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Going Forward: Cooperative Research for Climate Resilience

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Publication Date

2021-06-01

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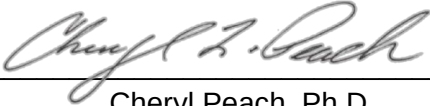
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This work was completed on the Scripps Institution of Oceanography campus, University of California San Diego.

The university was built on the unceded territory of the Kumeyaay Nation. Today, the Kumeyaay people continue to maintain their political sovereignty and cultural traditions as vital members of the San Diego Community. We acknowledge their tremendous contributions to our region and thank them for their stewardship.

The Intertribal Resource Center is working with Kumeyaay community members and the campus community to create an official statement for UC San Diego. The above statement is a temporary draft used by the Intertribal Resource Center as of June 2021.

Abstract

In the field of climate change adaptation and mitigation studies, as in many other areas of Western science, there has often been a tendency to overlook and exclude marginalized populations in the course of scientific research (Forman and Pellow 2019). This can lead to incomplete knowledge and flawed solutions to complex problems such as climate change, which requires an understanding of the interconnectedness of ecology and society (Lubchenco et al. 2016). Close partnership with communities and resource user groups can expose those inaccuracies and enable better adaptation and mitigation strategies (Miller 2018; Mitchell 2020). A diversity of perspectives leads to a diversity of solutions (Redmond 2014), a critical tool in adapting to climate change. The purpose of this capstone project is to encourage researchers to develop a holistic perspective of the problem of climate change and give them the tools to incorporate community knowledge into their research and proposed solutions in an equitable manner. The end result, a training for researchers on engaging in equitable, collaborative work with communities, can be found here: <https://humanecology.ucsd.edu/cooperative-research-for-climate-resilience/>. There is no similar training at Scripps Institution of Oceanography, and will be implemented by the faculty working group “Connecting Scripps to Communities.”

Introduction

What makes research good?

Whatever answer comes to mind is influenced by a range of factors- the definition of ‘research,’ the definition of ‘good,’ *who* research is good for, *what* research is good for, etc. It is therefore very difficult to establish one baseline of *how* research ought to be conducted. Definitions and valuations may be shaped by privilege and bias, which are carried by researchers through their work as well as their lives.

In the field of climate change adaptation and mitigation studies, as in many other areas of Western science, there has often been a tendency to overlook and exclude marginalized populations in the course of scientific research (Forman and Pellow 2019). However, this narrow approach to science results in inequitable studies and results as well as limited outcomes. Considering many perspectives and conducting research in a cooperative manner results in more resilient, adaptable systems and builds relationships of trust and respect which are more conducive to future research and adaptation (Redmond 2014). Acknowledging the interconnectedness of ecology and society (Lubchenco et al. 2016) and a variety of ways of thinking about nature (Pierotti and Wildcat 2000) as a starting place for climate change adaptation science will lead to more holistic, adaptive, resilient solutions (Hosen et al. 2020).

Utilization of cooperative/collaborative research practices is not new. In the 1980s and 1990s, academic emphasis on knowledge transfer began to shift from a Transfer of Technology (TOT) model of knowledge flowing from researchers to communities to a more nuanced exchange and focus on Local People’s Knowledge (LPK) and Indigenous Technical Knowledge (ITK), though it is by no means a universal practice (Warburton 1999). As the emphasis on technical knowledge has waned and emphasis on knowledge of systems and interconnections has grown, the idea of Local People’s Knowledge (LPK) has become Traditional Ecological Knowledge (TEK), sometimes conflated with ITK (Wildcat 2000). Sources of community knowledge range from professionals in particular fields such as farming (Warburton 1999) to practitioners of traditional fishing techniques (Aswani 2004).

For the purpose of this project, the definition of ‘community’ is purposely broad; it includes user groups of a resource under study, residents of a studied region, and groups particularly impacted by a study or the impacts of a studied phenomenon. Examples of communities include youth who experience disproportionate impacts of climate change

compared to older generations, coastal residents who face land loss and the onset of extreme weather events due to climate change and sea level rise, and Indigenous peoples whose land, traditions, and history is threatened by climate change and sea level rise.

