

K-12 Technology in Education Summit

Project Pairings

PAIRING 1

Ohio Board of Regents (a variety of instructional software)

The Ohio Board of Regents is working with partners in the States of Ohio, Kansas, California, and New Mexico to create 108-hour modular curriculum that can be used as a complete SES summer program in pre-algebra mathematics for middle school students. Each of the individual learning modules is technology-based, including videos, games, and instructional software, each of which is designed to be multi-modal (i.e. they can run on several different technologies). In the project, students will learn on internet-connected PC's but at times will take advantage of wireless iPod Touch. Students will access the individual learning modules by entering a virtual world that serves as a portal connecting them to a variety of activities. A newly constructed learning management system helps students and teachers organize the flow of information; delivers and stores the results of assessments, and customizes the selection of appropriate learning modules.

Targeted Teachers: Middle school algebra (especially ratio, proportion, and percentages; algebraic expressions and linear equations; geometry and spatial relationships; and data and probability) in SES settings

Maryland Public Television

Maryland Public Television (MPT), along with partners at Johns Hopkins University and MIT, are creating a role-playing adventure game called "Labyrinth" to be used by middle school mathematics learners as part of a regular school curriculum. Initially, the game will be accessed via MPT's Thinkport, an internet-based resource for teachers, but eventually it will be translated to run on a mobile device such as the Nintendo DS as well. In the game, players become lost in a secret world of monsters and other strange creatures. To work their way out, they must solve increasingly difficult mathematical puzzles, each of which they encounter in several iterations to help them build upon their prior experience and to deepen their knowledge. The puzzles emphasize skills and concepts drawn from the study of ratio and proportion and other mathematical concepts, but they are encountered as an integrated part of the game narrative, and not explicitly as mathematical challenges.

Targeted Teachers: middle school math teachers focusing on pre-algebra content

PAIRING 2

University of Oklahoma

The University of Oklahoma is creating a Massive Multiplayer Online Game (MMOG) called "McLarin Adventures" to teach math, reading, and social studies to eighth and ninth graders. In the game, students role-play as team members who travel to a newly discovered planet to create a new settlement. On this planet, they are confronted with a series of problems such as locating water and food supplies or building a shelter. In each of the game's 10 open-ended scenarios, players must master the use of scientific instruments, collect and analyze data, and share unique skills and knowledge with other team members. The game will run on a server hosted at the University and use internet-based PC's as clients. In the project, students will use the new generation of ultra-mobile PC's (UMPC's).

Targeted Teachers: 8th and 9th grade teachers interested in interdisciplinary content; could be used in math, science, or social science settings; based on NCTM national math standards for process skills and algebraic reasoning.

University of Wisconsin

The University of Wisconsin and its partners from MIT and Harvard University are creating a series of augmented reality simulations that promote interdisciplinary learning by middle school students. In one of these games, "Alien Contact!," aliens have landed on Earth, and students must work in teams to determine why the aliens have landed. Each student will adopt a different role -- Chemist, Linguist, Computer Expert, or FBI Agent. Equipped with a handheld PC and Global Positioning device, students will interview virtual characters, collect digital evidence, solve puzzles, and share information with each other. The team will work to develop hypotheses about what has happened and then orally present their findings to the rest of the class. Alien Contact is based on Massachusetts state standards and focuses on math and literacy concepts typically found difficult for students to master -- including ratio and proportion, indirect measurement, and many other topics.

Targeted Teachers: "Alien Contact!" targets 7th grade math taught in interdisciplinary context.

PAIRING 3

Pacific Resources for Education and Learning (PREL) (games)

PREL is creating two role-playing adventure games entitled “Jump into Reading for Meaning” that are intended to help struggling fourth grade readers learn vocabulary and reading strategies. The two games, each of which runs on the handheld Nintendo DS platform, are designed to be played sequentially and together comprise upwards of 60 hours of instruction. The basic premise of the game is that a player, using an assumed identity, chases their lost dog into a world of monsters and eccentric characters, some of whom are friendly, some of who are not. When exploring this world, players engage other characters in a series of challenges requiring them to learn and/or decipher the meaning of new vocabulary. The story advances as they progress, and the challenges build upon what they have learned in earlier encounters. Each of these two games is intended for use in after school SES programs, but might also be used independently.

Targeted Teachers: 4th grade reading teacher in SES programs. JUMP covers vocabulary words and word-learning strategies, especially focused on words used in math, science, and social science.

Educate Online (online distance learning, no games)

Educate Online delivers online SES instruction in English and mathematics to middle school learners. When a student enrolls, a new PC is sent to the student’s home. The student uses this PC to access online instructional sessions with live instructors any time of the day or night. A diagnostic assessment is used to plan and customize the curriculum delivered to students, who then progress at their own pace to complete the planned activities, always under the direct supervision of an instructor. Under the Star Schools project, Educate Online is creating the system software that will enable wireless connections via mobile laptops; building new curriculum modules for both English and mathematics; creating and testing new items for its assessment database; and creating new instructional materials for English Language Learners (ELL students).

Targeted Teachers: elementary and middle school teachers of SES instruction in English and mathematics (Educate Online will demonstrate elementary English curriculum)