Bringing Science to the Masses, One Beer at a Time

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NICHOLAS IOVINO / September 21, 2018

(CN) – At a cozy watering hole in downtown Oakland, California, budding scientists wield an unconventional weapon to help fight misconceptions about their field of knowledge. Their battleground is a bar. Their ammunition: beer.

For the past year, science students from the University of California, Berkeley, have hosted a series of nighttime lectures at East Bay taverns. The monthly talks have tackled topics ranging from the mysteries of microbial bacteria to the search for extraterrestrial life. It's part of a grassroots effort to make science more accessible to the public and more valued in society.

"We want to ignite that passion in them," said Virginia Markham, a 26-year-old UC Berkeley doctoral student focused on biogenetics. "We're not trying to educate them as much as we just want them to go out there and be curious."

The PubScience lecture series grew out of an initiative at UC Berkeley called the Communication, Literacy and Education for Agricultural Research (CLEAR) project. It started three years ago with a $103,000 grant from the University of California Global Food Initiative and has grown to encompass four areas of student outreach: on campus, in the classroom, in government, and in the community.

UC Berkeley researcher and outreach specialist Peggy Lemaux launched the program in 2015. She says it's important for the public to understand why science is important, and having young scientists connect with regular folks in the community advances that goal.

“If we’re not telling people about what we're doing and why they should care, then it's going to be really easy to cut funding for science," Lemaux said.

PubScience started with Lemaux going to a bar with students, digging into her own pocket to buy pitchers of beer, and inviting patrons to "ask a scientist" a question in exchange for a free pint. It evolved into a monthly lecture series

organized by UC Berkeley graduate student and beer enthusiast Alex Jaffe.

Jaffe, a 25-year-old Los Angeles native who studies evolutionary microbiology, said he gets two major rewards from coordinating the lectures and working with CLEAR. He gets to share his passion for science and hone his skills at communicating complex and jargony subjects to regular folks.

“It makes you see things differently and be able to articulate why what you do is important and worthy of funding and attention," Jaffe said.

On a recent Thursday night in late August, about 40 people gathered at the Octopus Literary Salon in Oakland's Uptown neighborhood to learn about the science of beer. A guest speaker from Lagunitas Brewing Company explained the intricacies of malting and talked about newly discovered strains of genetically modified brewer's yeast that could allow brewers to create hoppy-tasting beverages without using real hops, which take an enormous amount of water to grow.

According to Jaffe and his colleagues, these interactions are themselves an ingredient to ferment an appreciation for science among the general public. It also helps dispel misconceptions that scientists are inaccessible or arrogant elitists unwilling to talk to or consider the opinions of non-scientists.

"It helps show people that scientists know how to have fun," Markham said. "We're not stodgy weirdoes inventing things in our garage. We're just regular people who grab beers after work."

Thinking like a scientist

Persuading people to care more about science isn't the only goal of the CLEAR project according to Becky Mackelprang, a 30-year-old doctoral candidate studying plant pathology at UC Berkeley. She hopes it will encourage a way of looking at the world that champions empirical evidence and critical thinking.

"I want people to think about extraordinary claims demanding extraordinary evidence," Mackelprang said.

Lemaux agrees. Each year she has students read through a media report about a scientific finding and tear it apart. In one instance, a student found a study about the effect of pesticides on bees was based on conclusions that were "glaringly wrong."

"I think it's extremely important for scientists to look at what their peers published to make sure the information we're disseminating is as accurate as it can be," Lemaux said.

By creating more opportunities for scientists to interact with the general public, Lemaux hopes a healthy sense of skepticism will rub off on non-scientists as well.

"I want it to be not just the way scientists think about things, but to have people think about things analytically the way scientists do," she said.

Though people make decisions based on things other than facts, such as ideology, Lemaux aims to nudge people in a direction where facts become the chief consideration.

Lemaux works in cooperative extension, spending about half her time on research and the other half on outreach. She works to connect the university's discoveries on new plant varieties to the farming industry, government farm advisers, local growers, and dieticians.

"My outreach was mostly by myself for 20 years that I was here," Lemaux said. "I have an assistant who has helped me but never really had a group interested like I am in reaching out to the public."

The CLEAR group has grown exponentially since it was first launched in 2015. Lemaux believes the election of President Donald Trump and the policies that stem from his administration's denial of climate change helped spark a renewed interest in communicating science to the public.

"The group was much smaller before Trump was elected," Lemaux said. "Seeing the rise of political extremism driven by misunderstanding of science was a huge factor."

Honing skills for the future

The public isn't the only beneficiary of the program. Learning how to communicate scientific research to a wider audience is an asset that will serve scientists throughout their careers, according to Lemaux and her students.

Grants for scientific research often come with a public outreach requirement. Knowing how to reach a wide audience and convey complex ideas to non-scientists gives students an edge when applying for funding.

More than that, it builds confidence for them to talk about controversial topics like climate change, vaccinations, or the use of genetically modified organisms in food production.

Every month, CLEAR students man a booth at the Berkeley Farmers Market, often picking a theme – such as women in science – to focus on. The students also engage with the public on a variety of subjects, sometimes finding themselves embroiled in a heated debate about a controversial issue.

Through these engagements, Mackelprang has learned how to reach people who at first seem unwilling to consider a perspective different from their own.

"What I found is the key to communicating science is actually listening to other

people," Mackelprang said.

Her colleague, Markham, agrees.

"If you just come in with your agenda thinking 'I'm going to convince them of this,' it won't work," Markham said.

Her strategy is "listen more and talk less." She prefers to wait for a "big moment" when someone mentions a shared principle or value that she can use to establish common ground.

"That's your starting point for the conversation," Markham said.

Beyond communicating science to the public, another branch of CLEAR is focused on connecting with policymakers.

When Markham traveled with a group of CLEAR members to Sacramento in March, she realized state lawmakers could also benefit from a lesson in listening. During expert testimony on the impacts of pesticide use, Markham grew perturbed at how often legislators interrupted witnesses instead of listening to them.

One politician emphasized scientists can't prove pesticides directly caused the death of any creature, she said.

"It was really interesting to see that they interpreted the science the way they wanted to," she said.

Markham and other policy-focused CLEAR members are especially interested in funding for science education and research, climate change policy, natural resource protection, and environmental justice programs.

Sharing a passion for science

Each CLEAR member can recall the moment they fell in love with science, and they harness that same sense of excitement when sharing their passion with others.

For Lemaux, looking through a microscope for the first time is what got her hooked. For Mackelprang, it was looking up at the sky. She got her first astronomy book in third grade and spent weekend nights gazing at stars and planets through a telescope.

Jaffe traces his scientific curiosity to visiting the aquarium and zoo with his parents in Los Angeles. He became fascinated with animals and the natural world.

Seeing the effects of climate change gave Markham a "sense of urgency" to learn more and make a difference. But a passion for problem-solving has kept her interested and engaged, she said.

Students involved in CLEAR balance a busy and rigorous academic schedule with their outreach duties. What motivates about 40 students to stay involved, according to Lemaux, is they can always find time to do their favorite thing.

Markham says it also helps nascent scientists like her remember why they entered the field to begin with.

"In science, it's so easy to burn out and forget why you started and what made you passionate in the first place," Markham said. "When you practice telling science stories that are really compelling, it kind of keeps that fire burning and reminds you what's so fun and beautiful about it."

Courthouse News reporter Helen Christophi contributed to this story.

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