International Impacts

Projects • Players • Goals





Deutsche Telekom Stiftung

"Everyone can learn from others"

PROF. DR. WOLFGANG SCHUSTER CHAIRMAN OF THE EXECUTIVE BOARD DEUTSCHE TELEKOM STIFTUNG For over ten years, Deutsche Telekom Stiftung only carried out projects in Germany. All that changed in 2017, when it began broadening its focus to include other European countries as well. In our interview, Executive Board Chairman Prof. Wolfgang Schuster explains why the foundation began looking across the border and what kind of activities it engages in.

Mr. Schuster, you did a lot of traveling overseas last year, as did other people from the foundation ...

S That's right. But we also welcomed a lot of foreign visitors who came to learn about what we do. International contacts always involve some give-and-take since everyone can learn from others.

International outreach has always been an explicit part of the foundation's mission. But for over ten years, you only did projects in Germany. Why?

S Because we wanted to get the foundation on a firm footing in Germany first. It's what our founder wanted us to do when we were set up, and it's what our Board of Trustees has vigorously advocated. When we started out, we viewed ourselves as a learning organization: we work with academics and teachers to develop promising STEM education ideas, test them in projects and then scale up to maximize the impact. By following this playbook – focusing on STEM education in Germany – we've managed to occupy a key position in Germany's educational landscape in less than 15 years. Our international profile has grown as a result. In recent years, we've received a growing number of inquiries from neighboring countries about our willingness to extend our projects across national borders. And so, in the spirit of European integration, we've started to work toward approaching that goal.

That sounds very tentative ...

S I prefer to call it well thought-out. We can't transfer our successful activities wholesale to other countries. That's why we're taking a strategic approach and carefully analyzing the STEM situation in each country. Also, our ambition is to be involved in the operational side of each project and not just to fund existing projects. That requires us to reach out to potential partners in these countries, just as we do in Germany. So we've been talking to government administrators as well as educational practitioners such as university teachers and principals. And since we don't want to re-invent the wheel, we've also been talking to partners here in Germany that already have international experience or even networks in the countries we're interested in.

Could you name a few examples of current international projects?

S Last year, we made tremendous progress with three international programs in particular. One of them involved school partnerships for Junior Engineer Academies. Their purpose is to get students to collaborate on engineering projects, also through student and teacher exchanges. Typical projects include building robots or using 3D printers. What I find so impressive is that these kids find ways to collaborate in the real and virtual world despite the language barriers. Next, we'll work on setting up independent Junior Engineer Academies in other countries. Our second program revolves around enabling FundaMINT scholars to student-teach abroad. We help up-and-coming STEM teachers to obtain a studentteaching placement at German-language schools in other countries. And then there's our Volunteer Readers program. These adults read books to children as a way of introducing them to math, science and technology concepts. All these programs have one thing in common: they promote sound STEM education ideas while also winning ambassadors to spread the project's spirit and ideas to others.

What exactly do you mean?

S We want our project goals to scale in order to provide better education opportunities for as many young people as possible. Not just in Germany, but abroad as well. You see, we're looking at more than the individual experience that people gain from student exchange programs or student teaching. We want the methods and concepts that we've developed to take root in each country and coalesce into self-supporting networks of JEA schools and volunteer readers – and possibly even a network of youth centers that are supported by our "Ich kann was!" initiative. It's our way of making Europe an everyday reality that has value, substance and meaning for many young people.

www.telekom-stiftung.de/en/international-activities



Comprehend the World through Books

Everyone everywhere loves a good story. Four people talk about the Volunteer Readers project.

What do you like the most about day care?

Marlen always comes to our day care to read to us. I love the books she reads. They're about mice, hedgehogs, birds and even pigs and foxes. Marlen doesn't just read the books, either. She also brings things that go with each story.

The last time, she brought a stuffed hedgehog. It was so soft and cuddly. And then, some kids even built a house for the hedgehog. Actually, Marlen always brings stuff that goes really well with the story. The best time was when we read The Very Hungry Caterpillar. That time, Marlen brought us some food! I love it when she reads to us. It's so much fun.

