As the race to expand STEM education enters its next lap, here are three ways to recruit and train more teachers

by [TALIA MILGROM-ELCOTT](http://hechingerreport.org/author/talia-milgrom-elcott), July 26, 2016

As a first-year teacher at Antheil Elementary School in Ewing, New Jersey, one of Linda Hoffman’s favorite moments is when her third grade students have an “aha” moment. Even at a young age, Linda’s students relish the thrill of solving a math or science problem and coming to a creative, exciting solution.

For Linda, the “aha” moment is familiar — she herself experienced it last year when she was a student at [Rider University’s TEACH first class](http://www.rider.edu/academics/colleges-schools/college-liberal-arts-education-sciences/school-of-education/graduate-programs/teacher-education-programs/teach-first-classhttp:/www.rider.edu/academics/colleges-schools/college-liberal-arts-education-sciences/school-of-education/graduate-programs/teacher-education-programs/teach-first-class) program. After a career in market research, Hoffman heard the calling to teach after  volunteering in her own children’s school. She says Rider’s program — which trains people from unconventional backgrounds for teaching science, technology, engineering, and math — taught her a lot more than how to teach math. I learned how to teach thinking,” she says.

Just as Linda and her students have their “aha” moments in learning math and science, America needs to have a collective “aha” moment for figuring out how to get more qualified teachers in science, technology, engineering and math into our classrooms.

The crisis of finding teachers for these subjects is by now familiar: We have a shortage of STEM teachers and too few interested, diverse STEM students. Meanwhile, companies report that they cannot fill jobs with qualified U.S. workers, at a time when ten of the top 14 fastest-growing industries require significant know-how in STEM. Whether it’s climate change, water shortages, or deadly disease, the world’s most pressing problems require STEM-based solutions.

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At [100Kin10](https://100kin10.org/) we have had a front row seat to STEM teaching in America. [As the President announced this past spring](https://www.whitehouse.gov/the-press-office/2016/05/03/fact-sheet-and-report-president-obama-celebrates-great-teachers-and-our), we have trained tens of thousands of teachers to date through programs like Rider’s — which wouldn’t have existed were it not for 100Kin10 — and have commitments to train at least 100,000 in total by 2021.

But if all we do is train 100,000 STEM teachers by 2021, we will have met the goal but failed the mission.

Having talked to hundreds of educators and industry leaders across the country, we as a nation have a long way to go if we’re to give all children the deep engagement with STEM that they need to thrive in our fast-paced world — to have our “aha” moment.

In a world where tech superstars and venture capitalists make headlines moving millions of dollars, teaching STEM is not even on the radar as a career option for many talented young professionals. The pay does not compete with other, more lucrative careers (especially when factoring in college debt), and teaching in these fields is not perceived as intellectually rigorous and worthy of high achievers. Even the U.S. Census does not include STEM teaching as a STEM career.

For college graduates who do pursue teaching in these fields, they often walk into the classroom with one hand tied behind their back. Most teacher preparation programs provide little exposure to actual STEM content. Professional development is limited and poorly tailored to individual teachers’ needs. And for subjects that are all about curiosity, exploration, and invention, there is little room in the STEM teacher’s day for experimentation.

The good news is that we have identified these challenges and have assembled a committed, diverse network of organizations — in all 50 states — to begin tackling them. The solution to America’s STEM education crisis will be guided by a few key lessons, including:

Start early. Today’s students have the potential to become the “[Mars generation](https://www.whitehouse.gov/the-press-office/2016/04/13/fact-sheet-white-house-science-fair-president-obama-calls-generation),” just as a prior generation dreamed of going to the moon. We need to bolster STEM education for our youngest learners, which means creating hands-on experiences that encourage students to be true innovators and problem-solvers.

In support of this vision, as one example, this year a group of [100Kin10](https://100kin10.org/) partners including D.C. Public Schools, the Bay Area Discovery Museum, and Arizona State University will collaborate to design new approaches to active STEM learning for young children and their teachers.

Cast a wide net. So many sectors influence —and are influenced by — our youth. To expand the country’s STEM potential, we have to reach beyond what we typically think of as the “education field,” which is why we have convened organizations from across sectors to sustain this decade-long movement. That is how the Tennessee Department of Education came to partner with the teacher crowdsourcing website DonorsChoose to connect 200 rural schools with funders for STEM classroom supplies and equipment. It is how we’ve brought together unusual partners like Teach for America and the American Federation of Teachers to create a [toolkit](http://file.100kin10.org/plagiarize-this.pdf) for discussing the new college- and career-ready education standards.

Get creative. Due to inventive partnerships, new learning, and bespoke funding, many of the STEM educators our partners have trained are “but, for” teachers like Linda — people who might have chosen other fields were it not for new programs created in large part due to 100Kin10. A new partnership between the Colorado School of Mines, the University of Northern Colorado and the Denver Teacher Residency provides a way for engineering graduates to be trained and certified and placed in STEM classrooms. Collaboration and strategic serendipity can bear surprising fruit — something any good scientist will tell you.

STEM education is like a Rube Goldberg machine: it takes a lot of different levers and pulleys to function. We must rethink how and why people like Linda Hoffman of Ewing become effective STEM educators, and we all have a part to play. As Albert Einstein said, “No problem can be solved from the same level of consciousness that created it.” We must rise to that challenge.

Talia Milgrom-Elcott is the co-founder and executive director of 100Kin10, a coalition of government, public, and private sector groups formed in response to Obama’s 2011 call to train 100,000 STEM teachers in ten years.

The coalition’s over 230 funders include The Bill and Melinda Gates Foundation, The Carnegie Corp. of New York and the Heising-Simons Foundation, which are also Hechinger funders.

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