from me. I hope I didn't take too much time.

Now it's really my honor to invite the keynote speaker, who is the U.N. Secretary-General envoy on youth and actually she is from Sri Lanka, let's invite Jayathma Wickramanayake to her keynote speech. She will leave after the keynote. So if you have any questions, please raise your question immediately.

(applause

>> JAYATHMA WICKRAMANAYAKE: Thank you very much. I can see that you have been practicing my name. Such an honor and pleasure to be here amongst all of you, first of all, I have to say that compared to many of you in this room I am not an expert in AI. My forte' is youth participation, development and youth policy. ITU somehow found out I'm in town and want me to come here and share some of the perspectives that I have come across in working with young people in the past in my capacity as U.N. Secretary-General's envoy on youth.

The topics that I'm extremely passionate about, education, gender equality, meaningful participation and governance, so I'm going to warn you that these are the four things that I'm going to talk about in the context of AI and young people. First of all, let me give you a little context why everyone is suddenly excited about youth, and talking about youth and want to include youth and young people in almost all the discussions that we are having, having internationally right now.

Today the world is home to the largest generation of young people that the world has ever seen. 1.8 billion human beings on this planet are between the ages 10 to 24, and those who are under the age of 30 comprise of half of the world's population. Needless to say, that more than three-quarter of these youth population lives in developing countries.

This generation of young people grew up in an era of unprecedented technological advancement. Therefore, their experiences and

knowledge that we acquire in an early stage of life when we are transitioning from childhood to adulthood, due to the access of technology and connectivity, gives us a competitive advantage to understand complex dynamics and respond to emerging or existing challenges compared to the generations before us.

As much as I'd like to say it's the best of the times to be young, it's also the worst of the times to be a young person on this planet. Many young people live in countries and contexts that are grappling with challenges to development, peace and security and humanitarian challenges. 600 million young people today live in conflict or fragile settings, developed countries, 94 percent of young people 18 to 24 use the Internet it's only 60percent in developing countries and 30 percent in least developed countries. Nine out of ten young people who are not using the Internet live in Africa or Asia and the Pacific. Therefore I want to start by mentioning that the situation of young people or the impact of AI or any other frontier technologies on the lives of young people including in education should be drawn by relative terms and not absolute terms.

With regard to education there are many opportunities in AI customized learning, it can improve content, lower cost or reduce barriers to equal engagement in education. Digital tutors, circular play list and virtual reality may enhance educational outcomes, and provide engaging interactive learning experiences for young people. Most importantly, might give us an opportunity to reach those who

are otherwise unreachable.

We have already witnessed the rise and impact of technology especially through adaptive digital learning platforms, to name a few as the Kahn academy, open course work mokes and others and it's interesting and essential to see how AI can contribute to further enhancing these platforms to the next level or to the next generation so that they can reach the most disenfranchised young people especially those who are living in conflict settings, refugee situations or simply do not have access to quality education.

It's also equally important to emphasize lifelong learning, especially as technological change will inevitably continue, our education systems need to adapt accordingly, and governments and education systems need to respond to this need, rather urgently, to ensure that no young person is left behind.

One of the concerns that we need to be aware of though is the potential impact on local and indigenous languages, as the Internet and access to most of these technologies are predominantly in English, and other major languages, but I've seen on the ground youth initiatives such as code fill responding to this concern by aiming to preserve local dialects, by teaching young students digital literacy in their mother tongue.

Another aspect to bear in mind, in using AI for enhancing educational quality and outcomes is to explore how it can develop, help develop skills in young people that will be crucial to find decent employment

opportunities. Here I'm not only referring to formal vocational and technical skills, but also informal soft skills that are adaptable and transferable.

I think it's becoming increasingly clear that with the rapid technological advancements including that in AI, young people will need flexible skills, of course different to what is being taught in our formal education institutions today, in order to thrive in the future places of work driven by knowledge and technology. I deeply believe that human needs, ethics and values must be at the center of all AI conversations, art facial intelligence has the potential to positively transform the way the international community assesses and responds to transnational challenges -- artificial intelligence -- stemming from either impacts of climate change, to responding to disease outbreaks. With the power to analyze and utilize data more effectively than ever before, we can begin to create and imagine the future of humanitarian response and keep young people at the front and center of this discussions.

The real opportunity for AI, however, is we can actually accelerate progress in achieving Sustainable Development Goals, and have the 7 billion people especially those who are left behind, that could benefit from these technologies in a practical way. Therefore, it's vital to make sure that transparency, protection and overall access is equal across all genders, ages, and regions, to ensure that efficient promotion of digital citizenship.

It's also crucial to ensure that young people are engaged in discussions on AI governance. Young people are not just beneficiaries of technological integration. They are essential actors in finding solutions to the issues faced by the world today. Their innovation, energy and leadership have been demonstratedded across sectors and they must be fully engaged in all processes in the AI governance discussions.

With the gaps in education and technology and due to the digital gender divide, young women, however, are at a higher risk to be marginalized in being empowered to access and utilize these technologies, according to UNICEF, girls access to technology is limited by the societies, communities and families in which they live. In a patriarchal society it is men who control technology, whether this is computers or mobile phones, or old, such as radios or televisions. For example, in Ghana, only 6.6 percent of females use Internet cafes, compared to 16.5 percent of male youth. Therefore, more focus should be given to empower girls and young women with STEM education and break all barriers that hinder the realization of their full potential.

Gender equality in the digital age will strengthen and bring together all stakeholders to promote greater inclusive partnerships for the international community.

I want to conclude my remarks with a few proposals on harnessing artificial intelligence and keeping young people at the center of

it. First, AI should be addressed in an ambitious manner promoting the use of AI as a tool in implementation of SDGs, while also addressing emerging ethical and human rights, technical and social economic challenges.

As one researcher said, algorithms may be mathematically optimal but ethically problematic. While human decision-making processes may be susceptible to biases as well, accountability frameworks for AI systems including for those that are in education, are more ambiguous and new governance systems are needed for the emerging class of technologies and their applications. At the risk that may emerge is the diffusion of responsibility differing to systems rather than people or institutions to bear the blames of perpetuity in inequality, it is time or if not already late to think about what accountability systems might work for AI.

Second, without improvements in access to technology or Internet, increased adoption of AI systems may disproportionately and negatively impact nations and citizens, particularly those in low and middle income nations with underdeveloped infrastructures. It's important for young people to have digital skills and access to the Internet as they have proven to foster growth in healthcare, education and employment. Various initiatives have been organized by different organisations and governments to promote digital assistants and opportunities for young people.

Though inclusion is becoming more common, there is much more work

to be done. With the continuous efforts of all leaders together with ITU and partner organisations, growing up in the era of AI will allow for a more digital and inclusive world for young people with increased investments in technology, education and training.