TOM FROM KINDERGARTEN SONNENSCHEIN, KÖNIGSWINTER





What experiences will you draw on once you start teaching?

When I was student-teaching at a German school in Bucharest, I enjoyed using books that dealt with STEM topics. The vivid pictures and short sentences proved to be a big help for students, especially if they had just started learning German, and created opportunities for creative interactions. That experience will help me as an elementary school teacher in Germany since I've seen how engaging, age-appropriate books can stimulate children's imagination much more easily than rigid teaching methods can.

For example, if you present kids with X-ray images of animal skeletons, you can watch them starting to think like researchers. My goal is to find books or even a series of lessons that ignite children's interest, motivation and curiosity about scientific research and STEM topics in general.

ROBERT LUCKMANN

DIRECTOR OF THE DEPARTMENT FOR PUBLIC LIBRARIES AND EDUCATION MEDIA, STATE OF SALZBURG



Why should libraries have more STEM books?

Children are full of questions. This natural curiosity is an important driver in the learning process. Children need three things in order to learn in the manner that suits them best: dedicated teachers, good classrooms and attractive materials that are current, wide-ranging and accommodate the different learning needs of different children. That includes well-designed and well-written STEM books.

When kids pick up a STEM book, they bring different countries, creatures, objects and much more right into their bedroom for immediate "processing" so that they understand themselves and the world better. By stocking STEM books, libraries play a critical role in nurturing children's interest and excitement for STEM subjects.

Why do STEM subjects lend themselves to being read out loud?

It's often difficult to get school-age kids to listen attentively for a long period of time. Not so with STEM reading. It provides the perfect conditions to make reading out loud as vivid, engaging and, by conducting small experiments, interesting as possible. In effect, it kills two birds with one stone: making a lasting contribution to language development and cultivating an interest in science.

When you read to kids, you want it to have a real connection to their lives. Science isn't something you do by regurgitating facts, but demands to be explored by looking, thinking, talking and trying out things together. The combination of reading out loud and conducting experiments to illustrate real-life phenomena is the perfect way to get children excited about research.

ALEXANDRA REINOSO

TEACHER AT THE GERMAN SCHOOL OF MÁLAGA



www.telekom-stiftung.de/en/volunteer-readers

Reading is a life skill

Strong readers are better off. Good reading abilities make it easier to understand concepts, make connections and be an active member of society. Reading, in short, is a life skill. Unfortunately, the findings from the Progress in International Reading Literacy Study (PIRLS) released at the end of 2017 showed that 20 percent of German fourthgraders had poor reading literacy. How can we improve these scores? First of all, say education researchers, parents should read to their children more. Even after fourth grade. Also, kids need reading material that they can relate to. Reading should be fun, after all. And it makes no difference whether children read digital texts or paper books as long as they get exposed to written language. Literacy matters in many places you wouldn't expect. In mathematics, for example, when children have to solve word problems. Crossing boundaries

Since 2016, FundaMINT scholarship holders have been able to apply for an international exchange program. The program is named after Klaus Kinkel, the former Chairman of the Executive Board of Deutsche Telekom Stiftung. In our interview, he explains why international experience is so important for budding teachers. Scholarship holder Stefanie Rebholz talks about her student-teaching placement in Deva, Romania.

Ms. Rebholz, you went to a school in Deva, Romania on a Klaus Kinkel Scholarship in the autumn of 2017. Why did you pick this country?

 I knew very little about the countries available to us for placements so I was open to anything. The school was assigned to me, and I accepted it without any expectations. There are definitely cities in Romania where it's easier to meet people and that have a livelier arts and culture scene. In retrospect, though, I'm glad that I ended up where I did and made the wonderful friends that I did. I found Romania to be an exciting country, a hidden treasure that hasn't really been discovered yet. Obviously, you have to contend with corruption and tough economic circumstances, but that's more than offset by the warmth and openness of the people who live there.

Dr. Kinkel, you've visited Romania repeatedly in your various political offices. What's your impression of the country?

