

Community-Based Research: A Biologists Perspective

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The role that rural communities¹ can have within the realm of university research is important to consider, as are the different implications for the people involved. In some cases, the involvement of communities in the research process can contribute to local empowerment through education, a larger knowledge base, and skill acquisition. For others it may be a desire to participate in and learn about what is being studied in the community (Green *et al.* 1997). “Community-based research” (CBR) is a term that is used broadly to describe research that involves communities of place, interest or circumstance in a meaningful way (Bannister 2005a). For the quantitative natural sciences in particular, CBR has an interesting place in that it may challenge the distinctions that quantitative research often makes between humans and nature, but it also poses several problems related to communication and scientific vigor (Berkes 2003).

Prior to taking a field course on CBR at the University of Victoria that was based in Clayoquot Sound², my experience as a student of the biological sciences had never induced me to regard rural communities as important in the pursuit of knowledge through research. Nor had it ever occurred to me that there could be consequences associated with such research for those communities. Because I am interested in the natural sciences, it is useful to envision the impact of such research on communities. Often management decisions, for example those made by industries such as logging or fishing, are based on scientific studies conducted by outsiders who may not have a good understanding of the area. Results and interpretations are based on a simple snapshot in time, without considering how things will change (Castillo 2000).

The purpose of this essay is to explore the roles, implications and responsibilities of scientific research in rural communities, and to look critically at the way in which many researchers have neglected to consider the social repercussions of their research. For the purpose of this paper I use the biological sciences as an example of a quantitative natural science that professes objectivity, because it is an example that I am particularly familiar with as a student of Biology. Research in the quantitative natural sciences typically does not take into account the potential of communities as being linked to the subject of the study or community members as having a role to play in the generation of knowledge. I argue that researchers in the natural sciences ought to have an awareness of the above because they are in a position of power from which they can facilitate change relating to social justice and equity. I recently attended a biology seminar during which the speaker, who was researching an endangered fish, mentioned that his research had led an unnamed government to close down farms situated along a river. The farms were said to be contaminating the lake in which these fish were endemic. The speaker went on to say that even he didn't believe that there was enough evidence from one season of research to warrant such actions. This was most certainly a case of a specific political agenda taking precedence over community needs. The only mention of community indicated that the fish were culturally important to some local communities. For the government, the fish were commercially important. In this case, the people most directly impacted by the results of the

¹In this paper, “community” refers generally to people who live within a given set of geographic boundaries, people who have similar interests, or people with similar needs.

²ES 481A: Community-based Research in Clayoquot Sound. Summer session 2005. School of Environmental Studies, University of Victoria.

research were excluded from the entire process. This exemplifies the idea that scientific research has the power to disempower communities by taking information away from its source.

I argue that there is often an inherent obligation by researchers to include the interests of community members who are either directly affected by, or who have a vested interest in the research being conducted. In this essay, I attempt to critically assess the benefits and challenges of researchers in biological sciences who utilize CBR to contribute to knowledge creation, and empowerment of communities, using my own experience in this course as an instructive example.

Seabirds and CBR

As part of my course project, I chose to create a brochure on the topic of seabirds in Clayoquot Sound for the Raincoast Interpretive Centre (RIC), a non-profit environmental education organisation located in Tofino that was a community partner in the field course³. During the course, I learned that the RIC provides an important service for both community members and visitors to Tofino in several ways. It is a storehouse of information about the natural history of the Clayoquot Sound region. The RIC is a forum whereby people can become involved in and aware of the scientific information that is known about the region by attending presentations and activities put on by local and visiting researchers. It provides people with the opportunity to learn about the coastal temperate rainforests that line the west coast of Vancouver Island, and about many other ecological, historical, political, social and cultural interactions that also occur, and have had an impact on the area (RIC 2005).

The brochure I created on seabirds in Clayoquot Sound included some basic biology, conservation issues, and a small amount on human uses of gull eggs. The reason for choosing this topic was because there were not extensive resources at the RIC on the topic, and because birds in general are something I already had taken interest in. I was enrolled in a 6 week course on seabirds at the nearby Bamfield Marine Sciences Centre, which fit perfectly with creating the brochure. I thought the topic would be relatively enjoyable and interesting. I had some difficulties in deciding what to put in the brochure because the topic is vast, and the space on a double-sided piece of 8.5 x 11 inch paper limited. It is hard to say whether or not my position in a university was helpful. A good deal of research went into the brochure, as well as a lot of the information that I had learned previously in my university education. Certainly had I needed specifics I could have found extensive journals on the topic through the university library, however I was trying to keep things readable and to the point. It was intended for people who want some general knowledge on the topic, and where biology is concerned, generalizations often cannot be made without sacrificing accuracy.