Third, all AI related programming should take into consideration the needs of all young people, especially those who are at the most disadvantaged. People and particularly those furthest behind should be at the center of all AI related programming and decision-making processes and must be the first to reap the benefits of AI.

Fourth, if you make progress in AI, you make progress in all these different fields at the same time. The applicability of AI for making education and health accessible and affordable is a phenomenon. It is not just a industry that is moving ahead with AI research, machine learning algorithms and AI education will help us move beyond stop and test, then who knows what else.

AI is potentially the most powerful technology that we have ever created, and it is going to create the next formal civilization. And the beauty or even some call it horror is that it is not happening in ten years or 20 years, that it is happening now. We need young people as partners, and not passive beneficiaries, to reap its positive potential. Thank you.

(applause).

>> FENG CHUN MIAO: Thank you very much Jayathma for the speech. Since she is leaving at 4:30, if you have any questions, you can

raise your hand, because I didn't find any question raised from the platform. So if you want to share some comments, please.

>> Hello. Thank you. I'm from Kenya. I want to appreciate your presentation, the two of you, now that it is the presentation is targeting the youth and of course you cannot talk about the youth without talking about women. My question is about the survey. Has any survey been done to really get to know how the AI will be taken down to the grass root level, especially to communities. And as I talk about communities, I want to talk about Africa and Kenya. You have mentioned about Ghana, where female gender, where 6.6 percent of female gender are using Internet. We are talking about AI, yeah, AI, and we are all aware that not all the people in Africa are knowledgeable about the new technology, especially women and especially farmers.

What is the survey talking about the education of AI especially in Africa? Thank you.

>> JAYATHMA WICKRAMANAYAKE: I honestly don't know if there has been any survey done to really ask people what they want to see in terms of applying AI at the grass-roots level. But the numbers that I shared were from a research done by UNICEF, and I can go back and check if there has been research as you said. But to my knowledge, as of now, no.

>> FENG CHUN MIAO: Thank you for the question. I think it is a very important question, because when I participate in many conference,

I believe all the conference are talking about AI, but if there is any participants from African country, they often say that it is very far from us, so I think it's a very important issue to think how we could involve the least developed country and how we should be able to build capacity in terms of the development and the application of AI in education and for other SDGs.

I think without any further ado, I would like to invite Dr. Jeon Gue Park to have his presentation. I will let him introduce himself, because everybody has a very long list of titles. So it's your floor. Thank you.

(applause).

>> JEON GUE PARK: Hello. My name is Jeon Gue Park from Korea. Unlike other speakers, I think I was asked about, asked to demonstrate some systems and I will give you some introduction for introductory presentation about my demonstration for two or three minutes, and I'll demonstrate my language service.

Two years ago we provide English language service with joint effort of Korea Ministry of Education and Ministry of science in ICT. While it is at the eastern end of Korea, so it's a very valuable experience for us to be in such a rural and remote areas, where education infrastructure is very poor. Actually, Korean government wants equality in education opportunities nationwide. But in reality, the situation is very difficult, due to lack of human resources and limited -- in this point of view, AI can be a realistic alternative

to the kind of English or foreign language teaching.

AI as a technology can play a role for teacher who listens and speaks like foreign tutors so it's important of course to combine technology and education context. The combined system of speech recognition and processing technologies are challenging because the natural language processing technologies are not mature. This applies to the broken English, containing grammatical errors, recognize it as spoken and not understand the meaning and conduct conversations with some education correction feedback.

While we developed and actually, publishing company, we developed a language service, largest market share in Korean market especially for English textbooks, and actually the government funded the research institution, our mission is to develop technology, translate to industry and competitiveness.

The goal of the class, naturally to foreign language as much as possible and give them as much opportunity to practice the English as well. In this framework, the students can practice words and phrases, pronunciations and free conversation on his or her own, on their own. There is third demonstration focus, that demonstration consists of stages, word, sentence, like this and in word class stage they can learn the meaning, pronunciation and usage of words. In the sentence stage, they can practice a free conversation after some sentence composition and pattern exercise. Also we provide, let me show some demonstration.

Okay. On the home screen, we can select the topic we want to start and here is some video, the overview video can give us some idea about the topic we are about to study.

We can give some idea about the situation because they needed some idea about the topic or the theme to study. We can enter into the word press stage and first --

>> Environment.

>> JEON GUE PARK: First we need to understand the meaning of the words to proceed to the next stage. This is the exercise. Next again you can understand what meanings by this kind of games like this, like this. Okay. We can learn to spell. Like this, this is a very basic course to studying the English. Then we can learn how to compose the sentence to use the word. We can say the word too, like this.

Then we can learn how to pronounce the words, like this. Environment. The system generates some scores. There was stages to understand. The progress and achievements they earn during the stage. Let's move to sentence stage. The first stage we can learn how to compose the sentences by arranging the words and phrases like this. This is very difficult in textbook. Again we learn how to use the dialogue patterns like this. This is ice breaking game. I decide to take stairs instead of elevator from now on. We need limited time to success. I can skip the listen, repeat stage. It is very difficult systems.

>> How are you?

>> JEON GUE PARK: This is typical opening stage. I can practice.

>> I decided to take stairs instead of elevators from now on. I decided to take stairs instead of elevators from now on.

>> JEON GUE PARK: Why?

>> My small effort can save electricity.

>> JEON GUE PARK: Well, what else can you do to save the environment?

>> I can turn off the water when I'm brushing my teeth.

>> JEON GUE PARK: Okay. I better take a shower in less than five minutes to save water. I intentionally spoke like this, the score is less.

>> That's great.

>> JEON GUE PARK: Finish this stage, we can check like this. The system generates this kind of machine score, what consist of one policy score and analysis score like this comparatively with native speakers, for Asian centers.

Next stage is the final stage of the sentence.

>> How are you?

>> JEON GUE PARK: This is half, our demonstrations. Hello.

>> It is important to save our environment. How can we save our environment?

>> JEON GUE PARK: I don't know what to say. I have no idea. Well, actually, the system is --

>> Why don't we try taking the stairs instead of elevator.

>> JEON GUE PARK: We use goal oriented systems, because the user

always talk about some topic, and they distracted the topic, I mean off topic so we responded to this kind of off topic sentences. So we need support. Okay, that's great idea.

>> Why should you do that?

>> JEON GUE PARK: Because we can save electricity.

>> What other things can you do to save the environment?

>> JEON GUE PARK: I can turn off the water when I'm brushing my teeth.

>> Thank you for the interview. I'll see you later.

>> JEON GUE PARK: Good-bye.

