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Are virtual worlds the future of the classroom?

By [Stefanie Olsen](#)

Staff Writer, CNET News.com

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This summer, as many as a million virtual kids could catch an infectious virus known as Whypox, causing them to break out in red welts and spout "Achoo" whenever chatting with friends.

Meanwhile, at the beach, crowds of "tweens," 8- to 12-year-olds, will see their popular hangout beset with so-called red tides, as the seashore changes from blue to red with phytoplankton blossoms.

Are these two signs of a crumbling world? No, they're learning tools for Whyvillains, the residents of an [online virtual world](#) whose population of kids has grown to about 1.6 million since its inception in 1999. Children in Whyville earn "clams" through activities and games, and use that virtual money to buy face decorations for their otherwise plain avatars. Then, they typically socialize with peers via chat, bulletin boards and the city's mail system.

"When Whypox first hits, they start saying 'Achoo,' and it interferes with their chat, which is obviously very important. So they are interested in finding out what it is and what they can do about it," in Whyville's Center for Disease Control, said Cathleen Galas, a teacher who helped a class of sixth graders through a bout of the pox last year by instructing them about epidemiology, the study of infectious diseases.

In educational circles, Whyville's private universe is known as a multiuser virtual environment, or MUVÉ, a genre of software games created to inspire [children](#) to learn about math and science, among other subjects. Unlike most game software and social networks, which elicit negative associations for some parents and teachers, MUVÉs are structured environments with rules for behavior, yet no pat formula for action. Designed to provide problems to solve that don't involve slaying monsters, MUVÉs compel kids to figure out the issues to succeed in the environments or have time to socialize.

Learning-based virtual worlds are growing more popular in schools and among children, thanks to ongoing efforts by universities and private companies.

For example, Harvard University's "River City" is a MUVÉ that involves a society in the late 1800s that's in political and environmental disrepair--kids must figure out why residents are falling ill. Harvard's School of Education is in talks with several urban school districts to introduce the software to tens of thousands of schoolchildren this fall.

About the author

Stefanie Olsen covers science and technology for CNET News.com. In this series, she examines the young generation's unique immersion in the Web, cell phones, IM and online communities.

Tips and resources for parents

- Sit down with children when they're online, and make sure they visit only Web sites that are parent-approved. The American Library Association lists great sites for kids on its [Web site](#).
- Use child-friendly search engines or one with parental controls. [KidsClick](#), for example, is a Web search site by librarians.
- Establish a family e-mail account.
- Talk to children about their online activities and online friends because to them, the Internet is an extension of the real world.
- Establish rules for the Internet. Studies from Canada's Media Awareness group have shown that children respond positively to established rules.

Links

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Quest Atlantis, a downloadable MUVE developed at Indiana University that focuses on an ancient culture, will be introduced to 50 new classrooms, or between 10,000 to 20,000 students, in New Jersey next fall, according to Indiana Associate Professor Sasha Barab, who specializes in learning sciences and instructional systems technology.

Privately held companies like Pasadena, Calif., Numedeon, makers of Whyville, are also finding it easier to lure new sponsors. In the next month, Toyota Financial Services will host a Whyville loan center to help kids learn about FICO scores and interest rates in order to borrow money to buy a virtual Toyota Scion to drive around the world, according to the site's co-founder and president, Jennifer Sun. (Driving a Scion became a popular activity when the cars were introduced in Whyville in April.)

Wider adoption of MUVES raises the question: Are virtual worlds the future of learning for the wired generation?

Ask some educators and they'll tell you yes. That's because research has shown that kids engage deeply in virtual environments, gaining a conceptual and ethical understanding of school subjects, according to education experts. And many kids are already comfortable socializing online, so educationally oriented virtual worlds can offer that same sort of stimulus and use that potential to aid learning. There's one big caveat, however: Virtual worlds must have knowledgeable and motivated teachers driving the train.

Chris Dede, Harvard professor and creator of "River City," has researched the effects of MUVES in schools for the last six years. "Based on our results thus far, we're excited about how MUVES can provide immersive, engaging simulations that complement lectures, textbooks, labs and field trips as part of an effective science curriculum," Dede says in a video promoting the project.

"As a (teaching) supplement, this is the wave of the future," said Numedeon's Sun.

Still, proponents have an uphill battle when it comes to dispelling negative preconceptions of video games and socially oriented computing environments. They say many people automatically fear that games can't teach kids anything valuable, or worse, that they're a waste of time. With the rise of MySpace, [many parents](#) are also worried that kids aren't safe against predators in digital communities.

"One of the things for us is how do we deal in this fearful culture?" said Barab. "Do classrooms want to innovate and make it educational and entertaining?" He added that there's also some tension around how educators enlist kids in a fantasy world so that it has real world value.

In regard to teaching an inner-city kid about Rome and its ancient art, politics and society, for example, a virtual world can spark the child's imagination more than a textbook filled with beautiful pictures can, Gallas said. Virtual environments, ironically, offer the feeling of reality.

'River' rafting

Harvard professor Chris Deede developed "River City" nearly six years ago, seeking to answer two simple research questions: Can kids learn from this type of virtual interface? And if so, how much can they learn? He answered these questions by evaluating use of the MUVE in schools around the greater Boston area.

Kids in "River City" have avatars and can walk, run or swim through the city, which contains a polluted river and mosquito-ridden bogs. Students work in teams to investigate the virtual town, click on objects to interview subjects, and collectively form hypotheses about what's affecting the city and making people sick. Inside the city, they can also access library materials and other data sources--and each lesson is up to national standards for biology and history. Kids must also handle tasks like analyzing water samples at a virtual treatment plant.

"Instead of teaching slash-and-slay mentality, 'River City' teaches kids to be scientists through the technology," said Edward Dieterle, advanced doctoral candidate in learning and teaching at Harvard's Graduate School of Education.

In one example, kids who experienced "River City" found that people in densely populated tenements were much more likely to be stricken with the illness than wealthier people living farther apart. They sought to change variables in the city, such as adding more tenements, which the MUVE allows through administrators, but then one change set off a domino effect that didn't necessarily fix the city. The kids learned that because of the complexity of the world, it takes many changes to solve its problems.

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"In ways, many adults don't understand this," said Gallas.

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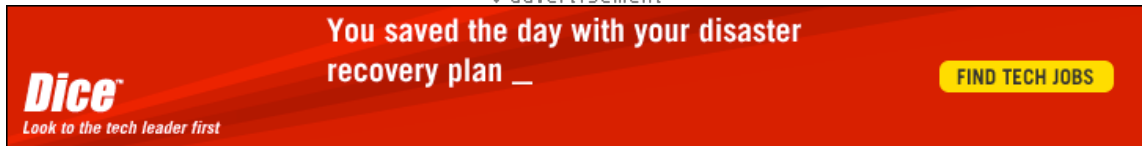
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