

THE ST. PETERSBURG INTERNATIONAL ECONOMIC FORUM – 2010
JUNE 17–19, 2010

Panel session:
Russia - Today and Tomorrow
NEW MODELS OF EDUCATION AND TRAINING IN COMPREHENSIVE SCHOOLS
In cooperation with United Company RUSAL

JUNE 18, 2010 — 18:00-19:30, Pavilion 4, Conference Hall 4.3

St. Petersburg, Russia
2010

Description:

The digitalization of all forms of media and changing social fabric of the modern family are entering the classroom at an increasingly earlier age, challenging education leaders and policy makers to design new curricula and modes of interactive learning that will shape the leaders of tomorrow.

- 1) What technologies are being effectively deployed to better education at primary and secondary stages? How should the government support these efforts?
- 2) What will school classrooms look like in 2020 in the developed world? Will technology in the classroom accelerate the digital divide?
- 3) Which societies are best demonstrating the promise of the digital classroom?

Moderator:

Tina Kandelaki, TV presenter

Panelists:

Mark Agranovich, Head of Centre for Monitoring and Statistics in Education, Federal Institute for Educational Development

Dr. Boris Berenfeld, President and CEO, The International Laboratory of Advanced Education Technologies (ILAET)

Anatoly Kasprzhak, Rector, Moscow School of Social and Economic Sciences (MSSES)

Katerina Polivanova, Scientific Director of the Program “Communication, education, technology”, Moscow School of Social and Economic Sciences

Yefim Rachevsky, Principal, Moscow High School “Tsaritsyno”

Pavel Sergomanov, Rector, Krasnoyarsk Region Institute of Further Training

Tuula Väisänen, Director, Finnish-Russian School, Helsinki

Igor Valdman, Director, Center for International Cooperation in Education Development, Academy of National Economy under the Government of the Russian Federation

Transcript:

T. Kandelaki:

Good evening, everyone. Thank you very much for joining us. I already tried to use “autofollowing” to trap all of you so that you can’t walk out on our discussion. But now I see that many of the people here today realize that everything starts with education. All the panels today are relevant and important, of course, but not one of them will produce results if we continue to educate our children the old way and the education system, which determines to a great extent what kind of people will be living here in Russia, is not brought up to date. Naturally, this is of interest to all of us, including the members of our panel who are prepared to speak here today. They are going to tell you all about it. Of course it would be nice if our discussion produced results faster than most discussions typically do. We’ll have to hope for the best.

I want to tell you a little about what we’ve got going on behind the scenes. This is not the first time we are getting together, and do you know what is surprising? When we met together for the first time, instead of sitting down and logically preparing our presentations so that this would be interesting and you wouldn’t get up and leave, we suddenly realized that we were all arguing. As parents of one generation or another, we ultimately realized that this was the most important thing, that this is what has everyone worried. Regardless of what positions people might take... You find yourself in the company of others and you might find this person boring. You might not agree with him about certain things. You might have different points of view about politics or the economy. It doesn’t matter. But just start talking about education, about your children, and the education system they are in, where they are going to school, what that school has to offer. Whose responsibility is it to raise your children — yours or the school’s or both? Suddenly you realize that you can’t tear yourself away from the conversation. You can’t tear yourself away for years. Today I hope it will equally difficult to tear yourself away. I really hope that it won’t just be because we’ve closed and locked the doors. Actually, they’re open. You can come and go as you please. Hopefully, you’ll stay because you choose to take an active part in the discussion. That is very important to us. We hope that you do more than just listen, that you are more than merely interested in the discussion. It is our hope that you end up wanting to participate. Because the results of this discussion depend not only on what we say to you, but on what you say to us.

So, thank you once again for staying with us. I am really counting on your participation. Allow me to start the discussion. Our first speaker will be Anatoly Kasprzhak, Rector of the Moscow School of Social and Economic Sciences. I’d like to mention briefly that Anatoly has continued to teach, and that’s very important. Not only has he worked in a school for many years, but, more importantly in my opinion, he did not abandon teaching even after becoming an administrator. I

was afraid of Anatoly when we first met. I had this unshakeable feeling that I was in the presence of a true teacher. Therefore, I want to assure you that, regardless of whatever hat Anatoly happens to be wearing at the moment — and he's worn a lot of them — all the same he remains and will remain a true teacher. And what is a "true teacher"? It's a person that is ready to teach for free to this day. For me that is the best definition. I myself was going to be a doctor, so I understand, as banal as it sounds, that there are two professions that you go into simply out of love for the profession itself. The other professions are probably out there for people who simply want a career. Even today, that's what teachers and doctors are. Anatoly Kasprzhak is a real teacher and I will listen to what he has to say with great pleasure, once he gets fired up. And I hope that you have a similar experience here today, as it is he who will be opening our panel. I just want to read my statement. It'll be easier for me that way. Is that all right? In a serious voice, and with feeling.

As a teacher of physics, he was assigned to Moscow's School No.381. He later moved to School No.388, where in 1985 he became the director and began to restructure things while continuing to work as a teacher of physics and pedagogy. In the early 90s he set up a few experimental model schools at the Moscow Institute for the Development of Educational Systems, which he headed up for several years. In 2001 Anatoly left the school to found an education management department at the Moscow School of Social and Economic Sciences. While working at the school, he participated in a number of research projects — often in a leadership role. His employers, naturally, were no lightweights — the Russian Ministry of Education and Science, the National Training Foundation, the World Bank, the European Union, the Fund for Cultural Initiatives, and so on. Anatoly is the author of more than 100 academic papers, and in 1995 he became a PhD and received the title of Distinguished Teacher of the Russian Federation. For several years, he led an association of innovative schools and education centers in Russia, and in 2000 he won a national competition for the development of a basic curriculum known as "Schools of the Russian Federation". And I could add that he is parent and grandparent to two generations of school children. Is that right?

A. Kasparzhak:

Yes, I'm getting a little bit uncomfortable. If you don't mind, I'll take off my jacket. I just sprouted wings and they're a bit cramped... Like a museum piece for the Kunstkamera. First of all, thank you very much. That's all good practice for I don't know what — maybe my 60th birthday party. We've spent enough time praising me to the heavens. Let's get to today's topic. We actually had a number of difficulties preparing for this meeting. Tina was absolutely right about that. We were tempted to raise a ruckus over the Unified State Exams or attempts to change education over to

the supposedly fee-based nature of the education system. We understood that we'd be making a lot of noise here and attracting a lot of press, or at least we thought so. Yaroslav Kuzminov thought that was what was going to happen, but it didn't. We didn't go down that path at all. We thought about it and decided that we needed to organize our talk differently, to put our focus elsewhere. It turns out that nobody is satisfied with our Russian schools — and that would include employers, parents, the teachers working in the schools, even the students. How did it come to be the norm that no one is happy with our schools? How did it come about that to say something good about school is practically a faux pas? What happened so that everyone claims that the Soviet school system was the best in the world without being able to back that up with any real understanding or substantive findings? We decided to talk about what a school should be so that it somehow meets society's needs. So think hard, close your eyes, and when we ask you what you'd like your children to be able to do and what qualities you'd like them to have when they finish school — and don't answer for someone else's children. Answer for your own children — it'll likely be that what we want for them is to graduate, ideally speaking two foreign languages, or at least one fluently, to have good computer skills and be free, independent, and healthy. Today's schools do not ensure even one of these qualities. In order for children to attain these qualities, we end up paying for education a second time. We already paid for school once when we paid our taxes. How did it happen that people in other countries caught on to this 40 or 50 years ago, but we didn't? This is why we thought up the following motto for our meeting here today. We took our idea from Leskov's *The Tale of Cross-eyed Lefty from Tula and the Steel Flea*, or what we Russians call simply, *Lefty*. Remember when Lefty is dying at the end of the book while sailing back on a steamship from England, he says: "Tell the Emperor that the English don't clean their guns with brick dust, and we shouldn't either, because if there should be a war, God forbid, they won't be any good for shooting". Essentially, we wanted to talk about the school that for some reason doesn't shoot as it should. I second what Tina said, that we'd like this to be a discussion. We'd like the discussion to proceed in the following manner: we'd like to give two presenters a chance to speak — Mark Agranovich, Head of the Centre for Monitoring and Statistics in Education at the Federal Institute for Educational Development, and Katerina Polivanova, Scientific Director of the *Communication, Education, Technology* program at the Moscow School of Social and Economic Sciences. We'd like to give them about 10 minutes each. They will share their views on Russian education and present our main questions, the questions that are in the program, that is. They will decode them and flesh them out, and each of our experts will have five minutes to respond. And then you can try to reason with us. That way you'll understand our ideas. You'll see that we're not just idly speculating... I will not be introducing our speakers — I was a student of Gureev. And since this is a panel discussion on higher education, I trust you'll be able to find us in your programs. Those of

you who are interested are welcome to read them. I just want to mention one thing. Between us we've got about 20 children and 10 grandchildren, and a combined tenure as teachers of over 150 years. We aren't sitting in offices at the Ministry of Education, thinking about education — although we certainly need those people. This is more than just theory to us. It's real, because we, too, send our children to school. And now, let's hear from Mark Agranovich.