After finishing this stage, the system generates some kind of education feedbacks like this. The system generates some suggested sentences like this, depending on the context or the dialogue history like this. Like the opening stage the system generates, the system does not generate native speakers. There is only the student's ratings existing.

Okay. This is final stage of sentence and move to the debating stage, well, actually the debating stage are not possible here, because we need a group of people together and free talk, for free talking. So okay. I finalize one slide. Return to Power Point. Okay.

Well, actually this is our final demonstration case. Play the cartoon, please. (overlapping speakers).

(applause).

So any questions about this demonstration?

>> We have two questions.

>> Good afternoon. I'm a human rights officer at the Office of the High Commissioner for Human Rights. It's interesting to see all these developments, but just one very specific question. When we invest in AI or apps or software, technology, etcetera, how do we complement that development in learning and educational environments with human contact and social values and social and human interaction for the development of children and youth? How do we balance these two realities out, so it's complementary and blended? Thank you.

>> JEON GUE PARK: As for me we are trying hard, but actually I am engineer, and I have some limited resources and limited administrative support from government or some other society. So well, actually we want to deploy this kind of systems freely, but the situation is not that easy to proceed with that kind of actions. Actually, support or political support, we try as much as possible.

>> FENG CHUN MIAO: I think this question is a fundamental question. When we create the AI applications for education, especially in classroom, how we should blend the human interaction and the AI facilitation. I would like to keep this question to ask everybody, as concluding remarks, when we conclude this session. I want each of you to respond to this question.

Now I give the floor ...

(off microphone).

>> Thank you.

(silence).

Thank you, my name is Patrick, I'm from Rwanda, my question is using the application without handwriting. We know when we handwrite when we are learning a language, we have to, or is, okay, the traditional way of learning a language is to handwrite. How do you evaluate the impact or absence of handwriting when using this application? Do really children, can children learn without handwriting? How is it really?

>> JEON GUE PARK: I'm speech recognition specialist, actually our demonstration or our systems are supposed to handwriting but it shows currently it does not show that kind of features in this demonstration. But it's not problem. I think it's possible, no problem at all, I think.

>> FENG CHUN MIAO: We have another demonstration about application for education. I want to shift to the other of the speakers a little bit. I would like to invite to demonstrate another application for education especially for the developing country first and I invite other speakers to talk about the AI for youth and also how XPRIZE is promoting the innovation in the developing country. You have less than ten minutes. Try to save time for us. Thank you.

>> Hi, everyone. Good afternoon. I was supposed to be the last speaker. So I prepared a very nice story, but in order I was switched, I will do a short version so people will know how we get our products started, even though we are doing a similar educational app as Dr. Park,

we are coming from a slightly different approach.

Please let me begin by turning the clock back to 2002. This picture you are seeing on the screen was the first encounter of the five girls in this very beautiful but isolated village. The girls are 14, starting a secondary education in the village. One was 8, primary schooler also in the village, and I was 11. I was also in the picture. I was the girl in the back in case you can't recognize me. I was finishing primary education at a different place. When I was in the village, those village girls were selling apples and they were explaining to me that their families only pay for the boys to go to school. If they could not sell Apples to make enough money they wouldn't be able to pay for their next year's school fee.

That means they can't go back to school. I was very confused, because at that early age, I thought everyone must go to school. I asked my mom to buy all the apples. Three years later 2005 I continue with high school, the other four girls dropped out, sad enough the oldest ones were not only out of school but were also married, and under family arrangements. The youngest girl quit, not because of marriage but because the village school shut down, she was forced to move into the town to study which was far beyond her affordability from selling apples.

Another ten years passed in 2015, all the four village girls in the picture were all mothers with multiple kids and I after visiting villages in over 24 countries and islands realized that the destinies

of the four village girls were not rare cases. It is happening everywhere in the world, and something needs to be done so that at least the kids of those four village girls and many more will not duplicate the fate of their mothers.

If buying apples can formal school for a year, stopping family arrangement married earlier cannot be immediately realized, stock of qualifying teachers cannot be done by individuals, I ask myself is there a more sustainable plan that can be offered to provide some education to those populations affected by isolation of educational opportunities.

There are a lot of challenges to making it happen. But the answer is a solid yes. This is where we started. While technology claims to bring convenience to people's lives and bring access and quality to education, my team and I aim to bring the most up to date technology to serve the educational needs of the most isolated populations in the world, with a goal to provide them opportunities to step out of isolation into the real global labor market.

There are many educational needs, but the one we chose are English literacy and sustainable development, through instruction involving local dialect. There are many groups we can serve but the ones we are targeting are girl and female discriminated areas, yes. Girl and female discriminated areas, HIV AIDS villages and slums was also because those three are generally in absence of real long term teachers.

Knowing what we want to include in the learning process and knowing

the population to learn, we came into designing by learning device of friend so throughout the time we realize that isolated populations we serve happens to overlap with the population missing access to electricity or connectivity.

In order to make sure that this device will now turn into a declaration, and will actually be ready at any time and any place for learning, we designed this solar-based hardware, and this completely off line based software, including an off-line voice recognition system to support our interactive learning content.

Here comes the content part. As of today, we have a three parts in our learning, so as soon as the user turns on the device with a front button, she or he will be welcomed by moving in our friend to talk section in local dialect. Please look at the video on the screen. We are showing a demo we designed for a future village in St. Lucia. Can you please click on the play? The device started saying hi to the user in Creole, at the beginning, while explaining what it can actually do in one sentence.

So then after hearing some sound, even if it's just a minimal okay, this device will start saying, how are you, as a way to exemplify the basic manner of human interaction. After the very short part of conversation, the device will give three options in local dialect, asking the user to choose a mode of learning. So the first one will continue with friend to talk on the same page but it's going to be in English. So the user can practice English in communication with

the device, mimicking what they may encounter in the real labor market.

The second option is friend to explore, in which the users will play games in local dialect to learn Sustainable Development Goals. We designed ten different themes based on local challenges in realizing sustain ability. We build one story with multiple scenes and each scene we gave three options. We ask the users to respond verbally in local dialect on what they think it's right to do. Then we show them the consequences of each option they choose. We give them a suggested solution. I'm very sorry, but our verbal demo for the second option is not ready at this time. It will be out in July. So we will have it later but for now we show you a illustration to explain what it is going to look like in the form of games.

In local dialect, the father will ask the son, if we are getting a house where do we actually want it to be built? The son will come up with three different options. The user is required to say the words of the three items on the screen, and as soon as the user, as soon as our device captured the answer, it will show the consequences of what happens if the user chose to do the house with wood or with sand or with what they pick up on the street.

