

Can children's TV characters boost STEM learning?

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Psychologist Rebekah Richert will lead a five-year, \$2.5 million research project aimed at determining how popular characters from children's television could encourage STEM learning.

Can relationships formed with media characters like Dora the Explorer or Elmo help young children learn science, technology, engineering and mathematical (STEM) skills?

A team of researchers at the University of California, Riverside, Northwestern University and Georgetown University hopes to answer

that question in a five-year project funded by a \$2.5 million grant from the National Science Foundation. UCR's share of the grant is \$885,745.

"Many people are involved in designing [educational games](#), and there is a lot of interest in creating high-quality and interactive media," explained Rebekah Richert, associate professor of psychology at UC Riverside and principal investigator on the research project. "On the surface they seem likely to help [children](#) learn. But there can be big gaps between what technology offers and what children really learn."

Richert's collaborators on the project are Ellen Wartella, Sheikh Hamad bin Khalifa Al-Thani Professor of Communication, professor of psychology and professor of human development and social policy at Northwestern University; and Sandra Calvert, director of the Children's Digital Media Center and professor of psychology at Georgetown University.

In a series of studies with children ages 18 months to 6 years, the researchers will examine how toddlers and preschoolers learn from educational media and how that can support STEM education.

"How can we promote early STEM learning with high-quality media? How do children form relationships with characters on TV? How can we develop better avatars and promote diversity in STEM fields?" Richert asked. "This is important, not just to provide role models, but also to spark interest in STEM fields and to make science learning fun, not tedious."

Richert, who joined the UCR faculty in 2005, is noted for her research on how children transfer what they see on television and in books to real life, and how they distinguish between fantasy and reality.

Among the questions the NSF-funded project will attempt to answer is

which characters or types of characters in children's media—like the popular Dora the Explorer, created for Nickelodeon, or Sesame Street's Elmo—could be used to stimulate STEM learning.

"What is unique about our approach is that we are looking at social principles," Richert said. "Characters on television are very active in children's lives. What is the role of characters in STEM learning, and in gender and racial stereotyping? If children want to be friends with these characters or be like them, can we use that in STEM learning?"

The psychologists also will conduct a workshop at Northwestern in spring 2014 involving experts in science education, computer-game design, and television learning for children to consider how best to direct future research to achieve the greatest impact on educational [television programs](#) and computer games.

"At the end of five years we hope to be able to provide information about or be actively involved in designing high-quality [television](#) programs and games that are most likely to engage children in STEM learning," Richert said. "What we learn should help policymakers, educators and companies make better use of the [media](#) characters that pervade the daily experiences of children to improve STEM education."

Provided by University of California - Riverside

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