The goal of this project is to encourage researchers to develop a holistic perspective of the problem of climate change and give them the tools to incorporate community knowledge into their research and proposed solutions in an equitable manner. To achieve this, a training was built for a target audience of geoscientists covering what collaborative research is, why it is important, and how (broadly) to conduct collaborative research. There are five modules including training videos and hypothetical scenarios, as well as a self-assessment at the beginning of the training and the end. The full training can be accessed here:

<https://humanecology.ucsd.edu/cooperative-research-for-climate-resilience/>. The training will be implemented by the author during their tenure at Scripps Institution of Oceanography (SIO), as well as by the Faculty Working Group “Connecting Scripps to Communities” in the future. There is no comparable training currently available at SIO, but trainings of this sort have been shown to increase the efficacy of community partnerships (König 2015).

Methodology

The training was created with the assistance of academic researchers, community engagement professionals, and climate change mitigation activists. The process went as follows:

1. Review literature relating to the co-production of knowledge, community-assisted science, and specifically climate change adaptation/mitigation projects done in concert with communities impacted by climate change.
2. Summarize and distill best practices and questions to be asked before embarking on a project.
3. Conduct interviews with researchers and community members.
4. Construct written training materials.
5. Construct training videos from recorded interviews.
6. Review common themes, determine training takeaways and next steps.

The most critical step was to conduct the interviews, which are discussed in detail below. Designing the hypothetical scenarios consisted of finding commonalities between research projects and synthesizing scenarios based on various academic articles, as well as the personal

experience of the author and interviewees. The terms to know sheet is essentially a list of terms used when designing the training which are not common knowledge in the STEM field, and the discussion and reflection questions are built on discussions between the author and interviewees as well as the members of the Human Ecology lab at the University of California San Diego.

Discussion

After this training, researchers will be able to recognize biases and power dynamics in research, articulate coherent vision for cooperative research, and initiate or improve their own community relationships for effective and mutually beneficial research practices. Takeaways for participants in this training should be: The importance of respecting community knowledge, how to be mindful of power differentials and why it matters who has privilege and power in the research relationship, and most importantly that doing cooperative research is an ongoing learning process- it is critical to reflect and seek feedback in each step of research.

In the view of the author, the key component of the training is the interviews with researchers and community organization representatives. The lived experience of cooperative research professionals is invaluable to the training and serves as a repository of knowledge for training participants to draw from. Discussion with these professionals ranged from the theory of cooperative research to *why* it is important to engage communities to practical recommendations for how to do so. Though the interviewees came from a variety of backgrounds, three common themes emerged from each interview: how important it is to listen to community members, to respect a diversity of perspectives, and absolutely crucially: to take action based on the information provided by research partners. Creating solutions to ongoing issues like climate change requires listening to the voices of community members, of people in different disciplines, and those whose knowledge is not confined by the bounds of Western science. Respecting voices from outside of academia, taking their knowledge seriously, and finally taking action to incorporate those insights and community needs into research and solutions throughout the process of planning the study, conducting it, and implementing the results (Aarons 2021, Navarro 2021, Rivera-Collazo 2021).

The theory of cooperative research is fundamentally that Universities and Western higher education institutions are not the only sources of knowledge. There are many systems of observing and understanding the natural world and humanity's role in it, and each has a role to play in combating climate change and other threats to humans and nature. Including a variety of voices in the research process will lead to a variety of solutions, some more creative and realistic than could be achieved with limited perspectives of those who have not been "on the ground" dealing with the realities of climate change (Capretz 2021). That is the *why* of including community voices- more equitable and practical solutions are borne of collaboration.

