

Virtual Virus Helps Students Cope with Pandemic

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A Whyville avatar visits a SPIKEY-20 testing site. Many students participating in the virtual epidemic have their character tested multiple times to see if they have contracted the virus.

Living through a prolonged pandemic is a difficult experience for everyone. Coping with current challenges can be particularly daunting for children, who have less control over their environment than adults. Using an interactive online learning platform, professors across several departments in the Emma Eccles Jones College of Education and Human Services at USU have partnered with faculty at the University of Pennsylvania to create an imaginary virus, allowing students to virtually explore many aspects of living in a pandemic. Children can play in this risk-free environment with more control than they often have in the real world.

Designed with the guidance of a child psychologist and an epidemiologist, a viral outbreak named SPIKEY-20 was introduced to a virtual world called [Whyville](#)—an online learning game where students create their own avatar and learn about a variety of subjects. There are more than 8 million registered Whyville users, averaging 13 years old. Because users can interact with one another, Whyville creates unique opportunities for collaborative learning and has partnered with many organizations to study game-based learning.

Educational and therapeutic, the SPIKEY-20 epidemic helps students work through their anxiety about the real-world pandemic. Avatars with the virus show purple bumps on their head and face, have their chats interrupted by coughing, and are unable to earn “clams,” Whyville’s currency, on their sickest days. Students can get “tested”

to see if they have contracted SPIKEY-20; most students take these free tests multiple times. Children can use their clams to purchase various levels of personal protective equipment, and they can engage in risk-mitigating behaviors to reduce their chances of getting sick. For example, students wash their hands by typing “wash” into their chat bubble and see an animation of hand washing.

Instructional Technology and Learning Sciences (ITLS) professor Deborah Fields, who helped design the SPIKEY-20 event, explained how the virtual pandemic can help students cope with the real-world virus. “Students are making connections between their real-life experience and their virtual worlds as they feel more confident about taking advantage of testing, masks, and other preventive measures,” she said. This experience helps students grasp features of the real-world virus that are sometimes difficult even for adults to fully understand, such as asymptomatic people or tests without 100% accuracy.

As they play with different scenarios and results, children gain a great deal of knowledge about epidemiology and risk reduction, and they write their own [newsletters](#) to share what they are learning. In one of them, user “WUBREY” recorded observations about the real-world COVID-19 pandemic: “Just like Whyville, citizens waited until the virus directly affected them to start taking precautions.”

In addition to being educational, the virtual pandemic has many therapeutic effects for users, as the experience adds to their feelings of control and confidence. Thousands of children can experience SPIKEY-20 while interacting together without any real-world risk, helping them feel more capable of making good decisions regarding COVID-19.

School of Teacher Education and Leadership (TEAL) professor Colby Tofel-Grehl pointed out the power of giving students more control over their experience. She said, “By letting students use their agency and decide when to get tested, how often to get tested, and what protective measures to use, we are engaging them in an active model of responsible citizenry, which is rooted in the best scientific understanding we have.”

In another student newsletter, user “csqklce1,” explained, “This experience on Whyville brought to my attention just how realistic the SPIKEY-20 epidemic is and how much it compares to the COVID-19 pandemic. When many individuals contract COVID-19, they are asymptomatic, meaning that they do not show any symptoms of having the virus, same as my Whyville character.”

Tofel-Grehl and TEAL master's student Tyler Hansen helped create a 10-lesson unit to bring SPIKEY-20 into classroom curriculum, and teachers across the country are already using it as a teaching tool. Hansen, who is the 2021 Teacher of the Year at Mountain Crest High School in Cache Valley, adapted the Whyville unit for use with an AP biology class and is enthusiastic about his students' new understanding of epidemiology. "My students loved it," he said. "Many of them were keen to find out if they had contracted the virus and tested themselves virtually multiple times a day, and stayed engaged by exploring the virtual world of Whyville."

The next virtual outbreak begins February 15, 2021, and 1 million clams have been donated by users for virtual vaccine development.

Led by Dr. Yasmin Kafai at the University of Pennsylvania, this project is funded by a National Science Foundation-sponsored RAPID grant. Whyville is free for teachers, families, and anyone who would like to use it. Visit the [Whyville website](#) for more information about the virtual epidemic curriculum.