M. Agranovich:

Thank you, Anatoly. We're having some technical difficulties at the moment. We had hoped for a visual presentation here. I work with statistics, and, for whatever reason, numbers don't really come across when read aloud. Unfortunately, we are unable to provide the visual, so I will give you a simplified version instead. Again, I work with statistics. And in statistics we have this wonderful indicator — average class size. That means, of course, how many students there are in the class. Some figure that the more students, the better — up to a certain limit — because this makes sense economically. One of my British colleagues spent some time in Mozambique, where the average class size was 45. He said he went into the classroom to discover 19 students instead of 45, and out of that 19, he said 10 were paying attention to the teacher. And 4 of them actually understood what the teacher was talking about. That makes you wonder how many students were actually in that class. What is the average class size? Although it manifests differently, of course, I can tell you that we see basically the same thing in Russian education. From the outside, everything looks wonderful. We offer complete basic compulsory education. We have inclusion. Everything's great. But if you look more closely, you see significant discrepancies between Russian schools and modern educational models. For starters, let's think about such simple things as the number of years it takes for 90% of the population to get through school. This is a basic indicator. It shows to what extent universal basic education is actually universal and to what extent it's basic. In affluent countries, education generally begins at age 4 and continues for 14 years. In other words, 90% of the population is in school from age 4 until 18. Russian education begins at age 7 and continues for 11 years. The next item is the question of how overloaded children are. We always say that our children are so overburdened by school that they can hardly lift their heads. Is that true? If we look at a week's academic load in our schools — the number of instructional hours per week — then we are more or less on a par with other OECD countries, or maybe our load is a little bit heavier, just a couple of hours more. But that's only the weekly load. If we take into account the number of academic weeks in a year, then the academic load in Russia ranks among the lowest. About three weeks' less schooling than the OECD average; our children study less by almost a month per year. We have very long vacations and a lot of holidays. When you roughly add up all the instructional hours that go into a basic education, it turns out that your

average student in other OECD countries is in class for a total of 11.5 thousand hours. But here that's only 8.5 thousand hours. That's actually one quarter less. So in that sense, our basic compulsory education is down from that of other countries by one quarter. One more thing that strikes me as very important. Again comparing ourselves to other OECD countries, the fact that our students aren't required to be in school as many years means that by the time they reach the age of 17, more than 60% of our children are studying in technical schools and universities. In other OECD countries, all 17-year olds are still in secondary school. In Russia, the same 60% are in universities and technical studies at age 18. In OECD countries, you have the same 60%, but they are still in secondary school. At 19, we have approximately the same 60%, but in OECD countries, that figure is down to 30%. It's only when they turn 19 that they start to enter tertiary schools and catch up to us at around age 19 or 20. Our children finish their general education very early and start their professional education very early, too. They start their professional education with a knowledge deficit and limited life and relational experience. It's harder for them to define themselves professionally, to know their interests, inclinations, and so on. It's possible that this is one of the reasons that the overwhelming majority of our college, university, and technical school graduates are not working in their field of study. This is yet another fundamental difference between our system of general education and the general education offered in other developed countries: When our students finish their general education — that is primary and secondary schools plus vocational school, i.e., preliminary professional training — 60% find themselves in a position where they have to go on to institutions of higher learning. Only about 40% are ready for some kind of profession. In developed countries — in the most well developed countries — this ratio is inverted. There, 60% of secondary school graduates receive a certificate that they can use in the labor market. They have some sort of marketable skills. Our students only have the option of going on to institutes of higher learning, which to us, of course, is pretty funny. But for the really poor countries, this ratio is a disaster. In those countries, about 80% of graduates of secondary education have to go on for more education. This is hopeless. The fundamental difference is a shorter basic compulsory education — shorter in duration with fewer instructional hours. As far as curriculum content goes, we are talking about general programs — what we call a fundamental or basic Russian education — which, in my opinion, isn't so much fundamental as it is academic. This is absolutely inessential. As is a premature graduation. These are the basic differences relevant to our discussion. There are actually many, many differences. In the realm of financing and so on. But I will limit myself to the difference I've mentioned so as not to take up all of your time. And with that, I will turn things over to Katya for "What do they teach in school?" Is that right?

T. Kandelaki:

I would just like to interject that we are in fact in a very challenging position, since we are talking about an extremely significant indicator that accurately reflects on education in general and the differences between our education and Western education, which continues to be our basis of comparison. We are unable to make any visual presentations, so I again ask the audience to listen carefully, since this is all very complicated. The main thing, which was obvious even from what Mark said, is that we are still living with the belief that our education is the best. As a product of the former Soviet educational system — I am, in fact, from the last generation of Soviet schoolchildren — I became accustomed to a certain confidence that our education is the best. My mom used to say, “You’ll be an A student and you’ll go on to university”. She meant that I’d be accepted at university without the aid of bribes, without any personal or special connections. In other words, if you were a good student in a Soviet school, then you would end up with a good job and a good salary, and all the rest of it. Everything was predetermined. As for the opportunities today, unfortunately, things have reached a point in our society where I can’t say to my own daughter: “Study harder than everyone else and you’ll get a good job”. That’s not how it is at all. And that brings us to the question of why a good education in the West guarantees a good job, but it doesn’t here. Today’s situation in education gives rise to a host of questions that we need to ask you, and, maybe you need to ask us, hopefully provoking a general discussion. That is to say, is this education good enough? Do we need to take three months’ vacation? Are there parents here who have children who are on vacation right now? It would be interesting to know. Yes, one...Well, that clearly shows the demographic situation in the country, it seems to me. Ladies and gentlemen! For me personally, this discussion is interesting not only as an exercise for evaluating different models, but also as a real way to find answers to absolutely vital questions. For ten months my daughter told me that fourth grade was unbearable, that it was extremely difficult, that the students were totally overwhelmed with work. Now, Mark, I’d like to return to something you brought up — the idea that we goof off for three months. The question is: what am I supposed to do? The school doesn’t suggest anything. Should I force her to study for three months or not? This is probably interesting, just as a story from ordinary life experience. So what am I supposed to do? I call the school director and I look for a new school, since the next level is the fifth grade. I say, “Tell me, could I bring her over in August and have her start studying?” They say, “It’s not worth it. This year was very difficult”. And I say, “Wait a second. How can that be? You know yourself that everything it took 10 months to learn will be forgotten in three”. As it turns out, fifth grade is strictly a review of what was learned in fourth grade. That’s the real problem today. If I may, I would ask you all to take notes so we don’t lose track of the all important points. That way we’ll definitely have opportunity to talk about this later. Katerina, please excuse me. I always want to illustrate somehow — if only in words — the things that, unfortunately, we don’t have visuals for today.