By the very end, we will give them a guided answer of what may actually help building a house. In this picture we normally, as a suggested solution, we don't only tell them the answer of this particular question. We tell them something more. Let's say in the case of this, we not only tell them that you can use bricks to build

houses, we tell them the importance of partnership. You need others to work together to make this happen.

So, we do, so the reason why we are doing this part purely in local dialect is because, one, the users will be able to understand conceptually. This part does not give total freedom to conversations because we have preset answers aiming at allowing the user to see both the picture of what the world is working together on and the detailed picture of what they can do in their lives to contribute to this process.

Following this, we have a third option for the kids to choose and that is called friend to learn, that are learning software shares some similarity with what Dr. Park just presented but a lot less fancier. But I want to highlight one part of the evaluation, all our software that we actually allow users to learn, practice and assess based on different levels of difficulties, and this part is completely off-line. All of our educational console are completely off-line. Can you click on the video?

Now I'm going to show a short clip of the difference between different levels of, in terms of pronunciation.

This is the very easy level. Kids just, in the evaluation section, it is the sentences that they have learned from previous lessons (overlapping speakers) if it's correct, it is going to show green. However, if they switch to the difficult mode -- sorry, click on play, sorry. Thank you. Then even though it's pretty much the same

speed like the same pronunciation, the same person saying it, when the accuracy (overlapping speakers) increase difficulty level, accuracy drops.

All those words highlighted in red hinted that the kid should go back to the lesson and relearn those words so that they can come back to this and redo the evaluation.

This means, even with the same learning material, we are extending its usage by pushing users to achieve complete accuracy by the end. This has two advantages. First, in those isolated places, it is almost impossible to access learning materials all the time this. Can actually help because we don't need to do it too often.

Second, the users are allowed to use, to follow their own learning curve as they wish. With all that being said, we want to admit wholeheartedly that we are not the best technological team in the world and we have only been able to move this project into the Caribbean and Africa. We are not running on advancing technology but on a mission to bring what exists to those who are not able to use it previously.

We are doing it because we know someone has to get it started so that people will realize, applying AI in technology, in education among these groups is realistic. Bringing seemingly most expensive technology to the poorest population is already happening because more and more resources are in the market reducing the cost by nature.

We don't have to bring it all. But applying a manageable piece of all the AI is good enough, as long as it can realize the proposed

goal of learning. In a matter of applying technology in education, technology is never and should never be the core. Education is.

If everyone out there listening to this ten minute presentation would take ten minutes each day to think about the possibility of bringing affordable AI to those who are previously left out, the day for AI to reach every corner of the world will come soon because we are working together to make it happen. Thank you so much for listening. We welcome any comment and questions and of course opportunities for further collaboration to move this project forward. Thank you.

(applause).

>> FENG CHUN MIAO: Thank you for the relatively short demonstration. Any quick question? If not, I propose that we move to the youth part, we have two really young youth here, and I would like to introduce first of all a little bit older youth, Mr. Jonnie Penn, you came a little late. I would like to invite you, I know you are a very popular guy. You have a lot of title. Once again I will not introduce you and give you the opportunity to introduce yourself. And you have ten minutes.

>> JONNIE PENN: Thank you very much. I didn't actually count myself among the young people. I'm 31. I feel like I'm wanting to represent young people. I appreciate the ITU bringing young people for today's talk.

To be clear about what I'm going to talk about in this session,

it's different than what has been said already. I can offer my view on youth, the position of youth in North America and Europe primarily, and try and position education in a broader sense.

You may already be aware that democracy is in decline globally. There is unrest in Hungary, Poland, United Kingdom, freedom house in 2017 found that political rights and civil liberties hit set back, in France, Denmark, Czech Republic, Serbia, Hungary and Poland. Exacerbating this is the phenomenon of equality, work done by a academic that says the gap between the top 20 percent and bottom 20 percent of society exacerbates existing health and social problems like homicide rates, obesity, mental illness, portion of the population in prison, etcetera. The UK house of commons library says the richest 1 percent of the world are on track to control two-thirds of all wealth by 2030.

The industrial revolution raised average income for the top ten industrialized nations 50 times more than the lower ten, which leaves us questioning what is the outcome of the next new industrial revolution. I talk about it with my friends, I speculate on a intelligence inequality which would be maldistribution of access to data as opposed to just assets, traditional assets.

Researchers have written about this elsewhere. They say at the national Bureau of economic research in December of last year, if intelligence becomes a matter of ability to pay, the wealthiest humans will become orders of magnitude more productive, more intelligent

than unenhanced leaving the majority of the population further behind. It is speculated Google had 15,000 pedestriana bytes of data under their control, Facebook had 300 petabytes. When we talk about education in the future, we have to remember that AI is going to take on the mold of the society it rose in and this is the society young people are growing up in today. There is a poverty of imagination around the way we talk about data. We refer to things as data is like oil or coal or gold, which traditionally are resources that have been plundered, exploited and divided us. I'm pushing to think about data like infrastructure, something that is invisible and that connects us and all of us can benefit from including industry.

I want to push to have, think about data not in terms of ownership but as something you can access and control, to are have data managed by things like data trusts based on the UK idea of land trusts which are overseen by trustees in perpetuity.

Also, we can consider in the future thinking about data and ownership of data the same way we think of drug patents that they expire, the data you may collect and benefit from in the short form fall into wider hands in the long term. Why am I talking about this? Because we are talking about education.

I had the chance to go to nips, a AI conference and there were complaints of researchers, this technology is talked about like it's the next electricity, and all the best minds in the world are being asked to use it to sell ads. I want to think about broader projects

that we can all collaborate on that would make better use of this particular technology.

At the MIT media lab, criticized a slogan, a better world for who and on what time scale, what does it mean when we say AI for good, who is it for and on what time scale. They asked us in organizing this event to provide solutions. I'm going to turn to a few potential solutions that I've come across in my work that I'd like to advocate for.

First, to start small, yes, we can use AI to identify patterns that prevent things like inequality. A partnership is announced with a AI tech start-up to identify complex fraud patterns, insider trading and bribery. HSPC turns to AI in the same way Facebook turns to AI when they are caught. They were complicit in laundering of 500 million pounds. So my point is that I want to focus on catching bad guys and not thinking that we can use AI just to solve existing problems, first we have to identify the problems.

In terms of solutions, I want to make clear too that most NGOs aren't really at the right stage in their data maturity to benefit from AI, nor is data a cure all. The project I'm working on at MIT is around nutrition labeling for data sets, so when engineers at Google are turned to using data they can see whether the data is representative of the groups that they are aiming to represent.

