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HI FIVES workshop puts video games on new level

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More than 60 middle school students filled Wachovia Innovation Hall at the William and Ida Friday Institute for Educational Innovation throughout the week of June 25.

The students came for the second annual HI FIVES Workshop, held at the NC State University College of Education's Friday Institute. More than 30 teachers from across North Carolina participated in the weeklong workshop as well.

Through a \$1.2 million grant from the National Science Foundation, HI FIVES (Highly Interactive, Fun Internet Virtual Environments in Science) helps middle and high school teachers design and implement online games that teach students science and math content based on North Carolina standards.

Dr. Len Annetta, assistant professor in the Department of Mathematics, Science and Technology Education (MSTE), is the principal investigator for the HI FIVES project. Dr. John Park, associate professor in MSTE, is co-principal investigator. MSTE graduate students Adam Carriker, Montzy Cheng, Shawn Holmes and Manpreet Sandhu are working with the project and workshop.

During the five-day camp, students and teachers teamed to create video games based on concepts for learning math and science. Through a special software program, users populate a virtual space with 3-D characters and objects, give those characters behaviors and capture the look of commercial games.

Themes for the video games range from under water adventures, forces and motion, Cartesian coordinates, chemistry, and geography to fire ant invasions. More than 40 have been created, and all will be available online for other teachers and students to use at any time.

The Friday Institute is the perfect setting for the workshop, Annetta noted.

"We are taking advantage of the latest technology, in use here at the Friday Institute," Annetta said. "We have almost 100 laptops running wirelessly in this room during the event. All of the games are running software off the Friday Institute server. We are pushing the technology envelope."

Annetta noted that teachers at first had some reservations about being able to finish the game by the end of the five-day camp. He told them not to worry, that the students would be able to do the work.

"Some of the kids opened the software on the laptop when they first arrived and were using it without any training," he said. "They just know how to use this technology. They are in their native environment when using



computers and know the virtual world.”

The week’s worth of effort culminated with game presentations on Friday afternoon. Teams took turns unveiling their creations and describing the project.

Teachers and students will take the games that they created and use them in the classroom during the coming year. Annetta and other researchers will be able to examine differences in student performance between the first games created by the teachers and the games the students created this summer.

The goal is to have at least 100 games that align with the state’s math and science standards by the end of the three-year project. Those games will be available to everyone online.

“The feedback has been overwhelmingly positive,” Annetta said of the workshop. “Parents told us that their kids had such a great time during the week. The most important aspect of HI FIVES is getting students engaged in and excited about learning science and math concepts.”

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