K. Polivanova:

I'll begin my prepared talk in a moment. First, I just want to respond to what you said about Soviet schools — “Be a good student and you'll end up with a good job”. There were well-trodden paths in Soviet schools, lines that we followed from one point to the next. Nowadays, when at every juncture there is an array of possibilities and I am faced with a choice — and outside circumstances might play a role, too — it can be really interesting. And with that I have actually transitioned to my presentation. Respected colleagues, I, too, I am unable to make use of the visuals I prepared, so I will try to be as concise and clear as possible. If Mark outlined the conditions affecting our children in school, then I will talk briefly about the results — about what they take away when they complete a given level of study. If we want to know what they take away, we have to have some kind of assessment tool. Unfortunately, we don't have such assessment tools in Russia, but it is interesting to see how Russia compares with other countries. When the first results by way of comparative research examining Russian education and education in the West became available, the initial reaction among people, well, among the powers that be here, was that there must have been some kind of error. It's probably true that no assessment is perfect. And it's true that this is a picture of Russian education that was taken with a Western camera. On the other hand, we have no other camera, so let's use what we've got, as it gives us some mode of comparison. Russia regularly participates in international studies. This has been going on a large scale since about 1995, which means we have results that you can truly draw conclusions from. The first study that was conducted (it was abbreviated as TIMS, although you don't need to remember that) assesses education outcomes by subject. That's what matters. Did students do well or poorly in physics? How did they do in mathematics? Fourth and eighth grades are assessed. In short, Russia has been in good shape since 1995. The last time this study was conducted was in 2007. Russia placed 10th out of 49 countries. In other words, we have something to be proud of. That speaks to the issue regarding the quality of our education. It would be great if there weren't any other studies besides this one. We could have celebrated and given everybody a medal.

From the audience:

If you speak into the microphone, that would be even better.

K. Polivanova:

I need to wave my arms. I can't just talk into the microphone all the time. But in 2000 another assessment emerged, the PISA — like the Tower of Pisa — where things took a fateful turn for

Russia. That was when we learned that Russia was in 29th place out of 32 countries. It was our reading skills in this case. At first, everyone said it couldn't be true, that it wasn't accurate, and so on. But then the study was repeated in 2003, and it happened again. 2003, 2006, and 2009 are long gone, but, unfortunately, no data has been published as yet. Russia is in a bad spot. To put it delicately, in terms of statistics, the outcome of Russian education is far from the average. You'll see how it is. I have mentioned only two studies. In one we did well, and in the other we did poorly. Question: What is it that is being assessed? A more careful analysis of the data reveals that Russia is the only country — I repeat, the only country — where the results of these two studies are so disparate. The only country. All the other countries revealed some kind of pattern. By which I mean that everything came out more or less even. Either both studies came out more or less good, or both came out not so good. In some cases, both were average. Russia has taken a tumble here, which means we have to ask ourselves what was being assessed and why did the results come out as they did? The answer is actually fairly simple. If the first assessment, TIMS, which measured how we were doing in physics, put us in good standing, then the second assessment — Pisa — was developed more from the perspective of “Learning for life” — a slogan of sorts. In other words, you won't find the typical test questions there. Instead, the assessment presents various life situations which the student must navigate and explain using knowledge gained in school. And it turns out that our children are absolutely incapable of doing this. And again, I stress that Russian education was the exception in this case.

From the audience:

In that sense, we're exceptional — the best in the world.

K. Polivanova:

Well, we're special. We've got our own “particular disposition”, as the poet put it. If we take a closer look, if we break down the results, we see that did very well on a different scale, i.e. in mastery of subject area content. Children don't recognize real life applications for school subjects. In other words, an excellent physics student doesn't recognize the laws of physics in action in real life. He is unable to identify them. Even the TIMS, where we did well in general, shows that we are not doing well in reasoning. Our analytical skills lag behind all the rest of the skills that TIMS assesses. This aspect of Russian education — and this is something we need to pay attention to — this aspect of Russian education has been consistent for the last ten years, since 2000. As I mulled this over myself, this means that for the entire time that we've been doing regular assessments, we have had consistently strong results in knowledge and consistently weak results in the application of that knowledge. We give students the tools they need, but they don't know

how to use them. They have no clue that what they learn in school is valuable for anything other than getting good grades. So, we see that Russian education is essentially characterized by a superior mastery of knowledge at the expense of the ability to use this knowledge. By all accounts, it's a stubborn trait. It isn't going away. Please note that we have a national project called *Education*. Since the program was launched, there has been one crisis after another. All kinds of things have happened, but, unfortunately, little has changed. Mark posed the question, "Should we teach subjects or skills?" I would like to repeat his question, only this time as it relates to the information I just shared with you. And there is another question I'd like to ask, but first I need to set it up. Exactly a week ago a graduate of our Moscow School of Social and Economic Sciences in Samara, a student who is now writing her master's thesis, was conducting research on the subject of whether or not the availability of computer technology in a school affects Unified State Exam (EGE) results, comparing well-equipped schools and poorly-equipped schools. Don't quote me on this. Any research needs to be fine-tuned, of course, but at this point we can safely conclude that technology has no effect. That means that a tremendous amount of financial resources invested in outfitting Russian schools with computers have not had any positive impact on educational outcomes. In this particular situation, the results were measured by the EGE. That's all well and good, but the international studies I mentioned have to be given serious consideration as well. The question is: why has such a huge outlay of resources on the computerization of Russian schools failed to produce any improvement in educational outcomes? That is my second question, which I would like to address to my colleagues. I am hoping for a response.

T. Kandelaki:

Could I just say one thing about something that's bothering me? Who remembers natural rubber synthesis — I think that's what it was — in a blast furnace? That was the most frightening thing. To this day I still don't get it. Did anyone learn that in chemistry besides me? We studied that back when I was in school. You have to wonder — why was that necessary? I understand that a few graduates from Soviet schools probably did end up working in rubber manufacturing. But every student had to learn about that process. Just a little tidbit — is learning for life or, well, why do we need knowledge? I was looking over the statistics, which, unfortunately, we weren't able to show you today, and I discovered that Russia has the largest percentage of workers with post-secondary education. I don't know. The numbers have changed a bit, but for me it was shocking. I was talking to American schoolchildren and asked them, "Do you know who Tennessee Williams is?" They looked at me with big eyes like that cat from *Shrek* and said, "No, who's that?" But it was vital that the Soviet schoolchild know who Tennessee Williams was. Not only that, but every

schoolchild today knows who Chekhov was, and who Dostoevsky was. That's probably a scary question. But sooner or later it is going to come up in discussions of the modern school system. Does everyone need to know that? That's the part that is so frightening.

K. Polivanova:

Tina. I am with you on that question, and I would give an intelligible response.

E. Rachevsky:

How do you do?

T. Kandelaki:

I'll make a beautiful introduction. May I? May I introduce the principal of Tsaritsyno High School, my colleague in the Public Chamber, Efim Rachevsky?

E. Rachevsky:

Thank you. I have 2017 children. I am currently a high school principal. Listening to my colleagues, I've started to feel depressed. So how about I talk about something positive. Would that be all right? I won't talk about anything negative at all. Recently I found myself in a very entertaining situation with two classes, 9B and 9C. I gave them a maths quiz. The classes were equal in ability. One class was told that it was a geometry test, but the other class wasn't. The first group had markedly better results. This raises the question — is our teaching having an effect or not? You know what makes me happy? That at an economic forum they decided to start talking about school. In our country we used to have a complex about food. You probably remember that. Then we had a complex about war. And if we now have a complex about education, then that means things aren't really that bad because, as far as I know, almost all the countries in Asia, Africa, Latin America, and Europe 'suffer' from the same complex. And France has an education complex. In England they have an education complex; otherwise they wouldn't be instituting all of these reasonable reforms. The education crisis has been with us forever, and it will be with us forever. But we should remember one, simple thing: school and education are a huge, multidisciplinary system, and the changes you start on Monday are not going to bring results on Friday. That's certainly for sure. Luckily, nothing happens quickly here and no one gives orders. I'm not sure that the Unified State Exam is a universal indicator, at least not for us. It might become more universal in the near-term, which is what I wanted to talk about. Let's talk a little about children, okay? Otherwise it will just be all statistics. Let's talk about the living. Has it been a while since you've seen 150 fifth graders all in one place? Fifth graders are the liveliest of all. My school has four