Vim delighted that Romania is now an EU member after having gone through a difficult period under the brutal Ceau escu regime. But I also see that serious problems remain, as Ms. Rebholz has mentioned. I would love for Romania to work its way out of its current predicament on its own. But you can't change the political structure of a country overnight. It takes time and patience.

As a former foreign minister, your job brought you all over the world, not just to Romania. But why exactly do future STEM teachers need international experience?

(Because it's so important to be curious and willing to look at things from a different perspective. Take Ms. Rebholz: not only did she experience a different way to teach and

collaborate with other faculty members, but she experienced a whole other culture as well. This whole adventure has given her a new outlook – not just in her profession, but in her life as a whole. That makes her the perfect ambassador for the European project.

Ms. Rebholz, would you agree?

B Absolutely. I think every teacher could benefit from this experience. In my case, Deva made me much more flexible mentally. I learned valuable things about myself and became more self-confident. Since I wasn't just a classroom assistant, but was allowed to teach classes myself, I approached the entire student-teaching process in Germany very differently.

Speaking of student-teaching: you now work at a German elementary school. How big are the differences between German teaching methods and Romanian ones?

 Quite considerable. In Deva, the main mode of teaching is direct instruction. You basically don't see inquiry-based learning of the kind we use here. In my academic specialization, mathematics, I've found that logical thinking skills aren't encouraged as much in Romania as they are here. There's a stronger emphasis on rote memorization. At the same time, I feel that I'm under much more pressure as a teacher here in Germany; the guidelines are stricter.

Mr. Kinkel, the foundation has promoted good teacher education from the start. Why?

Because good teachers are the engine of our educational system. After all, you can't have a good education without good teachers! Universities have neglected teacher training for far too long; the foundation has managed to make a difference here and there with its projects.



What is FundaMINT?

Deutsche Telekom Stiftung's FundaMINT program supports Master's-level education students preparing to teach mathematics, physics, computing, technology, chemistry or science. Each year, the foundation selects up to 35 students and sponsors them for up to two years. Since 2016, scholarship holders have also had the opportunity to receive a Klaus Kinkel Scholarship to student-teach at schools in selected countries in Central, Eastern and Southeastern Europe. This portion of the FundaMINT program is conducted in cooperation with the Central Agency for German Schools Abroad and with the Educational Exchange Service of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany. In 2017, there were four scholarship holders in Romania, two in Hungary and one in Poland. All told, eleven education students have received a Klaus Kinkel Scholarship.

www.telekom-stiftung.de/en/fundamint-scholarships

Техника* Engineering

Today, the students at Heinrich-Heine-Gymnasium are working on robots – their interest in engineering grew by leaps and bounds thanks to the JEA exchange program.

When STEM builds bridges

Good education knows no borders: Junior Engineer Academy school partnerships bring together students from different countries – such as in Kaiserslautern, Germany and Banja Luka, Bosnia and Herzegovina.

Two years ago, Lotta never would have dreamed that she would one day travel to Banja Luka. And the idea that she would then wrap pieces of string around tree trunks in a park in the second-largest city of Bosnia and Herzegovina? Inconceivable.

And yet both things came true in the spring of 2017 as part of a student exchange program between Heinrich-Heine-Gymnasium in Kaiserslautern and Gimnazija Banja Luka. For the high-school student, wrapping the trees with string wasn't just a game: "We were supposed to identify the oldest tree and so had to find the thickest trunk," recalled the 15-year-old.

The tree-measuring task made one thing abundantly clear from the beginning: this was no ordinary exchange program; it was an exploration of science, technology, engineering and mathematics. The fun kick-off in the park segued into the actual project: the students would focus on 3D printing and 3D scanning during this week in Banja Luka and then during the return visit in Kaiserslautern. All this was made possible by Deutsche Telekom Stiftung. The foundation has supported the Junior Engineer Academy (JEA) as an elective at the Kaiserslautern school since 2010. Students in grades 8 to 10 receive practical, hands-on instruction on science and engineering with assistance from partners in academia and industry. There are now 99 schools in the JEA network. One of them, German European School Singapore, is even located outside Germany.

