

Learning about nutrition from 'food porn' and online quizzes

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Harvard and Columbia researchers designed an online experiment to test how people learn about nutrition in the context of a social, online quiz. Credit: Harvard John A. Paulson School of Engineering and Applied Sciences

Many of our social media feeds are dominated by beautiful, mouthwatering photos of food. These photos inspire some serious food envy but could they also educate and encourage healthier eating?



That was the question explored by a team of researchers from the Department of Biomedical Informatics at Columbia University and the Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS). The results of the study were presented at the ACM SIGCHI Conference on Human Factors in Computing Systems in Denver, CO.

"We know that humans learn by observing each other," said Marissa Burgermaster, a postdoctoral fellow at Columbia University and first author of the paper. "Our research explored whether we could leverage the popularity of online quizzes and food photos to develop new ways to teach people about nutrition."

So, Burgermaster and co-author Lena Mamykina, Assistant Professor of Biomedical Informatics at Columbia University, teamed up with Krzysztof Gajos, Gordon McKay Professor of Computer Science at SEAS, to develop an online experiment to test how people learn about nutrition.

Gajos is a pioneer in online experiments. In 2011, he co-founded <u>LabInTheWild</u>, an online platform for conducting behavioral research with unpaid, online volunteers.

Behavioral studies performed in conventional labs are often constrained by time, size and a homogenous volunteer pool—usually a group of undergrads from similar backgrounds. But online platforms like LabInTheWild can collect experimental data from a large group of volunteers from diverse backgrounds over extended periods of time.

"Online experiments offer controlled but real-world environments to learn about the mechanisms of behavior," said Gajos. "These platforms offer a faster theory to experiment cycle and can provide more reliable data since the unpaid volunteers are motivated by curiosity or interest in social comparison."



Using LabInTheWild, the researchers <u>designed an experiment</u> to test how people learn about nutrition in the context of a social, online quiz. The team was specifically interested in <u>participants</u>' knowledge of macronutrients, including carbohydrates, protein, fat and fiber.

The experiment asked participants to compare photographs of meals—such as split pea soup and black bean soup—and identify which meal was higher in a specific macronutrient, such as carbohydrates.

After each answer, participants received one of the following responses:

- No feedback at all
- The percentage of participants who chose each response
- The correctness of their answer without additional explanation from an expert
- The correctness of their answer with additional explanation from an expert
- The correctness of their answer with explanations written by fellow quiz-takers

Later in the quiz, participants were asked to evaluate another pair of meals that included the same key ingredients to measure whether or not they learned anything from the feedback they received.

About 2000 people participated in the experiment over a six-month period.

The researchers found that, unsurprisingly, the participants who received additional information explaining the correctness of their answer did better on the quiz and learned more than participants who got no feedback or no explanations.

However, the team also found that there was no significant difference



between explanations generated by experts and explanations generated by peers.

"These findings suggest that rather than relying on experts to teach nutrition literacy online, we can corral the wisdom of the crowd to help people make more informed decisions to improve their health," said Mamykina.

"We're never going to be able to unleash an army of expert nutritionists to correct all the nutrition information on social media," said Burgermaster. "But we can tap into a larger, online social network. Our research shows that those social platforms could be used for learning and to nudge people towards healthy behaviors."

"This research is another example of the transforming relationship between science and society," said Gajos. "By participating in an online experiment, participants gained knowledge that directly impacts their own life and decision making."

Provided by Harvard John A. Paulson School of Engineering and Applied Sciences

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