buildings — a kindergarten (where we enroll children ages 3 and up), a separate school for the lower grades, a middle school for preteens, and a separate school for older teens. The most comfortable place, as I'm sure you've guessed, is the kindergarten. It's also not bad in the primary grades. With the younger teens, everything is supposed to be surprising. Everything is beautiful there. The classes there are of a rare quality. We set up masters' workshops there. When we say "masters' workshops" we mean not only the kind where you might hear the scrape of a sculptor's rasp, but the type of workshops intended for ceramics, computer modeling, and so on. One interesting observation — no statistics. This is based on experience, although I'm sure you could back it up with statistics: Have you noticed how spontaneous children are until age three? They smile. Then they clam up a bit and then they go to school. Our research shows that they come to school with a well-maintained set of basic abilities. The future first-grader works very well in the world of problem-solving, and can thrive in dialogue. There were some results from studies that Katya didn't bring up. Our tenth-graders recently took first place in the world in reading. That wasn't long ago, and then what happens to all that? I know what happens. It's very simple. Our children are different. They are lively and gregarious. They are definitely not Soviet children even though they continue to attend a Soviet school. These changes come about much more slowly. I would also like to note one more thing. What is lacking? During the transition from the primary grades to fifth grade, students have entirely different interests, different motives, but the teaching methods we use are the same as in the second and third grades. Even the classroom is the same. We've mentioned computers in school. We recently bought some digital 'smart' boards and hung them up in our primary school. This is how one element can alter an entire teaching approach. Everyone has a good idea of what first graders are like, right? You don't have raked seating in schools, so if you hang the smart-board too low, the students in the back won't see it, and if you hang it high up, they won't be able to reach it. One smart teacher — this was five years ago — came up with a very simple solution. She moved the desks to the side, laid out a nice, warm rug, and the kids started sitting on the floor. Then she asked the school to supply her with desks on wheels. So now, just like that, depending on the activity, she can completely change her approach. That's something we're really lacking in school today. I'd also like to mention one other thing. We say that children have changed. Children have become an entirely different population these days. I'm speaking based on my own observations. First of all, they come to school with a fairly interesting, fairly good understanding of information culture. Everyone knows the program "Intel gives school children little computers". We thought we'd surprise our students. We didn't. They already know it, they understand it, and they know how to work with it. For them it was the most natural thing in the world. Another thing — they're curious. And their parents, like Tina, for example — the last of our Soviet school children. I call their kids "the first unwhipped generation".

Regardless of what the government does or doesn't do, their parents take a very active role in education-related problems. Tina's proposal to shorten vacation from three months to two — that is a good example right there. Schools today are beginning to respond to social demands, if and when society makes these demands. In 1992, a long time ago already, I wrote in big letters across the school building facade: "Going to school should not interfere with my education". Do you remember who said that? It was Mark Twain in *Huckleberry Finn*. I never thought back then that these words would become so relevant. These days school has ceased to be the only source of knowledge. As for theory, I think it has no place in school. The only subject we've given the right name is "physical education". As long as this academy or the other continues to insist, for example, that we offer a variety of science that borders on scientism, we will continue to see the kind of absurdities that Tina was talking about. Thank you.

T. Kandelaki:

I hope that afterwards...

E. Rachevsky:

I was just citing an example...

T. Kandelaki:

If you'd like, please clap. Really. That's a sign that you've gotten through to them, that you found the right language...

E. Rachevsky:

I am the first school principal to be invited to speak in the entire history of the Forum.

T. Kandelaki:

Efim was right on target when he noted one thing that to me doesn't even require thought. It's just second nature to me. I got it that with all the changes going on in our country, no one runs around unattended. In my childhood we ran around on our own. We turned ten and said, "Mom, I want to go outside!"

E. Rachevsky:

Tina! Even a second-grader has a personal organizer! Everyone — I mean the families that don't drink — can we agree on that? Not the elite, just the families that don't drink. My school is located on the periphery of Moscow, near the MKAD.

T. Kandelaki:

Here's something interesting, Efim. Let's say we're going outside and we have — I'm in two classes, one with my daughter and one with my son — then someone definitely has to keep an eye on the children. They won't be sent outside unattended. That's why children — again, I'm going on my two classes, which you can figure is about 60 kids — children aren't itching to go outside like they used to. That's because they're socializing all the time on the Internet. And there was something important here that Efim said: school is not the only source of information. And we, the parents, are also not the only source of information. Today President Medvedev said that one of the indicators of modernization will be that 90 out of 100 people in Russia will be using the Internet. We're already headed in that direction because the Internet is totally accessible in families where the parents have jobs and they don't drink. As a result, we have this gizmo or that gadget — a personal organizer, a telephone, whatever comes next — things that give children the ability to socialize with whoever they want, to be creative and formulate their own education spontaneously. Because you're right, Efim, that it shouldn't be just book learning all the time. It doesn't matter what the school gives them to do. Later I check online and see they are all on VK, a social networking site, talking about things that are specifically of interest to them. If you go online to see what they find interesting, you may discover that they have a lot of questions about education. Because they rush through their homework so they can go on VK, where they form groups based on their interests. Now these groups, they reflect totally new interests for school children, and you can't get away from that. By the way, Boris Berenfeld, who is our next speaker, met my daughter on Skype today. I told her just today that if she behaves badly and refuses to study over the summer, then with Boris's help I am going to arrange for her to go to English classes. She politely answered that she has no intentions of going anywhere. She's staying put. That was where her acquaintance with Boris ended, but mine continued. Boris is president and CEO of the International Laboratory of Advanced Education Technologies. He showed me an extremely interesting program that, unfortunately, we are unable to share with you here. Those of you who would like to continue this conversation privately with any of us who are present today will be given an opportunity to do so. We consider this important. It's really why we are here making these presentations. I also want to mention that Boris is one of the pioneers in the use of the Internet as an educational tool. He was selected to become a permanent member of the respected World Technology Network. And with that, I'll turn it over to Boris Berenfeld.

B. Berenfeld.

Thank you. This is my first time here. I'll begin by telling you about the two times I've crossed paths with Efim Rachevsky, so as to pick up the baton. The first, and you've probably forgotten it now, was in the smoking room at some seminar. We got talking about nanotechnology. We talked for about five minutes. It was a totally new field at the time — this was many years ago, around '89 — and his eyes lit right up. A principal whose eyes light up. The future of education depends on him. The second time we met was when I had the privilege of escorting education administrators from Moscow around England's "schools of the future". We arrived at a school in the working-class neighborhood of Bristol. There is a program in England called *Schools of the Future*. The Labor government allocated 59 billion pounds for the transformation of all of the country's schools into "schools of the future". They've already transformed about forty. Unfortunately, the new government is closing down the project. So, we arrived at this school, and Efim was downstairs on the first floor where they had classes for children with special needs. He saw a class of six or eight students with two teachers. Not only were there computers, but there was all the little stuff, small things. He came out and, well, he used some words that I won't repeat here, but in essence, he said, "That's how children ought to be loved, treating them like that".

E. Rachevsky:

I want to add something, Boris. They then put on *Romeo and Juliet* for us, and Juliet was played by a girl in a wheelchair. But five minutes hadn't even passed before we forgot that she was in a wheelchair. Thank you.