"Two years ago, we decided to start building an international network," said Sandra Heidemann, project manager at Deutsche Telekom Stiftung. "We want to reach out to partners outside Germany and jointly explore ways to provide a good engineering education." The foundation's long-term goal is help schools in Central, Eastern and Southeastern Europe get kids excited about STEM subjects. The exchange between Kaiserslautern and Banja Luka has become one of the first Junior Engineer Academy school partnerships. "The two cities were already twinned, so we were able to build on an active relationship," said Barbara Busch, the teacher who was responsible for the German side of the exchange.

0T0: WOLFRAM SCHEIBLE

*Serbian is one of the official languages of Banja Luka and generally uses the Cyrillic alphabet.



<mark>3Д Штампач</mark> 3D printer

In the autumn of 2016, several teachers from Banja Luka traveled to Kaiserslautern for a preparatory meeting with their German counterparts. "We immediately realized that it was a good fit," said Busch. "Our guests loved the JEA idea," added Martin Bracke, a mathematician at the University of Kaiserslautern. Bracke runs the Competence Center for Mathematical Modeling in STEM Projects in Schools (KOMMS) and supports the Heinrich-Heine-Gymnasium in Kaiserslautern with his team.

The Bosnians hosted the Germans first. They proved to be warm, generous and welcoming, as the Germans quickly discovered. Every day, several hours were set aside to collaborate on their project. First, the students assembled a 3D printer from a kit. Next, they programmed it. By the third day, the printer was already churning out simple shapes and letters. Back in Kaiserslautern, the students ended up printing 3D silicone molds that spelled out the letters KL and BL – the abbreviations for the sister cities. A confectioner then used the molds to make delicious chocolate candies. Initial worries about the language barrier dissolved quickly. "Most of our exchange students spoke excellent German and English," said Lotta. When they ran out of words, they continued with gestures. And of course, language was not needed for much of the practical work on the 3D printer.

Looking back, neither the students nor their chaperones would have wanted to miss out on this special experience. "Nothing in the participants' previous scholastic careers had even come close to what they experienced in these two weeks," said Bracke. "This was a huge leap forward in their personal development." Lotta agreed. "I can only recommend participating in this kind of exchange program," she said. "It's a wonderful life experience."

» In Banja Luka, German and Bosnian students measured the circumference of trees. «





Tara and Lotta participated in the program.

» I can only recommend participating in this kind of exchange program. «

17-year-old Mihajlo from Banja Luka concurred: "The exchange was an astonishing experience that taught me how to be a better team player. I only have good memories." His teacher, Mladen Pejakovic, added, "The program was extraordinary. We established friendships and made the STEM project a success."

The project has had an enduring impact: it marked the beginning of even more hands-on STEM projects at Gimnazija Banja Luka. Today, the school is trialling its own Junior Engineer Academy, having adapted it to the requirements of the Bosnian educational system. The program has 26 students and has enlisted cooperation partners from the local university's electrical engineering department. "We want to build a virtual harp," reported Pejaković. "It consists of laser beams and emits a specific tone when you interrupt a beam." To build the instrument, the students are having to learn about electronics and programming. There are twelve partnerships other than the one between Kaiserslautern and Banja Luka. In Frechen, near Cologne, high-school students worked with Greek guests from Crete to build mobile speakers, and then converted them to run on solar power during their return visit. Likewise, students from Halle an der Saale and their partners from Budapest, Hungary studied the Arduino microcomputer and learned how to control a vehicle with it.

"Teachers at the partner schools often invite their foreign guests to visit them outside the exchange program, and this positive attitude contributes to the success of the partnerships," said Heidemann at Deutsche Telekom Stiftung. She now plans to extend her European network even further. The foundation has already planned a project with the German-Polish Youth Office and is exploring opportunities in the Czech Republic.

And so if you happen to look up in a European city in the next few years and see students strolling through parks and measuring trees, sending robotic vehicles zipping across school courtyards or harnessing the sun's power with small speakers, you might very well be seeing the enthusiastic participants of a Junior Engineer Academy school partnership.

