



## CURRENT RESEARCH

### Using STEM technology to educate and empower students as science experts for their neighborhoods

It is increasingly important for all youth to become critical thinkers in science, as today's youth are tomorrow's scientists. Approximately 30% of American youth grow up in U.S. cities, where there are more individuals in early education who are eager to learn and have the potential to shape our future than in any other part of the country. Dr. Nancy Songer, Dean and Distinguished University Professor in the School of Education at Drexel University, challenges patterns of persistent poverty in the poorest neighborhoods by harnessing, repurposing, and redesigning technological tools utilized by professional scientists. She takes powerful learning tools for critical thinking and deep engagement in urban science, technology, engineering, and mathematics (STEM) education, presenting a strategically simplified and engaging version for 4-12th grade students in some of the U.S.'s poorest cities, while maintaining the integrity of the science.

For the past 20 years, Dr. Songer and her team of professional scientists and technology design collaborators—including as Atmospheric Scientists, Zoologists, and Software Engineers—as well as educators and educational researchers, have performed highly original research and created designs that foster critical thinking, creativity, and problem solving by urban science students for and about their own communities. They coupled their designs with research studies on student learning, and have discovered that the students using their programs demonstrate a deep understanding of complex science as compared to their peers, seeing significant improvement in test results. Dr. Songer's science tools have been well-received, with millions of previous funding from the National Science...

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## AFFILIATION

Drexel University

## EDUCATION

- Ph.D. Science Education, University of California, Berkeley
- M.S. Molecular/Developmental Biology 1984, Tufts University
- B.S. Biological Sciences 1981, University of California, Davis

## AWARDS

- National Science Foundation Presidential Faculty Fellowship by President William J. Clinton
- United States of America Department of Education Promising Educational Technology Award

## RESEARCH AREAS

Education, STEM

## FUNDING REQUEST

Your contribution will help fund the development and testing of the repurposed tools, as well as the research necessary for creating a new tool. \$50K-\$100K is necessary to begin one project, which will contribute to the discovery and capture of a tool and partner, redesigning professional tools to be user-friendly, testing it with kids, providing career-awareness opportunities and mentoring, and perfecting the interface. \$600K will fund the full three years needed to expand the biodiversity project.