B. Berenfeld.

So, the most important thing is to love children. I have another Russian memory. In the middle of the 80s there was a project called *School of the Academy of Sciences* when Gorbachev set the goal to offer a computer class in every Soviet school. The industry — we had 8 or 10 ministers that were all responsible for the production of electronics — put up a fierce resistance. It was a real headache. They said, "Show us why computers are necessary". Then the Academy of Sciences set up a project called *School*, which I was a part of as a biophysicist of sorts. But I had one of the earliest personal computers. I remember I had to hide my dot matrix printer from my neighbors because in those days it was a dangerous thing to have. And we started one of the first network projects. That was in the mid-80s, when parents were afraid to make international calls. But children in other countries were socializing with each other on the Internet. I remember one very good teacher at a very good school told me, "You know, we need that whole Internet thing of yours about as much as a fish needs a bicycle". 20 years later, and let's take a look at what's going on. Like Anatoly suggested, let's close our eyes and imagine something like an evolution: It took 4.5

billion years for life to create a biosphere, a totally unique envelope surrounding the earth. The atmosphere protects us from pernicious radiation; the soil gives life to plants. Then it took about another million years — and our own Vernadsky wrote a great deal about this — to create the noösphere, the sphere of reason. And it transformed Earth, for better or for worse. And now look around. Beginning in about 1960, before our very eyes, a new envelope is forming around the earth. I suggested we call it the infosphere. As this envelope forms, it brings together all the cultures, information, and human resources of the planet. Nowadays, if you want to know “How do I say that in English or Chinese?” you just Google it. When you want to buy a ticket, you’re making your purchase and the program tells you, “Someone else bought this for a lot cheaper”. It may only be beginning, but before our very eyes there is a planetary brain being created. The noösphere is creating the infosphere. And today the real question isn’t how we should set up classes or what kind of chalkboard we should hang up. The real conversation now is about how we give children access to the infosphere. This access already exists. Tina is right about that. But for now it’s a one-way street from the infosphere to the classroom. Just think. We still have a lecture-based system. That’s outrageous. Now imagine there are people just like us sitting in a thousand places around the world, or maybe 10,000 places, or even a million. And they’re all discussing the same thing. An idea pops into everybody’s head, a stroke of genius, a mini discovery. But right now we are all disconnected. For us this will likely never become reality, but imagine what it will be like for our children. In some Soviet or Russian school, on Friday, the 11th of May, 25 children were studying the structure of leaves, roots, and plant stems. A typical lesson. At the same time, another million children were learning the same thing. And ideas popped into each little head. More little discoveries. It’d be nice if they could talk to each other. But they are connected by metal, by wires. They are “wired” as they say in English. Intellectually, however, they are disconnected. I said “wired” not “connected”. It seems to me that one of the main challenges facing us today is not strictly a matter of computers. It’s more a matter of the intersection of computers with networks and the emergence of this new infosphere. We’ve already started to live in it, and we will continue to live in it. A school is surrounded by walls. Up until now, learning has been a very intimate process that takes place between the teacher, who explains, and children, who listen. The kids leave class and they start to “tweet” and “text”. These are the next best thing to verbs now. They operate like a society, and they learn from each other. And we’re still trying to get by with the old-fashioned lecture system. What kind of technology is used in school? The current technology includes “explanations at the blackboard”, “oral quizzes”, “homework”, and “review exercises”. This is all great technology because one teacher can teach ten children, a hundred, or a thousand, if he or she is given a stadium. The issue is that the teacher gets paid not for how much the students learn, but for the fact that he or she teaches. The teacher basically has an

hourly wage. Since we're here at an economic forum — wonderful, I agree. I am in support of the discussion of this topic. Various technologies are coming into schools. As far as using them goes, it's very simple. I read somewhere that when the industrialization of agriculture began in Russia, they sent new tractors to the villages and the kolkhoz, and the peasants often hitched plows to the tractors or horses to the tractors. I mean the horse pulled the tractor and the tractor pulled the plow. Well, that's a story from the past. Nowadays technology is coming to schools because schools are a market that is wide open for businesses. All of a sudden they realized this. According to McKinsey, it's a 1.5 trillion dollar market. Whether we like it or not, all of our schools will be transitioning to digital blackboards. In Russia alone the market amounts to tens of billions of dollars. And this will bring about changes in education. The teacher will no longer stand in front of traditional chalk and eraser. It will be a huge computer screen instead, hooked up to the Internet, the screen — the entire world. And Tina's daughter, who I met today, is there, on the screen. So behind the teacher is this huge interactive screen, a window on the world. There's no other way to teach. Not to mention that we need to consider the health and productivity of the teacher. For example, in 10% of British schools, teachers have a small, elegant microphone that looks like a pendant. And the teacher can talk at a normal volume for 5 or 6 classes a day. No erasers, no chalk, none of that traditional stuff. So, today we need to talk about the fact that schools are changing, and changing very quickly. They are changing because of the arrival of new technology, because society's needs have changed. The word "knowledge" in Russian is deceptive. It means factual information and the ability to make use of it. In English the generally accepted terminology is "content skills", "concept skills", and "process skills". This triad is very important. In my opinion, it is technology that will help us master these skills.

T. Kandelaki:

I just wanted to show everyone how technology makes it possible for an audience to respond interactively. I have to ask my daughter to forgive me for doing this without asking her ahead of time. She doesn't know I'm going to call her because she has a classmate over. Girls, we are talking about education. Efim, they are an audience of fifth-graders, just like you mentioned before. I want to ask you something. Are you happy with your education? Is everything more or less alright at school? Or do you have questions, or are you unhappy about anything? We've got a lot of people here, and they are trying to fix your problems. Do you have an answer? They are saying, "We don't know. We need to think". Maybe there are some big problems that you think we should talk about? No? Everything's good? Maybe you want more vacation. Maybe four months would be better. What do you think? "I don't know". Well, isn't it nice that there are 3 months of vacation?

E. Rachevsky:

Tina, that's really good that they said they need to think. That's really good!

T. Kandelaki:

I'll tell you the most important thing, Efim. The biggest problem children face, if you ask them, is that they have calisthenics at school at 8 in the morning. They say, "Can't we do away with 8 o'clock calisthenics?" and, by the way, here's another interesting idea: "Can't we start school a little bit later?" It's as if the system itself has started to change on its own, and yet we still start at the same time as we always did. I have hidden from them. I hung up on them, but now they are calling me. They liked talking to us. Now, if you'll allow me, I'll introduce our next speaker. Yes, please. Yes. Kids, be quiet! Listen to what they have to say.

Y. Gusev:

My name is Yaroslav Gusev. It is my pleasure to be here, though, admittedly I came, thinking, "What's with all this business?" It's nothing but business all the time. I myself have four children, and I'd like to say a few words, if I might. I categorically disagree with some of what Boris said and I would like to respond to something Katerina said. The thing is, I am from Chernogolovka. For those of you who don't know, Chernogolovka is a hub for scientific research. We have 15 research institutes with a population of only 20,000.

T. Kandelaki:

It's near Monino.

Y. Gusev:

Yes, it's near Monino. It's in the Noginsk District. So, I guess I could start talking about education now, and I want to start from that moment when people start taking care of their own children. What do I mean? Where I come from, we are all academics and almost everybody leads some sort of discussion group, be it physics, chemistry, whatever. I personally lead a maths discussion group. But this is an exception to the rule. Regarding the question of computers and this correlation which, supposedly is necessary but hasn't been recognized... Our company outfitted a classroom with computers. Then we outfitted all of School #75. So now you can give your students grades in real time and both the students and their parents can see them in electronic form and do something about it. That means that you can no longer just rip a page out of your report card the way students did in the past. The problem is that the teachers are not computer literate. Sad though it may be, their computer skills are so weak that they don't want to work in the new

interactive systems. This is very apparent even in our specialized classrooms. I can't really say whether that is good or bad. I don't have the same categorical response that now that the information realm has become so accessible, our school children are really suffering because they can't access it in any way. I am of the opposite opinion. I think that by relying on this information boom we are creating a generation of compilers, of data processing machines. If at one time people wrote research papers, now they just download them from the internet. It used to be that when someone had a question, they would go out into the woods or conduct a chemistry or physics experiment. That doesn't matter anymore. Now they go and ask, "What's it like there?"

K. Polivanova:

Excuse me, please. May I say something? I agree with you in part. I also disagree. You see, what you're talking about — it seems to me that we are talking about the same thing. You can pump in all the hardware you want, it's easy and expensive, but there won't be any result. You are saying that there should be new technology for working with children. Whether it be going into the woods, or setting up an experiment, be it in nature or on a computer, and so on. It's coming across, actually, I'm just trying to understand what you are saying. You're talking about a teacher who either works or...