🕅 www.telekom-stiftung.de/en/junior-engineer-academy

компјутер Computer

Things done differently

Estonia is a digitization pioneer. And it shows in its education system. Dr. Ekkehard Winter, Executive Director of Deutsche Telekom Stiftung, visited the small Baltic country in the autumn of 2017 with representatives of Germany's federal states and took a close look at how the local schools use digital media. He discovered three things that Germany would benefit from emulating.

More freedom to experiment

Unruffled – that's the word that comes to mind when I think about how Estonians approach technology in school. Unlike in Germany, they don't first thoroughly debate all the potential benefits of tablets and smartboards over spiral notebooks and blackboards.

Estonia's motto seems to be, "Just do it!" Trial and error. When in doubt, go digital.

That may go awry from time to time, but – let's be honest – analog learning isn't always perfect, either, even when the lessons are beautifully planned and grounded in solid educational research. That's why I'd like to send out an appeal to Germany's school boards and education ministers. Obviously, I'm not advocating the Wild West. But please, give the schools more freedom to discover what works for them and what doesn't. In Estonia, this freedom has spawned extraordinary creativity and an enormous willingness to experiment. And I'm confident that the world won't end if things don't work out on our first go-round.



Twitter: @ekkwinter



We visited three schools in Tallinn, the capital of Estonia. Each time, I was struck by how mature the students seemed and how much self-confidence they showed while walking us through a typical day of digital schooling. That's no accident, either. We learned that Estonian students often work as "IT scouts" who maintain the school's laptops, Wi-Fi network, and so on. Sometimes, they even get paid for their work. These digital natives also train their teachers – who are digital immigrants – how to use technology. They teach their teachers, in other words.

This kind of partnership among equals, colleagues almost, is something I'd like to see here, too. My general impression was that students seem to be taught independence much more in Estonia than in Germany. Their mandatory curriculum even includes entrepreneurship classes where teenagers develop their first business ideas. One such idea developed by a student company is "eKool", a school management platform that virtually all the schools now use.



Getting better through peer feedback

I was equally enthralled by a Tallinn University project presented to us during our visit: "Digipeegel", the digital mirror. It's an online evaluation tool that helps schools track their own digitalization progress.

There are three different dimensions – infrastructure, education and change management – and five indicators per dimension. Together, these dimensions indicate the level of "digital maturity" based on ratings given by peers – i. e. other schools – and digitalization experts. The entire system is based on the learning organization model. Ultimately, Digipeegel seemed to be a more expansive online version of "Werkstatt schulentwicklung.digital" that we started for Germany in Forum Education and Digitalization: a platform for schools to share ideas and constantly improve. All that we're missing is to scale up nationally with user-friendly online tools. And that's exactly what we're working on!

Digitalization worldwide

How do other countries combine education and digitalization? That question hovered over the Forum Education and Digitalization, a non-governmental organization initiated by Deutsche Telekom Stiftung, when it organized a fact-finding trip to Estonia in November 2017. Headed by Professor Wolfgang Schuster, Chairman of the Executive Board of Deutsche Telekom Stiftung, the delegation included representatives of the foundations in the forum as well as educa-tional policy and administration experts from Germany's federal states. Once the delegates arrived in Tallinn, they visited schools and compared notes with local researchers and policymakers. Among other honors, they were received by Estonian Education Minister Mailis Reps. The next fact-finding trip is scheduled for September 2018. Its destination: the Netherlands. A series of articles on education and digitalization worldwide is published on the forum's website.

www.forumbd.de (only in German)

Ideas from across the world

6,000 teachers from 172 countries collaborate on the pisa4u learning platform to develop solutions for tomorrow's schools.

There are comparative studies aplenty on student performance, but how can schools translate them into actionable tools? One way is to participate in pisa4u, an online learning platform sponsored by Deutsche Telekom Stiftung. Since 2017, it has enabled teachers worldwide to collaborate on projects to solve real problems they face in their work. Pisa researcher Andreas Schleicher from the OECD and Romanian teacher Suzy Manuela Prajea talk about their experiences.