But these are smaller issues. The three things I want to leave you with are three grand projects that I want to advocate for. The

first is to incorporate citizenship education into young people's education today. What is citizenship education? It is one's ability to navigate and participate responsibly in modern social economic and political life. It is a tool of emancipation and not social reproduction or social closure. It blends critical thinking, personal autonomy, ability to deconstruct social realities embedded in political decors and understand the power dynamics in which you live. It's effective when it's taught hands on. I'll get to why that is important in a second.

The second part of what I want to blend into education or advocate for in education globally is digital literacy, which many other people have called for in the past. Why is digital literacy important? What is it, it's one's ability to navigate and participate responsibly in modern information environments. Alphabet, the company that owns Google and Facebook together today have direct influence over 70 percent of global Internet traffic and more than 60 percent of global digital advertising spent. That means we are not necessarily using an Internet. We are using a binet or tri net at best, which is primarily run by two organisations with everybody else lumped into a third category.

In Europe already there are questions about whether Google, Amazon and Facebook have even managed to pay a fair level of tax, which contributes to this tangentially to the decline of democracy because it destabilizes the middle class.

The first grand project other than just incorporating those things into our education model is to teach technology through the lens of history. Help young people understand the forces that bring about these industrial revolutions and break down flawed assumptions, such as, as we are sometimes told, governments are too slow to keep up with technology. If young people were to learn about technology through history they could say, the Internet itself was born out of government funding. Open source software was born out of government funding. Artificial intelligence was born out of government funding.

The narrative that industry propagates that governments aren't able to keep up with technology is fundamentally flawed. It is about which values were prioritizing and which time frame we are aiming to make good in.

Second question that students could disagree with, if they were taught technology through lens of history, they are asked to separate STEM from art as if these are different ventures. They could say, the first prototype of artificial intelligence was developed by political scientist was no formal education in mathematics. The idea that science is fundamentally different than art is in my mind a false dichotomy if you look at history. Many important figures throughout time have used science to get closer to God and the natural world and not just to rationalize aspects of our lives.

Finally, if they learned about tech through history, they could question concepts like meritocracy which is a concept propped up

by the tech industry sometimes to explain why some people have power and some don't. The history of that term of meritocracy was invented by the rich, partially if unknowingly to maintain their power.

There is a concept in ancient Greece that bridge builders have to sleep under the bridges they built. Steve jobs and bill gates didn't let kids use their technology. We could easily accept the snake oil sold to us by companies that don't actually, are not going to be accountable for the technology they are selling us. I see history as power as a way to spot hubris and drive innovation and entrepreneurialism. Human rights for the digital age, especially this organisation here, 1948 we have Universal Declaration of Human Rights, 1966, international covenant on economic, social and cultural rights, what now. This is a issue that we should let youth lead, so they have invested stake in seeing these things protected.

What could potential rights be, right to privacy, right to be forgotten, right to fluidity in a overly categorized world. Final thing is universal basic infrastructure. Instead of promising people money, I propose that we promise a set level of access to government services through digitization of public services. Incorporating young people to allow them to part pates in that process. We know from migratory politics in Europe that universal human rights lack political authority if not enforce at the national level. We can build values into the infrastructure, the code that will support the digital single market.

In the prior industrial revolution, we have mandatory high school and a 40 hour workweek. Now I propose we have free healthcare, education, child care, mental health services and potentially a three-day weekend.

Why does this relate to youth? Youth have the option to resist. If youth do not, if we are not incorporated into the plans that are being set, I would advocate that youth resist the future that is being drawn up on their behalf. PwC reported in 2017 that workers at 16 to 24 in the OCD have 20 to 40 percent jobs being automated. Entry level jobs will disappear because of automation at least in the west, those that youth would work. Youth have alternatives. Cybercrime globally was called the greatest transfer of wealth in history. We also have positive outcomes. If we lower neat rates which are not in education employment or training for young people to German levels it would generate 1.2 trillion in GDP overall.

What I want to advocate for is to incorporate young people into grand projects like the setting up of digital bill of rights or human rights for digital era as well as building government services of tomorrow. Thanks so much.

(applause).

>> FENG CHUN MIAO: Thank you for raising a few fundamental issues relating to the human rights of AI and other strategic topics. So any immediate questions? We have two. It's difficult for me to manage the time. Please try to shorten your question and have a quick response

so we pick up two questions. Please, first.

>> Thank you very much. My name is Christopher, I'm a intern at the ILO or I was. I'll try to make this very short. I'm interested in the way you define the terms, for example digital literacy. I would go back to the term literacy, for example, and itself doesn't depend on responsibility. But ability to read and write. So it seems to me this could be a case of maybe slipping in agenda into the definition of terms. I wonder how you felt about that, because it seems like as you mention digital citizenship is trying to sneak in, trying to kind of fight for defining this term and you mentioned yourself a Cybercrime. It seems like this is the kind of thing, trying to avoid, for example I've seen, feel like a similar thing about property rights before, especially in areas where there is a lot of inequality, you try to reinforce these kinds of things. To me there is certain problems that could be there. Anyway, that is my question. Thanks.

>> JONNIE PENN: I think it's a valid question. I'm happy to take it up afterwards. I don't know what your baseline is that you are measuring against. The definition of artificial intelligence is contested. The history comes out of the history of bureaucracy. We think of it as something attached to natural law and mathematics. It's interpretation of history. I think what I'm advocating for is yes, we need to take a political stance on inequality if we want to accomplish sustainable development. When we talk about AI we talk about a great future. I'm saying it's a great future but maybe not

for any of us. We need to be more political if we want a great future for everybody. Maybe I am more political but I stand by it.

>> Thank you for your talk. Power that you talked about, closely related to language, and very few young voices like yours, I wonder what the older people like me can do to promote more people like you, so they are heard.

>> JONNIE PENN: I don't agree there aren't more young people like me, there is lots of young people like me. We have to move past an old definition of expertise. When you hear that word in certain settings, people think old white male. That is not expertise. In fact that is a very limited expertise because of that position, tradition of that person's position in society. Being young is a form of expertise. Being outside of traditional power structures is a form of expertise so amongst existing expertise, whatever someone's background is. I'm saying ask, ask young people to be involved. See what they say. Include them. Let them steer. But happy to talk afterwards if you have a specific project in mind.

>> Thank you, Richard Hill, civil society activist, thank you for the presentation. I thought it was excellent. I'm sure you are aware of the fact that the positions and solutions and analysis you have advocatedded are not exactly aligned with that of the, please don't take my picture. Of the U.S. government and that is not just because of Trump, that was the case also of previous administrations. And you mentioned that youth should resist.