Y. Gusev:

This is the question I wanted to ask. It was of interest to me and I thought it would generate some discussion. Here's the question. Excuse me. Maybe I'm drawing it out too much. Ten years ago, as we know, we had the information boom...

From the audience:

Well, what's the question?

Y. Gusev:

Yes, there's Moore's Law: the number of processors increases by two, by ten times, and in this case information increased by 1024 times. The issue is the quality of the information. With so much information available, how can a child who is using the Internet without any experience of his own understand the criterion of quality of information?

T. Kandelaki:

I beg your pardon but, could you please make that a bit more clear? I love complex questions myself, but that's my problem, so I want to understand so that...

Y. Gusev:

Here's my question. Don't you think that the lecture method is a teacher's way of protecting a child...

T. Kandelaki:

The question then is whether or not the Internet is getting in the way of learning. Is that right?

Y. Gusev:

Up to a certain age, I think that it is absolutely...

T. Kandelaki:

Another quick question so that I can make sense of this. Do you have children of your own?

Y. Gusev:

I have four daughters.

T. Kandelaki:

And you don't allow them, I mean you took away their computers, or what?

Y. Gusev:

From the time they are 13.

T. Kandelaki:

From the time they are 13. Another quick question. I'm just curious. Your children get to school, and other kids have the Internet. The other kids are in that world, and yours aren't. Do they say, "Dad, are we out of the loop?"

Y. Gusev:

Yes, that's bad. They do say that.

T. Kandelaki:

And you tell them, "This is where I stand on the matter. I'm your father. This is my decision", right?

Y. Gusev:

Yes.

T. Kandelaki:

That's all. I get it. Thank you.

A. Kasprzhak:

May I...Tina, may I respond? Since the question is about teachers, let Sergomanov speak. Let's not argue about "informatization". You know that's a dead end. When I was little, I often went to the country. Out there grandma didn't know how to turn on a television. And there were families, families from Moscow who belonged to the intelligentsia, who didn't even own televisions. But no matter how hard we resist technological progress, it will not make it go away. Today there isn't anybody doesn't have a television at home. Not one person! Wait, there is! The people who have a computer that they use to watch television. I mean, you can say, "Let's go back to basics. Let's go live in the jungle". And we can do that. But the second problem that you mentioned is critical. That's the question of the teacher. And Pavel Sergomanov works with teachers. It seems to me that he can speak to this issue, if Tina doesn't mind...

T. Kandelaki:

I... before we have Pavel respond, I'm going to give you a short answer. Here, if you will, is an opinion. My child is listening to what you are saying. Unlike you, I allow that because I believe that progress, as Anatoly so aptly pointed out, cannot be stopped. They'll borrow a friend's phone. You realize that, don't you?

Very briefly I would like to ask what kind of problems we have in school. The answer? "It's a really hard program". "What exactly do you mean?" "In America it's a lot easier", my daughter responds. I ask, "What should we change?" Her quick reply: "There's too much math". That's a technical answer for you. "And we don't go on enough field trips". So, even though my children are as "computerized" as can be, that doesn't get in the way of their desire for hands-on learning about their world. In other words, none of this suggests that the thing is somehow making them slaves of the little device inside that holds all the information. They still want to learn about the world, right, Pavel?

P. Sergomanov:

That's exactly right.

T. Kandelaki:

You've got a perspective that's not from Moscow, thank God, because they often say that there is only one way of looking at things in Moscow, while in other areas...

P. Sergomanov:

If you'll allow me, I play two professional roles. I have been working as a school psychologist for 18 years. Then I began to work with teachers. I am rector of the Career Development Institute, and my perspective hails not from Moscow, but from Siberia. And, thanks to the emergence of these little devices, Siberia is not lagging behind. We are in the loop. Yes, I agree with the idea expressed about teachers. It is not inadequate equipment that is holding back our schools and school projects. Nor is it a shortage of money shortage of shortage of equipment. It is actually our teachers' skill set that is holding us back. What is a teacher today? Efim has 2,000 children, and I've got 25,000 teachers. Just for the sake of comparison. There are 25,000 teachers in the region and we work with all of them. So what is a modern teacher? There was a study conducted, if I'm not mistaken, Efim, at the initiative of the Public Chamber. In this study they came up with a portrait of the average teacher. A small salary, hardly ever goes to the theater, doesn't care about children at all, and complains about life constantly. That's the gist of it. Mind you, this probably produced a bit of a reaction in all of you because people generally don't talk about teachers like that. It's bad to talk about teachers that way. If you remember "Meet them, teach them, and then say goodbye" and all that beautiful romanticism, in a certain sense not much different from the romanticism you find in the camps. Certainly the biggest obstacle to the modernization of education that we are talking about today is the teacher. There's a McKinsey study that shows that the quality of a school cannot be higher than the quality of the teacher. For the most part, they are one and the same. And how things turn out depends on who is teaching your kids. That's why, in my opinion, modernization of the school system needs to begin not with the schools per se, but with the career development institutes, that is, with our teachers. If a teacher can't do something on the computer, then children immediately lose interest. And that means that they are moving away from an education system, a normal education, computer literacy, into that wild world that, as I understand, you oppose. I think you'd agree that if everything were as it should be, if a child were to learn computer science not spontaneously — not on the street or in the courtyard, but at school — making use of it in the proper way, then it would be an entirely different picture. Is that right? Tina, we have people in the audience with questions. One more thing. It seems to me... there are 2 questions... it seems to me that the word "interactive" as applied to computers is a source of confusion. Interactive — that's when you have two actions, one action and a separate action, but human actions rather than computer actions. So any connection you have via Skype is not interactive. What's interactive is your child's answer that "the program is too hard". That's it. I

understand what kind of message she's sending her mother: "Mom, the teacher is making my life miserable: too much maths". What is she writing? "We want to learn more about the world". Right. Because the issue is how independent a child is, how capable children are of doing something on their own. Is the school working aiming to teach children to be able to do something on their own instead of making them totally obedient so that they — this is key — can get through as much material as possible? They just keep cramming it in, and cramming it in, and cramming it in ad nauseum.

T. Kandelaki:

Boris, do you know what struck me most when I visited the National Museum in England for the first time? I was in shock when I saw a group of children on field trip with their teacher, who was sitting with them on the floor. We're talking about serious things, but sometimes it's the most commonplace things that make the difference. I remember I stood there for five minutes and couldn't get it into my head that that was a teacher. I asked again, got a little closer, and they told me "Yes, that's a teacher". I said, "He's in charge of those children?" and they said "Yes, he's in charge". "And he's sitting with them on the floor!" They tell me, "Yes, he always sits on the floor with them. They're sitting on the floor, too".

I can tell you that it was only recently that adults started taking me seriously because my childishness knows no bounds. That's probably why I've been able to host that show "Who's the smartest?" for so many years. If only I sat on the floor...

E. Rachevsky:

We have a question in the audience.

B. Berenfeld.

In answer to the question raised, I think that we need to make a distinction between two aspects of information technology. One, as the result of increased productivity among teachers. But for that we need to be able to measure the teacher's labor and for that we need a different economic system in school. If we could pay teachers based on results, then schools and teachers alike would have the motivation to increase their effectiveness. Current technology allows the teacher to stand at a control panel and control video cameras, microscopes, and scanners. We now have feedback systems that make it possible to have a constant connection between teacher and student. I can explain something and then see all the different answers on a screen. But all of that costs money and it's unclear who is going to pay. The second question is how to best make use of the Internet and computer technology with children. It's not a simple question of their needing the

Internet or needing computers. I think we need to gradually immerse them in this world of information. There's a certain program that Tina mentioned, *GlobalLab*, whereby every class becomes part of a global laboratory. They work the way professionals work. They have a shared database. They have discussions, share goals, and so on. That's a good example. And it doesn't conflict with what we are trying to accomplish with children in school. That is, it's not an end unto itself.