🕅 www.pisa4u.org

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DR. SUZY MANUELA PRAJEA

MATH TEACHER AT TRAIAN NATIONAL COLLEGE IN ROMANIA

I particularly enjoyed discovering more about the challenges schools worldwide are facing and getting the opportunity to learn from an international panel of experts. The contributions and assignments were measured against a high quality standard from the start, and that pushed us to grow and learn. I also appreciated the reports, diagnoses and proposed improvements for various education systems that were presented as part of PISA. Generally, teachers don't get around to refining their ideas, conducting research, being creative and developing suitable teaching resources.

"Some benefits of pisa4u were harder to quantify, including a greater focus on the kind of soft skills that play a growing role in the world of 21st century education: teamwork, creativity, innovativeness, critical thinking and perseverance. For me, the biggest challenge was to develop useful teaching materials for STEM subjects with my team. I've long dreamed of developing STEM-centric resources for mathematics classes, but never had the time to pursue this goal. The program gave me the opportunity to brainstorm ways to connect mathematics to new discoveries from various disciplines. I also appreciated the fact that pisa4u assisted me so much with my own research by providing extensive resources, support from numerous educators and feedback from mentors.

» I learned a lot from an international panel of experts. «





Teachers regularly criticize publications of PISA findings for the failure to get practicing educators adequately involved in school reforms. That's why we launched the collaborative pisa4u website at the same time as our December 2016 PISA survey – we wanted to give teachers and administrators the ability to suggest solutions of their own. The project attracted over 6,000 participants from 172 countries. Interestingly, it also drew the interest of teachers in countries that aren't even covered by PISA such as India, Pakistan and Nigeria.

ANDREAS SCHLEICHER

OECD DIRECTOR FOR EDUCATION AND

COORDINATOR OF THE PISA STUDIES

Each participant was assigned a mentor to support their personal development; each group was assigned a tutor. Each group identified and formulated its challenge, developed solutions and tools for tackling it and then presented it to colleagues and students. I was deeply impressed by the quality and quantity of the solutions. Here's just one example: a STEM teacher in Texas and his class worked with teachers in Honduras to design, develop and manufacture artificial limbs in a way that lowered the cost of prosthetics in this Central American country from an unaffordable USD 20,000 to only USD 200. Other projects focused on lesson plans aimed at improving student motivation. My take-away: we can accomplish tremendous things if we bring together people's creative talents.

Staying in touch with the times

If you want to improve the educational system for the better, you have to keep learning, scout out new trends and get actively involved in education debates. That's exactly what Deutsche Telekom Stiftung did all over the world in 2017. An overview.

ANDREA SERVATY HEAD OF COMMUNICATIONS



» At every international idea-sharing event, I'm always impressed by how forthright the participants are and how eager they are to learn from one another.«

EASSW-UNAFORIS

European Conference June 28 + 29, 2017 • Paris evenements.unaforis.eu

Global Learning Council June 29+30, 2017 • Berlin www.globallearningcouncil.org

Global Education Industry Summit Sept. 25 + 26, 2017 • Luxembourg

globaleducation.onetec.eu

Annual Meeting Science and Technology in Society Forum Sept. 29 – Oct. 3, 2017 • Kyoto

www.stsforum.org

Witnessing trends: The Global Learning Council Summit in Berlin hosted a learning technology expo with many interesting exhibits

+

Annual General Meeting EURead Oct. 18 – 20, 2017 • Brussels www.euread.com

Annual Conference/Exchange Lab German-Polish Youth Office Nov. 6+7, 2017 • Berlin

www.austausch-laboratorium.pnwm.org/de

Fact-finding trip by the Forum Education and Digitalization Nov. 7 + 8, 2017 • Tallinn

www.forumbd.de

Knowledge Exchange of European Corporate Foundations Nov. 21 + 22, 2017 • Zurich www.corporate-foundations.eu

GERD HANEKAMP DIRECTOR PROGRAMS



»We're thrilled that our ideas for good STEM education have gotten more and more attention throughout Europe. Our methods for teacher training and cutting-edge engineering classes have spawned a particularly large number of imitators. «

Magnet fever

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Popular on both sides of the Atlantic: the foundation's MINTeinander project brings kindergartens, elementary schools and high schools together – even in Boston and Buenos Aires.