Now could we be a little more specific? What did you have in mind? Should we go back to the streets like we did in 1968? Should we just help chomsski to write more books, should we do talks like you are doing? What do you propose? Mobilize more youth to vote as we know voting participation rate is going down? Could you try to be more specific? Maybe not necessarily now, I'm challenging you in future presentations to come up with more concrete things that youth could do to change the situation. Thank you.

>> JONNIE PENN: I'll try to be brief. I would say that, when I hear people say we need to reskill young people, why? To get the outcome, do young people -- are you re-skilling them for your benefit? Or their benefit? Because of course we want young people to have jobs. But if as experts say there aren't going to be jobs, traditional sense of jobs, what are we doing? Because a lot of young people work internships and work unpaid internships and work what we call bullshit jobs that I would say eventually we should just not do. If we are not taken seriously we will walk out of the rest of the jobs we are given and push for a higher level of tax to mitigate this kind of income inequality. I don't know. I'm just a guy, that is my perspective. But I don't hear this conversation happening.

So I want to try and offer a different narrative. But happy to talk about it afterwards.

>> FENG CHUN MIAO: Thank you for the discussion. I think we need to move to the next speaker, still we have two speakers. The next

one is the youngest speaker is Sara Conejo Cervantes, and together with Elena Sinel. They will share the ten minutes. At the same time, we have found several questions raised through the platform. I kindly ask the speakers to prepare yourself to respond to some of the questions.

>> Good afternoon, everyone. Thank you for having us today. I understand this is the first time young people as young as 17 are at these summits. It is a absolute pleasure to be here with you today. My name is Elena Sinel. I am the founder of acorn aspirations, and I will be launching teens in AI, teens in artificial intelligence. The reason why I'm doing this is because I think now is the time when we can engage young people as the gentleman has just asked the question about how do we engage young people, what do we do with them, I'm about to tell you about how we engage young people in England, and we have done this simultaneously in London, Afghanistan, in Chile and Kansas and Colorado. It is easy. It can be replicated in any part of the world.

All we need is just commitment and willingness with people to do this kind of stuff.

Wrong way. Okay. Here with me today is Sara, she will introduce and tell about herself later. What we do is empower young people to change the world through AI, and this is the latest initiative we are launching. We do this through hackathons, camps and accelerators. Show of hands, does anybody know what a hackathon is?

Ah, fantastic. Many people, so I don't have to explain.

Yes, this is ITU, I'm glad people are aware of hackathons. We ran over ten hackathons in London worked with over 1500 kids, age 12 to 18. We mix them together. We give them real challenges, like mental health, education, human rights. We get them to solve those challenges, and believe it or not they do, with the help of incredible mentors and advisors, with the help of Master's degrees, parents who come to mentor and it's a real community building spirit. We build communities. We bring people together. We get them to solve real problems, that they identify in their own communities.

So, what teens learn, it's not about coding. What we found is what attracts girls in particular to AI and other technologies is empathy. We teach them how to empathize. We teach them human centered design.

(off microphone).

We teach them technologies like VR, AR, AI, within space of two days, sometimes five days, and sometimes two weeks. We teach them ethics and responsibility. This is because we want them to think why they are creating code, and what problems they are going to be solving. We teach them to work in teams, something schools should be teaching them to do but they don't. When they work in teams in schools, it's not really class, it's cheating. We teach them how to cocreate, how to collaborate, how to empathize, how to learn. This is the fundamental skill in the 21st century. We do teach them

how to learn. One of the questions I, one of the things I tell them is first ask Google, then ask your friend and then ask me. Normally, they do not go beyond Google because Google has got answers to all things. So even when it comes to coding, there is nobody really to teach them. There are mentors who help them but teenagers are so capable of learning by themselves. You will be surprised.

Most importantly we teach them how to identify problems. This comes through the human centered design approach. They do solve problems. How to learn, so teens learn with the help of AI experts when it comes to AI technologies. AI entrepreneurs that we bring on board, university students, marketers and design thinkers, we bring the whole crowd together. Sometimes it's a hundred people, sometimes it's 150 people, sometimes it's less. When it's during boot camps or accelerators, but we get them all working together.

We want to show you a brief film, if possible, how it's done in practice. Then I will probably raise my hand and ask you to --

(off microphone).

You can watch it on our YouTube channel. Okay. Click on it. Yes.

>> 5, 6, 7.

>> ELENA SINEL: This is a AI hackathon we ran last year. (overlapping speakers).

>> Hackathons help young people to see how technology can enable anything to happen.

>> ELENA SINEL: What you are seeing is teenagers themselves.

(overlapping speakers).

(sorry, I cannot hear the speaker over the video).

As always we bring inspiring speakers, and if you have already met Sophia, she was part of our judging panel. Believe it or not she was able to contribute to every.

(off microphone).

(sorry, I can't hear the speaker over the video).

Go back to the Power Point presentation.

We ran over ten of them. We ran a youth conference. We ran boot camps and accelerators. I want to hand it over to Sara who can tell you about the stuff teenagers build, what inspired her, what her journey was and her feedback will inspire you as well.

>> SARA CONEJO CERVANTES: Thank you. Hello, everyone. My name is Sara Conejo Cervantes, I'm 17 years old. Currently I'm studying my first year of A level in the UK in London. My journey with coding and AI in particular has been so far for three years now. At the age of 14 is when I first started getting into code and coming up with ideas of things that could solve problems in the future. So far, different apps that myself and my teammates have created are studying based to help people pass their exams, because education, that is how it works. It teams you to pass exams.

We also have skills on Amazon which you can go and download, there is also apps that coaches you and help you eliminate public speaking fears and other examples that can be seen.

In addition to this, this is what we are going to be looking at, why is this important? Why is education and such looking into AI the future. We need to take into consideration that the future now is not going to be based on how much knowledge you know, but how you apply it to real life situations.

We need to be teaching young people how to use this knowledge and apply it to real life. Knowledge becomes less important now, because you can just go and ask Google anything you want and it will tell you the answer to it. We have to be thinking about smarter ways to ensure that knowledge is transferred in a good way, so that students can later on go on and use it. Education system doesn't do this right now. This is why we need to, not reform it, but transform it. We need to be changing it.

How are we doing this? We are running boot camps, hackathons and accelerations. Right now we have one on the 30th of May to the first of June, and then we go on to hack it. We go in to code it and with all the ideas that we have come up with, we make it in real life.

How can we empower young people across the world together, because it is not just going to be doing it one by one. We need to collaborate all together to get through this.

How can we give each young person across the world an opportunity to be part of the conversation, and solve the problem that they are passionate about through AI. AI is going to be the future. Everyone will be using it. We have already started. But it's just going to

continue.

I'm going to pass you on to Elena to wrap things up. Thank you.

(applause).