T. Kandelaki:

I have to ask the audience to forgive me. We'll divide our time as follows: when we finish up, everyone can have a chance to make a few remarks, and after that we'll start to talk about education together. There isn't enough time? We have questions already? We do, don't we? Sorry, Tuula Väisänen is next. Let's do it like this — everybody gets two minutes, okay? So keep that in mind, alright? Sorry it's turning out this way. Here you are our guests, and we've had to cut back on your time. Please be aware that it would be good if you can say what you want to say concisely, and then we'll get to questions. Can we agree on that? Tuula Väisänen, principal of the Finnish-Russian School in Helsinki. It's all yours.

T. Väisänen:

Thank you. I'll be brief, as is customary in Finland. I'm a true Finn and I have no intention of talking long. I would like to talk about the skills that students need to master for the future. When talking about the school of the future, what are the most important skills? The school of the future should use research methods. And these abilities — study skills, critical thinking skills, the ability to find and analyze information from different sources, the ability to apply acquired knowledge in one's personal life — we are learning for life, not for school, but for ourselves — the ability to solve problems, to find the right solutions and, this is important, the ability to work in a group. The students that we are teaching today will be entering the workforce in 15 years, in 15-20 years. They should be capable of functioning and socializing in virtual spaces with people from different cultures. We need to teach them to be flexible, tolerant, motivated, enterprising members of a group, to be personally and socially responsible, to use computer technology and computer innovations in their work. I also want to mention that they are the most important part of the learning process. In the school system, this is one way of achieving our goals. What do we need? We need new teaching models and methods, new materials, and advanced training courses for our teachers that are consistent with educational requirements.

T. Kandelaki:

Thank you very much. Igor Valdman, director of the Center for International Cooperation in Education Development, Academy of National Economy under the Government of the Russian Federation. Igor, I won't list all of your titles and awards. I will mention only the most important thing. Igor has a wealth of professional experience in education policy, education management, and education evaluation. That's why we are giving Igor this opportunity to speak. After that I think we have enough questions to move to a real-time mode so we can answer all your questions as quickly as possible. Thank you.

I. Valdman:

Thank you very much. Actually, there's nothing worse than when there's some kind of monolog in school and the students are forced to merely listen as opposed to actively participating. It's not your fault that there are nine of us here. There could have been 13 and then you would have had to listen to us all. I want to get two ideas across. My colleagues talked about all the problems with school, why school doesn't work, and what needs to be done. There is one thing that seems very important to me. We can talk about the teacher, about information technology, about teaching methods, but we need to honestly acknowledge that in the real world people have their own learning styles. I'm talking about both children and adults. People learn via wildly different styles and using the most varied approaches. On the street, in the family, at the baker's, talking to a traffic cop, at school, in different educational arenas. We need to understand one thing. No matter how well we develop our schools or pump them up, no matter how well we develop our teachers — because of its somewhat conservative nature, our educational system is never going to be able to set up every kind of activity in all its various forms, thereby producing a person who is capable of doing everything. From my point of view, the school of the future is a school with open architecture, a school that can manage all the different partnerships with different educational platforms or with other existing knowledge platforms — museums, libraries, field trips, the contribution of mothers and fathers, not to mention, of course, interaction with peers and games. The possibility to open up and change — this, from my point of view, is of paramount importance. A school will be successful only to the extent that it is open and able to utilize the resources of the educational environment. Let me give a simple example. Any of you here today who have been abroad have probably visited what is known as a *science museum*. It's a place where you can find a three- or even a two-year-old and an adult pushing 70. You can go up to some kind of physics apparatus or a plant. You can fiddle with it, state your hypothesis, make a guess, look, and see what happens. Schools arrange field trips to such museums and have classes there because they understand that they can't do all that in a school. These are such interesting knowledge centers. Organizers put out a very interesting brochure about the natural science museums in St.

Petersburg. Museums in Russia are wonderful. They have amazing exhibits with little placards that say something like “This apparatus is for such-and-such, was invented by so-and-so at such a time”, and so on. But if you so much as reach out to touch it to find out how it works, well... I myself was in the Polytechnical Museum, and one of the guards approached me, saying, “Don’t touch that. Only we can turn that on”. So, in conclusion, I would like to shift our focus a bit and ask, “What is the role of business in this sphere?” This is an economic forum after all. And what could business do to help, being that it is such a socially active group? Along with everyday and ordinary things, like paying your taxes in full and on time, there are two more things to consider. First — making our companies, our producers, our businesses open to the general public — to adults as well as kids, so that we can cultivate potential clients and customers for our own products, our own technology, and providing opportunities for field trips and experiments of some sort while cooperating with schools at the same time. And second — right now this isn’t happening at all in Russia — investing either individually, with the government, or via partnerships in projects aimed at developing infrastructure and knowledge, as in the case of a science museum, for example, and many other things. I can say that these kinds of investments bring high returns. You might see a Nokia stand there, some kind of shipbuilding companies, where you can try anything. Business comes and creates the infrastructure for knowledge, where children and adults come to learn. This is something. Opening up and creating that kind of infrastructure could really lead to dramatic changes for our schools. Thank you.

T.Kandelaki:

Well, I can see that the questions have started to boil over. Yes, ma’am. The blond woman in the second row. Let’s begin with your question, please.

From the audience:

Hello. My surname is Fushka. I am the director of the School of Young Businesspeople, at St. Petersburg State Polytechnic University.

I would like to present the results of a city-wide competition that we held for the upperclassmen of St. Petersburg’s secondary schools. 1500 upperclassmen from 521 out of the 600 schools in Petersburg participated in the competition. The theme of the competition was Reforming Russia in 2010. The kids had to draft a plan for reform which they would then use to introduce change in Russia. I am an economist, so I’ll give you figures: between 50-55% of the participants proposed educational reform, 30-35% recommended reform affecting small business. The theme that ran throughout all the programs for reform, however, was access to higher education. My question is for Tanya. I know that you are launching a project, that you have initiated a project, whereby we

would travel around Russia in search of gifted and talented children. I'm appealing to you, the students are appealing to you — tomorrow is their senior ball, 1500 students — so that higher education will be made accessible to gifted and talented students. Because for one reason or another, they don't have access. That's the first thing. The second is that this is an economic forum, and the theme of our panel is new models of education. The World Economy department at the Polytechnic is working on a project for the creation of a school that would teach students how to start a small business. At different levels there is talk about how we don't have a unified information space. This question is probably best addressed to Katerina, who is heading up the project "Communication. Education. Technology". Let the kids get information about how to open their own business. We are the first to start this project. It's a free program. The students will be invited to visit some of St. Petersburg's leading companies and they will attend lectures. I will let you know the outcome of this project at the next forum, a year from now, where 400 graduates will join us. And let's raise the question of creating a school to teach people how to open their own business at the federal level. Thank you.

T. Kandelaki:

Maybe I'll start with Katerina then, since the question was directed to Katerina, or would you like to answer it?

M. Agranovich:

May I say just two words about the topic of access to higher education?

I want to point out that higher education in Russia is the most accessible in the world. That is to say we have accessibility on a par with that of a woman of loose morals. First, the percentage of our population that receives secondary and post-secondary professional education, if my memory serves me correctly, is the second highest in the world. Canada has surpassed us, but all the rest are way behind, nowhere within reach. I'm not talking about the quality of that education. I'm talking only about its accessibility. We now have about 20% more students in their first year of college than the number of students who graduate from basic secondary schools and vocational schools put together. Not only that, but by 2018 the number of young people who will be of student-eligible age in institutes of higher learning will decrease by about 30%. I believe that the institutes of higher learning will be seriously competing for young people. They will be fighting each other to see who can recruit whom. I wouldn't continue talking about accessibility, and the question of quality of education is a whole different ball game.

A. Kasparzhak:

No, no, I disagree. The comedian Zhvanetsky said it all when he asked, “Why did you take so long to ask me the question?” Remember, when he had his 60th birthday, he read his autobiography, which started with the line, “I have a high-level technical education — that is to say, I have no education”. We just had a session all about higher education. You should have told us then what we were supposed to be asking about. Thank you.