🕅 www.telekom-stiftung.de/en/minteinander

Visiting in Boston: Johannes Schlarb (small picture left) from Deutsche Telekom Stiftung comes to see the MINTeinander project in action.

> Magnets and the invisible forces they command have always fascinated children. "And that makes them an excellent choice for students' first science experiments," said Dr. Jochen Schnack. He knows what he's talking about. He heads the German International School of Boston, the first German school outside Germany to participate in Deutsche Telekom Stiftung's MINTeinander project. While the project was underway, classes full of excited 5th and 6th grade kids floated paper clips through the air – as if suspended on invisible threads. Of course, it wasn't threads at work so much as the force generated by a powerful magnet. Later, the students even built an electric motor that requires magnetism to operate.

> The Boston school serves 260 students in three different levels of education: preschool and kindergarten, elementary school and high school. In the MINTeinander project, each level receives magnetism materials that are tailored to the students' age and stage of development. The syllabi for the various levels are tightly dovetailed and build on one another. That allows students to transition seamlessly from one level to the next and motivates teachers to collaborate more closely. "The materials were wonderful; the experiments in particular were so clearly described that the students needed next to no help at all," said Schnack.

In addition to its bilingualism – all the science classes are taught in German – the school has also strengthened its STEM focus in recent years. "Our specialization is really a function of geography," said the school head. "Boston is a science hub, particularly for medicine and biotechnology." The school is also located right by such educational powerhouses as Harvard University or the Massachusetts Institute of Technology (MIT). The students have had many opportunities to watch scientists at work at these institutions. "And that," said Schnack, "is yet another reason why the MINTeinander project was such a good fit for us."

The Boston project started in the autumn of 2016 and ran for seven weeks. By early January 2017, the students were ready to show off what they had learned at the annual Science Café. Their parents, classmates, teachers and friends marveled at the successful experiments – and at a few magical moments, too. Even Johannes Schlarb, the Deutsche Telekom Stiftung project manager who attended the Science Café, was impressed. "It was wonderful to see the students' passion in action." That same passion was on display at the second German international school in the MINTeinander network: the Pestalozzi School in Buenos Aires. It, too, has made science an important part of its curriculum. All three of the school's "departments" – i. e. levels of schooling – participated in the project: kindergarten, elementary and "secundaria", or high school. 1,200 children and teenagers attend the Pestalozzi School. The secundaria department introduced a dedicated STEM class in 2014. "It's an interdisciplinary class where students do hands-on work, generally after splitting up into small groups," said Markus Kowalk, the biology teacher who coordinated the local MINTeinander project. As a result, the entire 2017 school year was full of experiments involving magnets and magnetism.

MINTeinander's dovetailed syllabi inspired the Buenos Aires school to participate in the project. "We noticed that some students were having problems graduating from one department to the next," explained Kowalk. All that changed once the project preparations got underway: participating teachers in different departments worked together to familiarize themselves with the materials and manuals. They deliberately coordinated certain sequences of lessons with one another, too. "We're thrilled to have received such well-designed materials from Deutsche Telekom Stiftung," said Kowalk. Also because the old curriculum hadn't covered the complex subject of magnetism. "It's no exaggeration to call the project a resounding success," he enthused. And it clearly made a lasting impression on the teachers: they now want to extend the MINTeinander method to other subjects as well.

Students at the Pestalozzi School in Buenos Aires measure the force exerted by various magnets on a needle.



Still want more?

On our website, you'll enjoy quick, direct access to all relevant information about our foundation and projects. We even have a special blog-like section in which we regularly publish high-quality stories about STEM education in a digital world.

www.telekom-stiftung.de/en



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