What the brochure does is it makes the connection between biological sciences, people, and conservation. In my opinion these elements are extremely important because they form a connection of people and environment through conservation. The brochure is really just a starting block for people who are interested and want to learn more. Interestingly enough seabirds themselves form a connection between Clayoquot Sound and the rest of the world as well. Because many of these birds are migratory, they symbolize the interconnectedness of conservation across borders. While the brochure is not extensive in its knowledge on seabirds, it is a way of reaching out to people who want to know about these things and related issues that are out there.

³ For more information on the Raincoast Interpretive Centre see: <http://www.longbeachmaps.com/interp-center.html>.

Now, one might be inclined to ask ‘what do seabirds have to do with community-based research?’ And I myself might have posed that very same question prior to taking this course. My experience at the RIC helped me to see Clayoquot Sound as a complex web of science, politics, sociology, and history. These things together represent the essence of Clayoquot Sound. Moreover, the landscape and ecosystems have been shaped and managed by the central region Nuu-chah-nulth First Nations who have inhabited the area for thousands of years. Thus, it is important to remember these inextricable linkages between people and place when considering carrying out scientific research that, by design, inevitably attempts to separate the two.

Should natural scientists strive to remain disinterested and disengaged with social implications or political issues in the pursuit of objectivity? In my experience as a biology undergraduate student at the University of Victoria, the idea of integrating science with community involvement had never been raised. It was not until I enrolled in this course on CBR in the multidisciplinary School of Environmental Studies that I was introduced to the idea that “hard” sciences, directly or indirectly, could be used as a tool to re-balance power relations and facilitate equity for communities. And now that I have gained this awareness, I am convinced that, when possible, natural science should be used in precisely this way, for many reasons, some of which are discussed below.

Increasingly, scientists around the world are realizing the destructive influences that humans are having on the natural environment, as well as the potential for humans to be an integral part in implementing changes that will preserve and protect biodiversity. For example, the World Commission on Environment and Development (WCED) report *Our Common Future* outlines the relationship between social inequities and the rapid loss of natural resources across the globe (Bruntland 1987). Scientific research has the ability to increase inequalities by implementing conservation strategies that do not consider the needs of local communities. However, such research also has the ability to involve community members in the process so that local people will benefit and conservation goals will more likely be achieved. The latter can happen through efforts to include local knowledge, employ local people to assist in data collection, educate (and be educated by) community-members, involve community members in identification of local problems and local dissemination of results, and make the results accessible and understandable to the community.

Sometimes, dominant hierarchical power dynamics can unintentionally result from research when the local impacts of certain research topics are not fully understood by the researcher, or purposeful efforts are not made to reach broader audiences. For example, academic research papers often contain information that is basically useless jargon to people who have no experience with the scientific language and terminology used within specialised areas of research (Castillo 2000). In addition, research results are often disseminated by outside researchers who are disconnected from the community with no real sense of local needs. Research that does not make an effort to engage the community or to reflect the needs of the community may be, at best, poorly understood by community members thereby eliminating its usefulness beyond a subset of the scientific community. I believe that as fellow humans all researchers should feel a responsibility to translate their science into a comprehensible language so that it is available to everyone who wants to understand it. Community members should be encouraged to take part in scientific research and be given the opportunity to learn from it whenever possible. As vectors of change, empowered community members can play a vital role in achieving conservation goals, thus their active involvement in the research process should be seen as an investment in broader social goals.

Important Questions and Considerations

Relevance

A question that has arisen throughout this course, and that is perhaps overlooked by many scientists is one of relevance. Is the research project relevant beyond an academic context? More specifically, if the project is being carried out within some sort of community, is it of interest, use or benefit to that community? If it is not, can it be altered to reflect the interests and respect the values of the community? This is a difficult question for many natural scientists to address because the natural sciences tend to be far removed from social aspects of research and incorporating human relations into research endeavors. In my view, this disconnection is certainly something that should be addressed more within the university system, especially at undergraduate and graduate student levels, to increase awareness of and comfort with these issues among faculty researchers and students alike.