T. Kandelaki:

Briefly, so no one is upset later because they didn't get an answer. I'll give you a very quick answer. I'm talking about contact between talented children and employers. I want to delve into this issue. If you are interested, please come see me afterwards and I'll explain to you how I intend to make it happen. It is possible. We are ready for the next question. The man in the tie, or the man next to the woman in white. Sir, in the tie, we are ready for your question. The elegant gray suit, the blue shirt, Brioni shoes.

G. Dobromilov:

Thank you. Grigoriy Dobromilov, Director of the Humanities Research Laboratory. I work in humanitarian innovations and political consulting, and along with all that I also teach — not much, just 5 lessons to one class. History, social studies. So I see this problem from two different angles, and it seems to me that we spoke very little today about what I consider to be the most important problem. Only at the end did we touch upon it, and it literally can't wait. We have two or three years left before we will be forced to do something about it. It's the problem of the teachers in our schools. Who is it that ends up teaching in our schools? It's pretty simple. The students that didn't make it into the more prestigious universities went to teaching universities, and the students who didn't who didn't do well there left and started teaching in our schools. As a result, we have a cohort of young teachers who are not only incapable of using a computer. They don't even know how to think. This is not a question of skill. The problem is they don't think.

K. Polivanova:

For the love of God, forgive me. But you just now did a sociological study. It is what's called a double negative teacher selection process.

G. Dobromilov:

Yes.

K. Polivanova:

I only commented because it's so obvious.

G. Dobromilov:

Yes. The middle generation of teachers in schools is nearly gone. They left for more successful endeavors. For example, we lost a teacher of geography at the school where I teach, and this was a teacher who had taught a student that won the Russian Student Olympics. Forgive me, but she now works somewhere making dumplings.

A. Kasparzhak:

Forgive me, you're talking about something very clear, something we're all familiar with. Now you know, as the teachers say, when there's no time left: "And... and... ?"

G. Dobromilov:

And it's a simple question. In a few years it will be too late. The older teachers are leaving, and the young...

A. Kasparzhak:

We got it!

G. Dobromilov:

What should we do about it?

A. Kasparzhak:

It's very simple. I'll respond to that. This is not a question for you to ask us. Since we are at an economic forum, this is a question for us to ask of you. If a factory posts an advertisement for a mechanic, and the advertised salary is RUB 5,000, then that means that the factory does not need a mechanic. You understand, if we have teachers working at a pay level that Lenin himself talked about, then we are saying that our society does not need education. I'm making a bridge connecting this to the panel on higher education. There Vladimir Mau said an amazing thing: A society with a raw materials-based economy does not need education.

T. Kandelaki:

Right, I need to give the floor to the man sitting in the opposite row, the man in the blue suit.

N. Kaiser:

Good evening. My name is Nikita Kaiser. I am a teacher in the regional youth movement, the Union of Young Petersburgers. I would like to tell you briefly about a new educational model apropos of the subject of this roundtable. I believe this model has yet to be presented in Russia. The thing is, in some European countries secondary school graduates have the opportunity to receive what is called a volunteer voucher, meaning that for one year they can work as a volunteer in a nongovernmental organization of their choice. They make that selection on their own, choosing from a number of possible directions: ecology, art, business, or work in a specific agency. They can also opt to receive a grant that would allow them to participate in the program abroad. The thing is, this type of deliberate and voluntary work experience helps solidify the moral and civil values in graduates, which is invaluable for their future success in life and in society. And by becoming involved in some sort of professional undertaking of their choice, they will gain a better understanding of what kind of profession they would like to pursue in the future and where they'd like to go to university.

A. Kasparzhak:

Tina, may I interject something here because we've started getting into some specific examples? This is what we are trying to say. I am not talking about you now. I'm talking about us. You know what the situation is. We tried to show you that there is the Unified State Exam to be considered, that there is a law that changes the distribution of funds. So what do you say? In education we are always looking for the answer to all our problems. We think that, well, by introducing some new program, everything will straighten out. But education is a frighteningly complicated system. Simple solutions just don't exist. You can't just increase the length of study by a year or introduce new textbooks, or something else. This is what we tried to tell you. Apparently, we didn't make ourselves clear. Our school doesn't at all resemble the schools in the West any more. It's like comparing a Zhiguli to a Mercedes. I want to remind you that the VAZ 2106 was the best car, but that was in 1966. So now you propose some new educational model that will, as you see it, save the day. You go into that program and your eyes will light up because you are so inspired. There will be better educational outcomes with that, but as soon as your eyes lose that luster — and they will, it's only a matter of time — those outcomes will evaporate one year. We need a systemic solution. It's you, my friends, it's you that must find the solution to the question of paying young teachers, as well as teachers more advanced in age, and, well, I'll end with an ellipsis. Excuse me.

T. Kandelaki:

Questions, please. The gentleman in the first row.

From the audience:

Tell me, how many teachers are there in Russian schools? Does anyone know? I estimate that there are about 100 thousand, maybe 200 thousand, and if each of them gets a salary of 5000 rubles...

P. Sergomanov:

I'll answer this question. Until recently there were 74 thousand schools in Russia. Now there are 54 thousand. And there were 20 million students, but now we have 13 million, although the number of teachers has remained the same — about 2 million.

From the audience:

Oh, two million teachers. It's just that if the number was 200 thousand, then if you multiply that by 5 thousand, then that will be a yearly salary of...

A. Kasparzhak:

School serves a certain social function. It's social security for these people.

From the audience:

For 200 thousand teachers with salaries of 5000 per year, the sum will be less than half of what AvtoVAZ made in one year and...

T. Kandelaki:

We always want to make that comparison with AvtoVAZ, I totally agree with you.

From the audience:

The question is why does that happen? And there is an answer to this question. It's a familiar question, I think. We don't need to repeat it, and there is a solution. This problem has been solved in a number of countries, where the schools and universities were in total disarray, I'm talking countries that were at one point behind the times, countries like Singapore, Taiwan, South Korea, and so on. These countries decided to attract players who play by the modern rules of the game, to attract bearers of modern technologies to the public sector. These people started to develop an economic plan and bring it to fruition. That, by the way, included education, and they started to spend their money very wisely. As a result we saw a miracle take place in Asia. These countries caught up to America and some of them even left America in the dust. Russia has the potential to catch up to America, too...

T. Kandelaki:

At this point everyone understands that we need to approach things from the point of view of management, that management is needed all over the place. And it's obvious...

From the audience:

The problem is that Russia lags far behind in terms of attracting management that knows the modern, global rules of the game. We don't have people in our political system who were educated abroad. That is one radical difference between Russia and other countries.

E. Rachevsky:

My apologies for interrupting you. You're mistaken about management and education abroad. There won't be serious changes in education here as long as the children of the municipal mayor don't attend municipal schools, the children of regional administrators aren't educated in their respective regions, and Russian children in general aren't educated in Russia.

From the audience:

The CEO of AvtoVAZ doesn't drive a Zhiguli.

B. Berenfeld.

Another comment. We now have to be aware that our country's resources aren't limited to oil, gas, lumber, and so on. People are a resource, too. As long as we don't learn to take into consideration what a well-prepared schoolchild is worth and what it's worth to us to elevate this student's level of ecological, molecular, sociological, etc, awareness — 3%, 5%, 10% — we will not be able to bring in any real economic mechanisms for the solution of these problems. School prepares people for you, for business, for all the structures of society, and yet school remains a significant expense on the periphery of the economy. That's the problem.

T. Kandelaki:

I have a question, my friends. Technically, we've run out of time, but since we are last on the schedule today, we can stay put if you'd like to continue the discussion. I think we can be bold and stay here for another half-hour, especially if there are more questions and you would like to stay. Less time? 10 minutes? I'll mark ten minutes, because I'm sure that we won't be finished after 10 minutes. Thanks very much, by the way, speaking of interactivity. I see now on Twitter, "Tina Kandelaki is leading the discussion". And who are you, might I ask? Young lady, raise your hand,

please. When they say that it's impossible to get your problems and your message across to an audience, it's not true. Now you can say anything, and thank God for that. There was a man there, yes, I saw you and worried that you might not have time. But you do.