Rebuilding Science Education in Puerto Rico

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Submitted by Mónica Ivelisse Feliú-Mójer [2] on 17 April 2018 - 1:43pm


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Credit: U.S. Customs and Border Protection Flickr

- Originally published by Mónica I. Feliú-Mójer [3] on Scientific American on December 29, 2017

This past September, back-to-back hurricanes devastated Puerto Rico. The archipelago had already been struggling with a decade-long economic recession, fragile infrastructure and floundering institutions. Irma and Maria plunged Puerto Rico into an even deeper crisis. But could these natural disasters create once-in-a-lifetime opportunities for change?

Many with whom I work and collaborate believe the answer is a resounding yes—and I share their optimism. Foremost in my mind is the chance to fix a science education system that was failing long before the storms. In 2016, only four in ten eighth-grade public school students were proficient in science [4]. Puerto Rico is among the 10 worst performers in international science tests [5], with 98 percent of students exhibiting deficits in interpreting information and working on complex problems.

Three months after the hurricane, most students in the archipelago are learning in buildings that are damaged and lack electricity or potable water. Many children have been displaced, as their home schools remain closed. Yet I believe this widespread destruction has opened the door to transform the way science is taught in Puerto Rico. We can create a system that fosters critical thinking and the development of problem-solving skills, instead of just memorization of facts.

We at Ciencia Puerto Rico [6] (CienciaPR) want to seize upon this opportunity for innovation building upon our years of work with Puerto Rican communities. We are a nonprofit seeking to democratize science, increase access to role models and make science culturally relevant. Over the course of 2016, we had laid a new strategic vision with the help of leaders in civil society and experts in science, education and equity. In March 2017, we brought our team of volunteers and staff together for an intensive meeting to see how we could turn our vision into the most constructive actions.

Guided by design thinking [7], we came up with a bold plan [8]: over the next 10 years, CienciaPR would transform science education in Puerto Rico. We would engage its community of scientists, educators and students to bring discovery, experimentation and problem-solving to the classroom in ways that are culturally and socially relevant to Puerto Rican children.

Then Hurricanes Irma and Maria hit.

Our plans now had to confront the drastic new reality. Puerto Ricans were left without power, clean water or reliable ways to communicate. Some of our volunteers and staff members suffered damage to their properties. There were logistical and infrastructural nightmares everywhere. More than 1,500 roadways were severely damaged. Lines to get groceries and gas were up to 12 hours long. Schools were closed. The world had been turned upside down.

So we resolved even more firmly to move forward. We must empower Puerto Rican students to be resilient and innovative problem-solvers. And science must be at the center of the economic, societal and environmental recovery and development of Puerto Rico.

Early in 2018, CienciaPR will launch a pilot project training educators to implement four science lessons on disaster-related topics: renewable energy, environmental sustainability, clean and

potable water, and terrestrial ecosystems. Later in the year, we are bringing together scientists and educators to co-create project-based science lessons that foster creativity, entrepreneurship and critical-thinking skills. We will train the scientists in communication and teaching, and the teachers in research skills and how to use culturally relevant strategies to make science more engaging to students. The lessons that are developed will serve as a platform for students to work together on solutions for challenges they see in their communities. Our long-term goal is to have validated approaches that can be scaled and widely implemented across Puerto Rican schools.

Puerto Rico has a long road ahead. The transformation we seek will take years. As scientists we know all too well that achieving progress can be a long, hard process. But our community has the expertise and track record [9]to execute our ambitious goals. Most important, we are unwavering in our commitment to serve Puerto Rico at this critical juncture. We believe that science holds the key to creating a better and more resilient Puerto Rico. We invite you to support us and join us in our effort.

To help CienciaPR transform science education in Puerto Rico, please visit our donation site [10].

Tags:

- Puerto Rico [11]
- Huracán María [12]
- #Educacion [13]

Links
[1] https://www.cienciapr.org/en/blogs/equipo-informa/rebuilding-science-education-puerto-rico [2] https://www.cienciapr.org/en/user/moefeliu [3] https://www.scientificamerican.com/author/monica-i-feliu-mojer/ [4] http://www.de.gobierno.pr/files/PPT_RESULTADOS_METAPR_2016.pdf [5] https://www.oecd.org/pisa/pisa-2015-results-in-focus-ESP.pdf [6] http://www.cienciapr.org/en [7] https://www.seriouslycreative.com/single-post/Using-the-power-of-design-to-reimagine-science-education-in-puerto-rico [8] http://bit.ly/CienciaPR10YearPlan [9] https://www.cienciapr.org/en/about/initiatives [10] http://bit.ly/donate_CienciaPR [11] https://www.cienciapr.org/en/tags/puerto-rico [12] https://www.cienciapr.org/en/tags/huracan-maria [13] https://www.cienciapr.org/en/tags/educacion-0