

# NEWS RELEASE

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## **Game On: Teachers to Design Computer Games to Use as Learning Tool**

### FOR IMMEDIATE RELEASE

Researchers at North Carolina State University's College of Education are taking advantage of children's love for computer games by integrating science learning with game development.

Through a \$1.2 million National Science Foundation grant, members of the college's science education program have teamed up with NC State's Department of Computer Science, Distance Education and Learning Technology Applications unit (DELTA), Kenan Institute for Engineering, Technology and Science, and the N.C. Department of Public Instruction (DPI) to implement the HI FIVES (Highly Interactive, Fun Internet Virtual Environments in Science) program.

HI FIVES researchers will develop easy-to-use game creation tools and teach middle school instructors how to build compelling games that teach students science, technology, engineering and mathematics (STEM) content. The research is being conducted at the William and Ida Friday Institute for Educational Innovation – a research and outreach arm of the College of Education.

Dr. Len Annetta, assistant professor of science education and lead principal investigator on the project, said the tools and training provided by the HI FIVES team will allow middle school students and teachers to design and create their own 3-D video games that align with the N.C. Standard Course of Study in Science.

For example, teachers may develop a game in which students must combine analytical skills with biological concepts to solve an ancient murder of an Egyptian pharaoh. The player must find the pharaoh's tomb and analyze the shroud of the mummified corpse. Upon discovering ancient blood samples, students can then analyze the DNA and test the results against possible suspects to find the pharaoh's murderer.

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“Ultimately, it is our hope that students will gain a greater appreciation for science, pursue higher levels of science coursework and eventually seek careers in the STEM fields by playing these games,” Annetta says. “For teachers, the tools and training we’re developing will provide a way to take ownership in curriculum design and find a fun, innovative approach to technology integration.”

Dr. Michael Young, assistant professor of computer science in NC State’s College of Engineering, is heading up the team that will develop a game construction toolkit for use by teachers building their own computer games. Project members will build interface tools on top of a commercial game engine that will make the process of game design more accessible for non-programmers.

“We want to create an interface that will be easy to use for the teachers who will be developing these games,” Young says. “Our goal is to help the instructors building the games to translate the concepts from their courses into a game where the game play is fun and also leads to the appropriate learning outcomes.”

Over three years, Kenan Fellows including 15 teacher-leaders and 60 teacher-participants will learn how to use this technology to increase student science achievement and their motivation to enter IT-related science careers; 15 competitive simulations teaching IT-driven science will be authored by teacher/researcher pairs and piloted in areas deemed critical by DPI; 120 middle school students will be reached through summer workshops; and 4,500 students will be indirectly reached during academic year follow-up.

“Broader impacts include the statewide and – where possible – national dissemination of 15 educational video games, developed in consultation with DPI,” Annetta says. “In addition, we hope to foster regular development of teacher leaders who can hold workshops, develop further games to meet the state’s science education needs, and put together an instructional guide to help teachers learn how to integrate this software into standards-based science instruction.”

The 33,000-square-foot Friday Institute, scheduled to open Nov. 9 on NC State’s Centennial Campus, combines the talents of students and teachers, education professionals and research scientists, and community leaders and business professionals to identify and formulate solutions to the state’s most pressing educational challenges.