Improving public engagement with science museums

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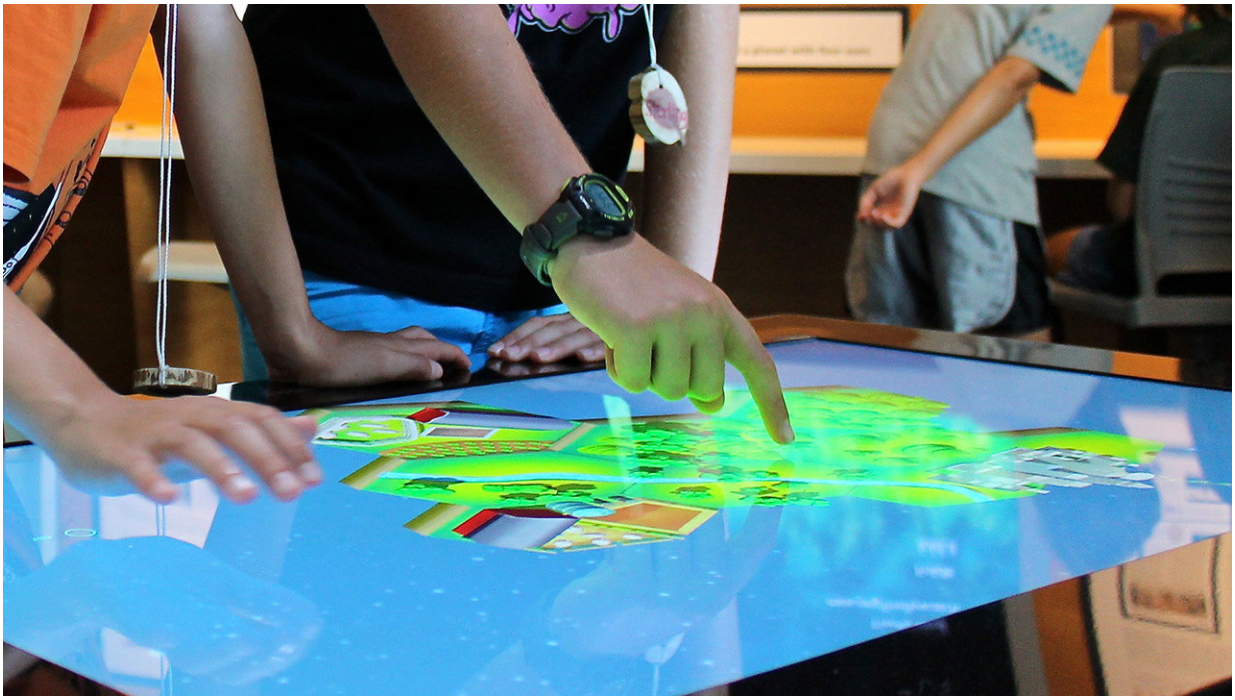

Children play with a prototype of the 'Future Worlds' game, which is an interactive, tabletop game focused on sustainability. Credit: North Carolina State University

A team of computer science, education and museum researchers is launching a project to better understand how museum visitors interact with educational exhibits. The ultimate goal: helping museums capture public interest.

"Our goal is to develop tools and models that can help museums measure visitor engagement and modify their exhibits to enhance that engagement," says James Lester, a Distinguished Professor of Computer Science at NC State University, and director of NC State's Center for Educational Informatics (CEI), who is the principal investigator on the project.

The work is being done in partnership with the North Carolina Museum of Natural Sciences under a $1.95 million grant from the National Science Foundation's Advancing Informal STEM Learning program. The project also involves co-PIs James Minogue, an associate professor of education at NC State, and Jonathan Rowe, a research scientist at CEI.

The project will use multiple technologies to collect data from museumgoers who interact with educational exhibits. For example, the researchers will use motion-tracking, eye-tracking and facial-monitoring technologies, and will track the amount of time people spend at an exhibit.

One of the exhibits will collect only this observational data. The second exhibit, called Future Worlds, is an interactive, tabletop game focused on sustainability. When visitors interact with the game, which was developed by CEI, the researchers will also be able to collect telemetry data - meaning the game itself will record how people actually play.

"The grant runs through 2021, and in our first couple years we'll also be conducting assessments of visitors before and after they interact with the Future Worlds exhibit," Rowe says. "This will give us information on what people are actually learning, but - perhaps more importantly - we'll also get insights into how and whether people were interested in the fundamental subject matter.

"We can then determine if there are particular behaviors that are

associated with heightened interest, or lack of interest," Rowe says.

"There's also a predictive modeling component here," says Lester. "We hope to be able to identify particular moments or elements of an exhibit that are crucial to retaining or losing engagement with visitors."

In the long term, the researchers hope to develop a computational model of visitor engagement, which will be packaged in software they call a Visitor Informatics Platform. The model would allow other museums to use similar observational tools to assess visitor engagement with other exhibits.

"Basically, the Visitor Informatics Platform will be software that can help museums figure out what's working and what's not," Rowe says.

Provided by North Carolina State University