Research practices in the geosciences broadly and in climate change and adaptation studies specifically have three main areas for improvement as identified by the interviewees. First, extractive models of research where researchers come to a place or a people and take information or materials and then leave, providing no benefit from the study to its participants or benefactors (Aarons 2021, Navarro 2021, Rivera-Collazo 2021). Next, the lack of institutional support and funding for collaborative practices, which disincentivizes researchers from working across disciplines or with communities to reach the best solutions (Aarons 2021, Capretz 2021, Watson 2021). Finally, researchers with savior complexes or neocolonial mindsets, who see problems in places or communities they are not associated with as being in need of an academic professional to supersede local knowledge (Navarro 2021, Rivera-Collazo 2021). These research practices can lead to solutions which are not practicable or relevant to communities who are threatened by climate change. As Dr. Isabel Rivera-Collazo put it in an interview conducted during this capstone project,

"The decision-making that involves mitigation of climate impacts for development or changes or decisions regarding the land have traditionally ignored these communities and have not recognized the power that they have over the ancestry of their own lands and their own spaces. And by excluding them and systematically ignoring their perspectives, their voices, their experiences, their knowledge, we are systematically eliminating cultural diversity, we are systematically eliminating what makes those places rich and the history of human relationships with the land." (Rivera-Collazo 2021).

Finally, the interviewees discussed how to include community voices in an equitable manner. Three main points emerged during this stage of the interviews: The importance of listening to community voices, respecting sources of community knowledge, and acting on the

information and desires shared. Most successful studies from the literature review stage held to these principles, as well: for example, Aswani (2004, 2013) has over ten years of partnership with the community of the Roviana Lagoon where his research is based. He also works in partnership with local fishers to answer research questions which benefit the community (Aswani et al, 2004). There are several other scientists and community organizations engaged in Participatory Action Research (PAR) and other kinds of lateral learning in partnership with communities. Locally, these include the Global Action Research Center, Groundworks San Diego,

The moderated training itself runs as follows:

1. Participants and facilitator(s) introduce themselves and facilitator(s) set the discussion guidelines for the day.
2. Participants fill out a brief self-assessment.
3. Participants and facilitators discuss “Terms to Know” handout to establish baseline for the day’s discussions.
4. In groups of 3-4, participants complete “Privilege for Sale” exercise
5. 15 minute break.
6. Participants as a full group watch training video #1 and individually read hypothetical #1; full group discussion.
7. Participants as a full group watch training video #2 and individually read hypothetical #2; full group discussion.
8. Participants as a full group watch training video #3 and individually read hypothetical #3; full group discussion.
9. Participants individually fill out reflection sheets.
10. Conclusion.
11. Follow-up information including video #4 and video #5 is sent to training participants one week after the training session.

The self-guided training differs mainly in that there is no discussion component but instead reflection questions. The full training including the syllabi, videos, and further reading

recommendations can be found here: <https://humanecology.ucsd.edu/cooperative-research-for-climate-resilience/>

Next Steps

The process of cooperative research is ongoing. It should be understood that this training is merely a starting point for Scripps researchers (and others who access the materials online). Asking questions of colleagues and community partners, as well as interrogating one's own research practices is essential in continually improving the quality of research done in partnership with communities.

Drawing on the knowledge of communities- those who use and understand a resource, those who have considered the problem of access to resources and knowledge in the past- will enable better adaptation to the problems of the future. Going forward, work done to mitigate damage from climate change must center on the communities who will be most impacted by climate change. However, it is not enough to simply draw on community resources. Something must be given in return; *what* should be given ought to be determined between the researcher or research team and their partners in the community. Good research, after all, is research that serves its purpose. And what more urgent purpose can be imagined in the present day than addressing the climate crisis and systemic inequalities it highlights?

With thanks to

Interviewees:

Dr. Sarah Aarons, Nicole Capretz, Dr. Alison Cawood, Dr. Julie Maldonado, Dr. Mike Navarro, Allie Sifrit, Dr. Isabel Rivera-Collazo, Paul Watson

Capstone Committee:

Dr. Isabel Rivera-Collazo, Dr. Cheryl Peach, Dr. Tarik Benmarhnia

And those who have been exceptionally generous with their time:

Alison Rowe, Adi Khen, Elizabeth Bullard, Dr. Nan Renner, Dr. Jane Teranes, Dr. Fonna Forman, Dr. Heather Pines, Dr. Julie Kalansky, Danielle Furuichi, Emi Koch, Dr. Paige Fischer, and the members of the UCSD Human Ecology Lab: Amanda, Briana,

Christopher, Elyse, Eric, Hector, Javier, Jordan, Katrina, Mariela, Margie, Mariela, Marisol, Simona, and especially Margaret, for her help with the webpage.

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