

Computer app whets children's appetites for eco-friendly meals

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Curriculum and instruction professor Emma Mercier shows one of the 55-inch tabletop screens that she is using in her research developing the Food for Thought app, which educates young people about the carbon footprint associated with the foods they eat. Credit: L. Brian Stauffer

The biggest decision many children have regarding their diets may be

deciding whether to have fries with a fast-food burger. However, a new educational software application under development at the University of Illinois is introducing middle school students to the topic of climate change and showing them how their dietary choices affect the planet.

The Food for Thought app displays a dinner plate that [students](#) fill by touching the computer screen and dragging their food selections onto the plate. As students create a meal, the app graphically tallies the nutritional data and carbon footprint associated with each food item and with the overall meal, such as the amount of calories in a salad and the amount of water that would be used in growing the lettuce.

"There are two learning goals here: Make kids aware of the causes and impacts of [climate change](#), and help them become data literate—that is, knowledgeable consumers of the media," said curriculum and instruction professor Emma Mercier.

Mercier's research team videotaped groups of students from University Laboratory High School in Urbana, Illinois, as they explored climate change issues at the local and global levels. The students examined various graphs, representations and images that were provided via traditional learning materials and on 27-inch multitouch screens, while the researchers observed the amount of support that students needed to interpret the data and how they used the information.

The capstone activity of the nine-day curriculum was a visit to the high-tech Illinois Digital Ecologies and Learning Laboratory (IDEALL) in the College of Education at the university, where the students used the Food for Thought app on the lab's 55-inch multitouch tabletop computer screens.

By entering information from food diaries they had kept over the previous weekend, the students were able to view the carbon footprints

associated with their food intake. They also were challenged to create a meal that had the least impact on the environment yet still provided sufficient calories.

"The excitement level—and noise—in this room was astounding," Mercier said. "The teachers who observed their students' work in the lab said that even the kids who are usually difficult to engage were very engaged with this activity. The students saw that they play a role in climate change and that even the small choices they make do matter. One student said the curriculum had prompted her to order something other than a steak while eating out at a restaurant with her parents."

"Using food as the focal point for promoting awareness of climate change was really brilliant," said University Laboratory High School science and engineering teacher Sharlene Denos, whose students participated in the activities. "Seventh- and eighth- graders don't have control over what cars their families buy or whether they retrofit their homes, but they are in charge of their [food](#). The thought process with the app is one that they can take with them to the grocery store. It's something that can really empower the students to keep thinking about environmental issues and keep the conversation going with their families and friends."

Developing technologies for teachers to use in teaching children about climate change is important because climate change is associated with more than 40 percent of the disciplinary content in the Next Generation Science Standards for kindergarten through 12th-grade education, Mercier said.

Based on a framework developed by the National Research Council, the Next Generation Science Standards comprise a set of core ideas that students are expected to know by the time they graduate [high school](#). The Illinois State Board of Education adopted the standards in 2014.

The data that the research team collected during the trial with the University Laboratory High School students will be used to better understand how learners engage in collaborative problem-solving and to develop technologies that support collaborative learning about climate change. Mercier plans to apply for additional grant funding to refine the Food for Thought app, with the goal of making it available to area schools in the near future.

Doctoral student Susan Kelly provided content knowledge and designed the curriculum for the project, while Kelly Cole, a senior in computer engineering, was the software developer. Lu Lawrence, a master's student in the College of Education's Digital Environments for Learning, Teaching and Agency program, was the graphic designer.

Provided by University of Illinois at Urbana-Champaign

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