>> ELENA SINEL: Sara started her journey when she was 14. Now she is 17. You can see the transformation she's had from a very shy teenager that she came at the age of 14 and now developing AI algorithms in her school, and will be sharing her experiences with robot AI herself about what exactly she is doing at school and how she is using AI to solve real problems.

What I would like to happen today and for the next 12 months and next year if I'm invited to come back, I would love to tell you about what has happened and what progress we have achieved. Ideally, the actions I'm seeking is to develop a framework that can be used by any teacher in any school anywhere in the world. I would love to take hackathons to Uganda and Rwanda and Ethiopia and anywhere in the world.

The types of frameworks that we would love to explore is human centered design which is used to identify the problems and validate the problems. AI ethics, to encourage responsible code because this is so crucial right now. AI and machine learning enabling problem solving. The second thing is to develop an on-line platform which will allow any young person to connect with expert mentors and other young people across the world. This again is something that is crucial because somebody who is living in parts of Africa or Asia may not

have the kind of AI expertise that we have in London and an on-line platform will enable them to connect with the right mentors and experts.

Number 3, I so want to run an AI hackathon across as many countries as possible, help me make it happen. I really do want to make this happen. I've already run this in five parts of the world. I would so love to teach others how to do it because it is so easy. We are not reinventing the wheel. We are bringing the framework that exists, the best of what exists, and giving it to the teenagers, so that they can take it and use it to solve problems in their local communities because this is so important. Yes?

So, number 4, we want more young people to have the opportunity to be part of conversations on AI. I don't want this to be the last time. I want young people to be on every single panel in every single summit in every single conference, AI, VR, AR, you name it. We have got young people who do it all. They are capable. They should be heard. They should be part of those conversations because the future is about them. If we don't involve them now, into all those conversations, what hope do we have really? What hope do we have.

As I want to wrap up, I'm not going to leave you with a quote. You have so many quotes today. I'm going to leave you with a form, I'm going to ask you if you have the time to commit yourself to doing something incredible to empower young people in your local communities.

If you do need guidance and advice, you can contact me. In this

form you will be asked lots of questions, not many, enough for me to understand whether I can do something with you or help you or enable you or help you enable young people in your communities. I thank you for listening to me today. I really hope the conversations will continue after today. Thank you.

(applause).

>> FENG CHUN MIAO: Thank you very much. I think we have three questions raised by the platform. But very likely, I think the presentations have responded to all the questions, because first of all, whether the right to learn AI should be promoted, even after the elementary level or maybe at the developing country, of course I think we can see that. I give you example in China, the AI already be required across the elementary schools in all the schools.

The further question is what we should teach in the elementary schools to the children, I think this is already being responded by the presentations, not only to teach the coding, to teach how to create robotics, but also to teach the responsibility and ethics and also how to teach how to learn and really to do by hands on practice, I think we saw in the demonstration.

At the same time, why we should highlight youth in this panel, that is the challenge from the question raised in the platform. I think many speakers including Jonnie Penn and two speakers we just heard already responded to this because youth is the future and they are facing the most challenging issue that they will work in the

jobs that is not existing now. We should help them to empower them to create the future society. This has been responded.

I think we have reached the point that we are discussing how to do, how to do together, and I think it's the right time to inMatt Keller senior advisor in XPRIZE also sponsor in this event to introduce what XPRIZE is doing not only to incentivize development of AI application but scale up good project and programme around the world especially in the developing country. I want to say before the introduction that XPRIZE has been in partner with UNESCO. We will continue the partnership in the future to see how we can scale up what Elena said to bring the more voice from the youth, and actually just for your information during, in UNESCO we have the youth forum which is promoting the presence and voice of youth. At the same time when we organise UNESCO events, for example, mobile learning week we try our best to bring the youth on board. This year we even brought more than ten elementary school children to stand on the podium to speak together with other senior speakers and to ask questions.

I almost ask for permission next year we can bring together to UNESCO's conference. Now without any further ado I'm very sorry and I thank you, Matt Keller for your patience. I think your speech will be very important.

>> MATT KELLER: All right. Everything has been said, so I'll just say it again. So, I'm with XPRIZE, we are based in Los Angeles, California. We are an organisation dedicated to running incentivized

competitions that challenge the world to think differently about solving some of the world's grand challenges. We have got a bunch of different prizes out there, literacy prizes in AI prize sponsored by IBM. We have a carbon capture XPRIZE, can you take carbon and make it into something marketable. We have a water abundance XPRIZE, we have over a hundred million dollars worth of prizes in the world right now. The thinking is, can you use the power of the crowd to solve problems? Can answers come from the most unlikely places? Charles Lindbergh won a prize for flying across the Atlantic ocean, $25,000. The first person to fly nonstop from New York to Paris or Paris to New York. Nobody ever heard of Lindbergh. He was a 23-year-old mail clerk from Joplin, Missouri, from Kansas City, and collectively teams spent a million dollars to win $25,000. At XPRIZE, we find that the return on investment in terms of the spend to win the purse is sometimes 15 to one or 20 to 1. I'm leading the global learning XPRIZE. I sponsor by Eli Musk, it's a 15 million-dollar prize to the team that can create software open sourced software and content designed to bring children from 0 literacy to higher levels of literacy in reading, writing and mathematics on their own and with each other without the aid of a literate adult.

The question is, given the state of literacy in the world right now, can you incentivize the crowd to do this, and last September five teams were awarded a million dollars each for being five finalists, they open source their code and content. XPRIZE looks for grand

challenges. The numbers are astronomical, 60 to a hundred million kids can't go to school because it's too far, too dangerous. Girls can't get to school. 250 million go to school without having learned to read or write a word which is a epic market failure. It is even more than that. It doesn't matter where they are, Boston, Botswana, it's a failure in some ways of schools but also a failure of income inequality and social justice.

The question is how do you use technology for good in a way to reach kids who can't get to school, or if they go to school, they go to school in a class with a hundred kids with a teacher who may or may not be able to teach. That was the challenge of the global learning XPRIZE.

We put it out in September of '14. We announced at the General Assembly of the United Nations. We got down to 200 teams and then 38 teams and now we are down to the top five teams. Those teams we put those applications, the software and the content on 3,000 tablets. In December we distributed them to 3,000 children, in 141 very very remote villageses, in eastern Tanzania. So you drive and you get out of the car and walk five kilometers and there is a village where there is kids. We are working with the United Nations world food programme, UNESCO, government of Tanzania, with Google, to test the supposition and prove the supposition that children on their own can teach themselves how to read, write and do basic math. If we can prove that basic supposition at scale, we think the world will

look differently as to how children could actually learn.

The dream is, it's not going to happen as a result of this prize, but we will get one step closer, the dream is I give you this, and I walk away knowing that you have got a world class education in the palm of your hand, because you can't scale any other way.

