Student Research Sampler

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Costing hatcheries millions and imperiling wild fish from Montana to New York, whirling disease is spreading fast. Doctoral student Nilanjan Lodh is tracking its ways through DNA research at a UVM lab. He'll discuss the disease's complex biology at the upcoming UVM Student Research Conference. (Photo: Joshua Brown)

On April 26, from 9 a.m. to 4 p.m. on the 4th floor of the Davis Center, more than 200 poster and oral presentations will exhibit the work of UVM student researchers. This year, attendees of the 2011 Student Research Conference will learn about wireless sensors, dairy farming, the sex ratio of a malaria parasite, television and feminism and much more. *UVM Today* spoke with three of the student researchers about their motivation, findings and next steps.

Nilanjan Lodh, doctoral student, biology
"Comparison of 18s and ITS-1 rDNA of Myxobolus cerebralis, the causative parasite of the Whirling Disease"
Adviser: Lori Stevens, professor of biology

What was your motivation for studying whirling disease?

I already had a fisheries background and this is a fish disease I'm working on now. I've always been interested in host/parasite relationships in natural systems, not only in human beings or domesticated animals. It's hard to control these naturally occurring diseases, harder than human diseases.

Why is whirling disease important?

Whirling disease has now spread from Eurasia to more than 26 states in the U.S. It's economically a huge loss and it's an ecological loss too. It's infecting the native fish population in the U.S: salmon, trout, many varieties. It's killing off the baby fishes, so for the next generation you don't have enough mature adults that can breed.

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What have you discovered?

My research is focused on both the main host, this worm population, and the parasite itself. One or two previous studies found that the parasite does not have much genetic variability -- so people thought it's not contributing much towards variation in disease incidence: why is it here and not there?

The major finding of my research is that the parasite is variable. It's genetically variable. We did the DNA extraction and analysis.
We also found two different host lineages in our study area in Montana. One of them is more susceptible than the other one to the parasite. That is a significant finding. If the susceptible host is an area, there might be a higher chance of getting more infected fish in that area.

Tell us more about the host.

Tubifex tubifex is an aquatic worm and it's the main host of the disease. Fish are the other host. There are six known lineages of Tubifex out there, some contributing more, some less. And that's a problem: which lineage do you have in your infected area?
What's next? The bigger picture of this project is to go out and take more samples over a bigger area -- like the whole state of Montana. We want to be able to make a prediction, a model, of where whirling disease is likely to be. That means

collecting ten or twenty thousand samples to make a kind of library.

Lauren Blackington, '11
"The Efficacy of an All-Boys and an All-Girls Residential Summer Camp in Fostering Positive Attitudes Toward Women"
Adviser: Jackie Weinstock, associate professor in the Human Development and Family Studies Program

What was your motivation to work on this research?

I was actually a camper at the all-girls camp where I conducted the research and later worked as a counselor, leadership director and then program director this past year, so I'd been there for 10 years and sort of got the idea from those experiences. I really grew up at these camps and felt like they had a big impact on how I felt about my own self-esteem and my image of myself as a woman and what I could and couldn't do.

I was approached by Jackie Weinstock (associate professor in the Human Development and Family Studies Program) who was doing similar research at another camp and she agreed to let me do the study at Pleasant Valley and its brother camp.

What was your key discovery?

I had originally expected that the boys weren't going to change very much in their attitudes towards women and thought that the girls' attitudes would significantly increase. I actually found the opposite to be true. I was really excited to find significant results and was elated to find that boys' attitudes toward women could be improved.

What are the broader implications of your project?

It's really important to note that the American Camp Association estimates that more than 10 million children attend summer camps each year. Camps stand beside schools and religious organizations as the most impacting organizations on youth development, so it's really important to identify what camps provide children in terms of positive developmental outcomes. I see this study as another way of supporting camps as a positive place for youth development.

What's next?

I'll be returning to the two camps that I worked with this summer and I'll be sharing the results with executive staff and the staff members to let them know what I found and if all together we can come up with a to further increase positive attitudes toward women at these particular camps. There isn't any programming on sexism in either of the camps, so I think they'll be surprised to see that even without trying we have made a difference. It makes you wonder what we could do if we were trying.

Robert L. Brenna III '11
"I-Sharing and Face-to-Face Encounters with Objectively Dissimilar Others"
Adviser: Elizabeth Pinel, associate professor of psychology

What does I-sharing mean?

I-sharing is a moment when we feel our subjective experience has been the same as another person's -- we feel closer to them, we assume that they think like us. It validates our experience and because of that we tend to like them more, even if it's just an assumption.

What sparked your interest in this?

Hearing about Elizabeth Pinel's work in introduction to social psychology. I-sharing is related to existential isolation, the understanding a lot of people have that we are fundamentally alone in our experiences. I felt that way growing up, and I think a lot of people do. I didn't know there was a term for it.

Pinel has shown that people like an out-group person (such as someone of another race) who I-shares with them over an in-group member who doesn't, but her work was done over a computer. I wondered what would happen if the people who I-shared met face-to-face. I was skeptical that if you expect to see a kindred spirit and it's someone objectively dissimilar that the past results of I-sharing, the same liking, would hold true.

What is your key discovery?

It looks like it doesn't matter. Preliminary results suggest that I-sharing still promotes liking others in a face-to-face context.

What are the broader implications of this research?

You have to look at a lot of past research on intergroup relations -- people tend to surround themselves with others like them, there's a very obvious preference for in-group members. We believe that this has implications for intergroup relations and ways to overcome prejudice. Maybe our differences don't matter as much as experiential similarity.

What was the worst moment of the project?

I made a mistake with one of the forms and had to go back to the IRB and say I screwed up, please have mercy on me.

What's next?

I'm waiting to hear about a research position here. I'd like a year to finish this project with a lot more participants, and then go to graduate school. There are still limitations and obstacles to overcome, but this is a starting point, making a moment of I-sharing more organic to see if it really holds true in the flesh.