'Disease Science Investigators' take on D.C. epidemic

For the first time, young scientists can help contain a disease outbreak in Washington, D.C. — in a game, that is.

Disease Science Investigators: DC, known as DSI:DC for short, guides students through the steps of identifying and containing a disease outbreak in Washington, D.C., through a CSI: Crime Scene Investigation-like scenario. In the virtual environment of the game, players must take samples and conduct lab tests to determine the origin of the outbreak and advise the mayor and other city officials about next steps.

Science, technology, engineering, and mathematics (STEM) are all important to the game. Knowledge of pre-algebra, algebra, biology, and populations and ecosystems are all needed to play. The primary goal is for middle school students to study infectious diseases, computational modeling, and STEM disciplines via the engaging medium of video games, a preferred method of play for many youth.

"DSI:DC was developed to leverage what we know about good game design and interest-driven learning. Several educational researchers claim that good game design equals good learning, in that challenges are attuned to players' skills, contextualized feedback is provided to improve performance, and rewards are given for persistence in the face of complexity and ambiguity," said Michael A. Evans, an associate professor in the Department of Learning and Technologies at Virginia Tech. "Interest-driven learning tells us that when youth are able to make connections between personally meaningful preferences and academic tasks, they are more likely to succeed."

Evans said DSI:DC is distinguished from comparable, game-based learning projects because players interact with an actual computational model of infectious diseases as opposed to a fictional story line.

"The potential to introduce middle- and high-school youth to topics such as infectious diseases and computational modeling in this type of learning environment could advance research and practice in STEM education and computational thinking," Evans said.