You can't train enough teachers, you can't build enough schools in order to reach every single child, which is what the goal of the universal declaration of human rates states which is universal access to education. Technology and I'm not a techno Utopian but technology can play that role. If it's done right, and if we can prove it, we can scale it. That will make the world a better place.

In terms of our impact, we want to catalyze the market. We think that if you can prove that supposition, that people will design for kids in the developing world, will design for kids everywhere, so the hardware platform will catch up with the software. So you make something that is impervious to environmental degradation, you can connect seamlessly, self heal, it can self charge. We want to drive that market so children have access to learning all the time.

One of our teams is from India. They are called chimple. Everybody loves chimpanzees, and everybody loves Mahatma Gandhi, so keep the name simple, so it's chimple. It's a bunch of young people led by Sri who is older who formed because of the XPRIZE. They got dozens of coders and hackers and artists working on this. They are one of the top five. He explains in three minutes how he uses AI to help

children learn.

>> The best way to deliver literacy education is through self-learning more. But it comes with its own set of challenges. In the school there is a teacher who would actually guide the child through various lessons. But on a self learning tablet, there would be no such teacher present. The system would actually have to take the role of the teacher. So the system will actually have to learn from the child what the child's preferences are, what the child is doing well on, by repeated quizzing and repeated tests.

Based on this feedback, the system will know what to emphasize whether the child is doing good on reading, whether the child is doing good on writing and then make the child learn the one where progress is not very good. A very important part of literacy is learning how to write. On a self-write system such as a tablet, there should be a intelligent agent which will actually check what the child is writing, and try to understand it, and make sure the child is writing well.

We have implemented an artificially intelligent neural network, which will recognize the strokes read by the child and put it in a gameified format and make sure the child is writing well. A big issue in education is personalized learning. It's very inefficient for one teacher to set the pace for a class full of 50 or 60 students.

Some students might get bored because it's too slow. And some students might think it's going too fast. Our AI agent sets the pace

for each student individually. It's based on multiple factors, how much does the child already know, whether the child likes to learn in a group setting or individual setting, whether the child likes to learn visually or orally, is it experiential or didactic, but on a tablet based system we have tried to replicate the same thing using a mentor or a friend, as a friendly face for all the intelligence. In the beginning, the child communicates through this mentor using emojis or fixed words or sentences.

As the child learns more, and gains literacy, the child can ask questions or answer questions, and the agent also keeps asking and answering questions. This creates a bond with the agent and a friendly face. Learning need not be confined to only the four walls of the school. Since the child will create the tablet and the agent inside it as a companion, it can accompany the child wherever the child goes. Every outing is, can be converted into a learning opportunity. When the child visits the store, exercises can be given to label the items, tag the items and photograph them. We are truly excited to be building an AI enabled learning solution.

We believe that AI is the difference between a solution which is poorly received and one that is extremely scalable. We think that by this AI agent will grow up with the child, and the child will become a globally educated citizen.

>> MATT KELLER: That is the dream. That's --

>> The best way to --

>> MATT KELLER: Can you develop a mentor for a child. Can you develop something that is so intuitive, so inferential, so dynamic, that I give you this and you can't help but learn. That day is going to come. What we are trying to do is usher in that day faster, sooner rather than later. That is XPRIZE. That is the global learning XPRIZE and that is my friend Sri. Thank you.

(applause).

>> FENG CHUN MIAO: Thank you very much for very short but dynamic talk about what you have done. I have my colleague sitting here, and I'm sorry for keeping you here so late. But if you have any questions, I would like to pick up one or a couple of them.

If not, maybe I can ask all the speakers to have a concluding remarks before we conclude the panel. You can respond to the question relating to complementary roles between the human intervention and the artificial intelligence technology, or you can talk from your perspective. Maybe Matt, you want to start.

>> MATT KELLER: Sure. Obviously having human beings is vital, but you can't in many cases, and kids fail, my kids go to school with, learn hearing 30 million more words than a kid who goes to school in the south Bronx or somewhere else. How do you design to fill that gap. Not to supplant but to supplement.

It's a failure of imagination, that we haven't solved this problem. I think technology can do it.

>> I was going to agree with that. And to expand on that a little

bit, it's the aspects of bringing both the social and like AI together, which is where we want to go to. I think using AI as an aid in the future to help people learn and help each other learn is where we want to go. If that means using AI dispatching tablets around the world and getting kids to use them, then that is definitely where we want to go.

>> So I think exposing social problems to youth and allowing them to use AI to solve their problems is a very good idea. But I think maybe we can move one step further. Maybe instead of exposing only those domestic social problems to the kids it's not enough. Maybe we can try exposing them to the global problems that the youth can possibly solve, so that when they grow up, they will realize that AI will not only be used for those for profit purposes, but also for those not-for-profit purposes in the areas that maybe they are not so familiar with, but they can actually help.

>> Thanks. I don't know. I feel like the planet is dying, and if this is, this is the next electricity, let's use our imaginations. I think the conversations that we are having, the point I come back to any time at an event like this, is like technology is a means. It is not an end.

We have to agree on what the ends are that we want. I am advocating for, you know, the sort of work that is being done on this panel, I don't want to have to rely on Elan musk or the whims of Bill Gates to have a future. The government works, it's whether it's working

for people or not. AI can distract us. It can seem like a thing that is going to save the day and then what. We can supplement I think all the great projects that are going on in the AI ecosystem, with a dream of a better world. Just as past generations have. We have so much to be thankful for from the sacrifices made from people before us and revisiting that history and letting young people know that they can resist, if they don't just choose to themselves, I think is grounds to a better future. But this has been a great event. So I think we are on our path there.

I just want to keep going.

>> Thank you very much for all the comments. I think what I can take from this panel is that we all agree that it's very important to work with developing country to promote the development and applications of AI in education and also for other sustainal development goals.

At the same time, we also agree that it's very important to empower the youth, but also maybe even the younger children in terms of the values, rights and skills relating to AI, because they are the future. And we are also facing maybe the most challenging scenarios in terms of the learning and the future work.

So, and also we agree that we need to learn from the history, and we need to work together, so anybody alone could not make a big impact. That is what we can learn from this panel.

So, in this context, I want to, as the last message, to inform

you that UNESCO is organizing a big event, artificial intelligence, very likely will take place in the early of next year. So please keep an eye on UNESCO's website or any news from UNESCO.

I think all of you will be welcome to UNESCO to join force with us to work with all the countries in the field of using AI in education. Thank you again for your attention. And you can continue the conversation with the panelists during the rest of the two days. Thank you again.

(applause).

(end of session at 1749)