

# At a Glance

NEWS FROM THE NYU STEINHARDT COMMUNITY

## Policy Breakfast Explores Role NYC's Science-Rich Institutions Play in STEM Education

Zack, a middle school student at MS 255, the Salk School of Science, was studying experimental design. He had a hypothesis: puffins spent more time in water than on land. To test his hypothesis, he went to the Bronx Zoo to collect data. While some of his peers were observing gorillas, flamingos, or zebras, Zack spent his afternoon in the aquatic birdhouse, observing puffins.



As a student who benefits from New York City's public school partnership with [Urban Advantage](#) (UA), Zack had a unique opportunity: he could collect data with his peers during a Friday field trip to the Bronx Zoo, and then, with an admission voucher provided by UA, visit the zoo again with his family on Sunday afternoon to double-check his results.

The role of science-rich cultural institutions in standards-based science education was the topic of a NYU Steinhardt Education Policy Breakfast on March 11<sup>th</sup>.

"While children raised in New York City may lack many of the amenities of those raised in the suburbs -- they go without backyards and share bedrooms with their siblings - they have the birthright of many of the world's greatest cultural organizations," said Steinhardt Acting Dean Beth Weitzman.

In his State of the Union address in January, President Obama talked about the importance of STEM education to the nation's economic well-being, and reiterated his call for recruiting 100,000 new STEM teachers over the next decade. The theme of Steinhardt's 2011 breakfast series explores the challenges and

promises of Science Technology, Engineering, and Mathematics (STEM) education.

At the breakfast meeting, Lisa Guggenheim of the [American Museum of Natural History](#) and Preeti Gupta of the [New York Hall of Science](#), described the Urban Advantage (UA) program, which gives students opportunities to conduct hands-on investigations that engage them in science. Launched in 2004, with leadership funding from the New York City Council, UA links partner institutions, including the Brooklyn Botanic Garden, the New York Hall of Science, and the Wildlife Conservation Society's Bronx Zoo, with the New York City Department of Education.

Guggenheim, senior vice president for institutional advancement, strategic planning and education at the museum, described the program as one that has created "a model for science education, a new civic architecture that connects our institutions with middle schools and, most importantly - families of middle school students."



Partner institutions work collaboratively to develop a shared vision of effective programming that emphasizes scientific research. An evaluation of Urban Advantage undertaken by the [Institute for Education and Social Policy](#) at Steinhardt shows that UA schools outperformed non-UA schools in 2007-08 with an average of 54 percent of students meeting the standards on the 8th Grade New York State Science Examination, compared to 46 percent of students at non-UA schools.

"Our results also show that Black and Hispanic students are doing better at UA schools," says Meryle Weinstein, co-principal investigator of the

[Catherine Milne](#), associate professor of [science education](#) at Steinhardt, enriched the discussion by describing [Molecules and Minds](#), a three-year

project funded by the IES National Center for Educational Research, which has enabled Steinhardt's researchers to develop effective chemistry simulations for a broad range of learners, including students of ethnic or racial minority groups that are not meeting academic goals.

As principle investigator of the project, Milne has seen how effective multimedia can be in explaining what can appear to be ineffable.

"The challenge in science, particularly in chemistry and biology, is that in order to understand, you need to be able to visualize something you can't see," Milne said. "Multi-media allows us to communicate the dynamic relationship that everything on earth is made up of atoms that are moving all the time. It's an idea that just blows kid's minds."

With simply a textbook, Milne noted that "all you end up with is kids that have a descriptive understanding of the way the world works." She added, "This is not really enough because if you want kids to be scientifically literate they need to understand the role that models and modeling play in how we understand the world."



Guggenheim, Gupta, and Milne agreed that the key to understanding is a tangible connection to authenticity and nature, which both real world and an online multi-media component can provide.

In the question and answer period following the presentation, Zack's mother, the writer of this article, said that her son left the zoo with a respect for puffins and a pride in the data he had collected.

"He was a little disappointed to learn that counter to his theory, puffins spend more time on land than in water," she said.

*Photos: Left to right: Preeti Gupta, senior vice president for education and family programs, New York Hall of Science; Lisa Guggenheim, senior vice president of institutional advancement, strategic planning, and education, the American Museum of Natural History; Steinhardt Acting Dean Beth Weitzman; Catherine Milne, associate professor of science education, NYU Steinhardt.*

*Zack observing puffins on land and water at the Wildlife Conservation Society's Bronx Zoo.*