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Ohio University News & Information

Tuesday, July 17, 2007

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NEWS

Playing to learn
A look at STEAM's progress and potential

*July 5, 2007*
By Mariel Betancourt

It's a computer game any 13-year-old would love - with a twist. You're all-time great slugger Babe Ruth. You hit a home run, the crowds cheer, and then, to earn 150 points and compete for "All Star" status, you have to calculate the baseball's velocity correctly.

Velocity?

► Play

As popular as it is with its young audience, "Velocity Park" isn't your typical ball game. It's actually one of 18 modules created by eight Ohio University engineering and technology graduate fellows for the purpose of teaching hard-to-grasp scientific concepts to middle-school students.

The games, which range from "Furry Family" (about genetics) to "Star Life" (about basic astronomy), are the result of a year's worth of work by the fellows, each of whom was placed in one of six Southeast Ohio middle-school classrooms. Their work is part of a three-year project funded by a $1.67 million grant from the National Science Foundation and led by Ohio University's Fritz J. and Dolores H. Russ College of Engineering and Technology and College of Education.
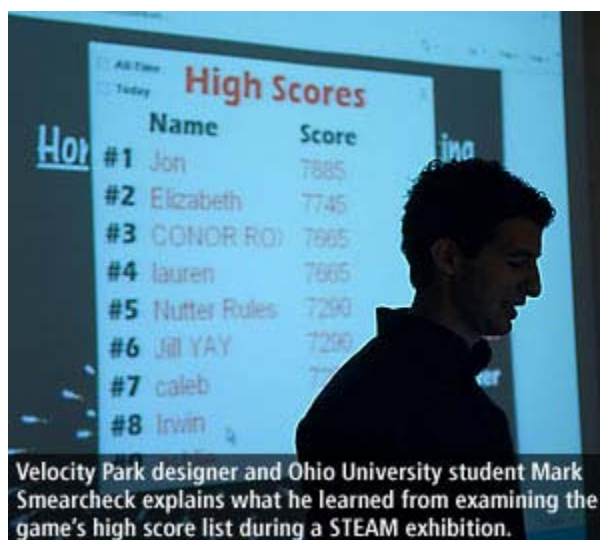
Velocity Park designer and Ohio University student Mark Smearcheck explains what he learned from examining the game's high score list during a STEAM exhibition.

Each fellow spent at least 15 hours a week this past academic year developing, researching and modifying the games, while also working in the classroom with the middle schoolers.

Though it's too soon to gauge the effect the games have had on students' skills, it's obvious the students are enjoying them - even at home. Engineering fellow and "Velocity Park" creator Mark Smearcheck said it's easy to tell from the game's list of high scorers - and an online database that tracks when and how long students play - that a good deal of their spare time has been devoted to the game.

"Most of the kids who get on this list have played 15 to 20 times," Smearcheck said. "One of our students stayed up one Friday night until 3:30 a.m. to get to the top of the list."

A week later, another dedicated player knocked that student out of the top spot.

This unique partnership between the graduate students and local middle schools - known as Science and Technology Enrichment for Appalachian Middle-Schoolers or, more commonly, STEAM - seeks to improve the students' science skills while creating a network of graduate students, local teachers and Ohio University faculty committed to improving education through the use of new technologies.

"Developing a strong foundation in science, math and technology in the middle-school grades is extremely important in supporting the continuation of the study of science in high school and college," said Teresa Franklin, one of the project's principal investigators and an associate professor of instructional technology in the College of Education. "This digital curriculum will lay the foundation to foster the development of future scientists."

The long-term goal of the STEAM project is to make the video games - which are aligned with state and national academic content standards - available to

schools across the country. The beta versions of a few games were distributed to Ohio educators at the eTech Ohio Conference earlier this year.

At a STEAM exhibition on campus last Friday, teachers shared story after story about the impact the Ohio University graduate fellows had on their students.

Angela Adams, a science teacher at Miller Middle School in Perry County, said her class looks forward to Smearcheck's regular visits - so much so that she's used to hearing students say they don't need her help when he's around. "I don't want you, I want Mr. Smearcheck," she laughed, echoing their comments.

"I've seen my scores go up in science class," Adams said. "I've also seen an interest in science class go up. Any time we have role models like Mark come into the classroom and inspire them to achieve more, what more can I ask for?"

At Belpre Middle School, Rebecca Hartline put the STEAM catalog of games in her public folder, accessible from the school lab's computers, and word spread through the school like wildfire. "The kids were all telling each other where they could go to find really cool games," she said, noting she never heard them described as science games.

Belpre Middle School teacher Rebecca Hartline watches as Ohio University student and game designer Eric Petri demonstrates "Where in the Rock Cycle is Taterman?"

Though there always have been educational games available to teachers, the process used to create these modules makes them unique: Fellows collaborated with one teacher to develop the original games. As the teachers incorporated the games into lessons, the students offered feedback on the games, which the graduate fellows were able to integrate immediately.

But the collaboration doesn't stop there. Last week, the teachers gathered at Ohio University with their fellows for a weeklong professional development session. They spent part of their time generating tests that will assess the effectiveness of the games next year.

"The graduate fellows and teachers have formed a learning community," said College of Education Dean Renee Middleton. "They've challenged each other, critiqued each other, but most of all they've supported each other, developing a sense of coherence and shared purpose."

Next year, the original eight fellows will continue to work with their assigned classrooms; a new fellow and a Belpre teacher have joined the roster as well.

And the newest game? Let's just say it involves a talking monkey on a deserted island. (Students, brush up on the physics of tides this summer!)

Amy Robison contributed to this story.

Related Links:

- STEAM Project Web site
- STEAM Project games
- Mind Games: The STEAM Project
- College of Education
- Russ College of Engineering and Technology

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