The idea of relevance within civil society is integral to any scientists seeking to make a difference through their work. Of course research that does not appear to have any immediate relevance may find relevance somewhere along the way. And furthermore, while relevance may not seem to play a role at the time of the research, perhaps later on as change occurs, its significance will be uncovered. Relevance and timing are particularly important when looking at issues related to biodiversity loss, which is increasingly understood as interconnected with human beings.

The Role of the Community

How can communities become involved in research projects? An idea that was presented in this course was envisioning community-based research as a spectrum. At one end, there is research conducted in or about communities but with little involvement due to the nature of the research, at the other end, there is research conducted and controlled by communities themselves, and in between there is a variety of research done in collaboration with or for communities (Bannister 2005b). In all cases, no matter what level of community participation is involved in the research itself, there is a role to involve communities by way of returning results in a meaningful form.

Broadly defined, therefore, any research that is situated in a community context might fit somewhere along the spectrum, depending on how it is conducted. Take someone doing population research on seabirds in Clayoquot Sound as an example. While it may not seem obvious at first, there is a possibility that the community might be interested, might benefit or might even be harmed by the results and interpretations of that research. Interestingly enough, there are communities in Clayoquot Sound who harvest Gull eggs for food (Ambrose 2003). It might be of interest to those communities, were the researcher to notify them of his/her intentions, and maybe even to gather participants who are able and willing to help. Perhaps there are even people in the area who have gathered their own knowledge about seabird colonies and where to locate them, or seabird behavior. For many communities, too often they have been the objects or data points in a scientific study that gathers information and exports that knowledge elsewhere, making it inaccessible to the people and place where the knowledge originated.

The role of community members in research projects can vary depending on several factors, such as the type of project and type of assistance needed, and the interest, capacity and expertise of community members. Community members could potentially help shape the problem to be investigated, take part in data collection, data entry, and interpretation of results

(Evans 2000). In particular, when interpreting results, the concerns and values of the community should be taken into consideration without having an “outsider’s” interpretations forced upon the community. In a situation where a community is directly affected by the outcome, they should be involved in as many aspects of the research process as feasible.

Integrating community members into the research project is important for many reasons. An educational component is always important because it addresses the topic of the research so that community members have a clearer understanding of the subject. Communities can be an important component in creating knowledge (Fischer 2000). For example, community members often have a more holistic picture of their environment, such as components that have been present in the past and for how long. They have an idea of changes that have occurred over a certain period, and perhaps how things are continuing to change. When scientists take part in a study lasting no more than several months or a couple of field seasons, they often come away with fragmented data that has no real application or long-term meaning. This kind of data does not take into account a dynamic natural system of which we as human beings are a part. Furthermore, this kind of research neglects to consider that further changes will occur where results may no longer be of relevance or use. Community members may be well-positioned to continue a process of monitoring long after the researcher is gone. Local people can perceive changes that may be good or bad in terms of conservation or management, and might be able to make their own changes without the help of an outsider once they have an understanding of the subject (Berkes 2003). While community members may not necessarily be open to such monitoring positions, they will have a better idea of conditions under which such changes take place and may be able to play a more active role in understanding and dealing with these problems.

Communication: Making Knowledge Accessible

There are several problems that arise when attempting to include communities in the scientific research process, not least of which is the issue of communication. Scientific language is difficult to interpret when one does not have any background knowledge of the subject. Conversely, communities must be able to communicate their own needs and values, and take part in disseminating the results of the study (Castillo 2000). This is a problem to be considered and involves a process of learning for everyone involved.

It seems logical that research findings ought to be made accessible to the people who are affected by it, regardless of whether a researcher deems his or her work of use or importance to the community. Unfortunately and all too often, local accessibility is not even considered by the researcher. Research results should be gathered and returned to the community for practical reasons already mentioned and so that a hierarchical power structure does not result. Returning the information gathered from a research project might be equally as important for future reference or simply for interests sake. On democratic grounds, scientists who work at publicly funded institutions should seek to make results more accessible to civil society and to reach out to communities who have an interest so that they can be involved in the learning process. Instead of extractive research techniques, communities will benefit from a better understanding so that they are equally capable of creating informed opinions and discussion.

Traditionally the natural sciences have provided a linear flow of information based on acquisition of knowledge from an area or a community that ends up published in peer reviewed journals but never returned or made accessible to local people who might be able to directly benefit from it (Checkoway 1997). In universities, typically there is little incentive for researchers to pursue research projects of benefit to communities. The impetus on academics is to increase their own status within the academic community (Checkoway 1997). This is a reality for academic

researchers so this problem cannot be easily overlooked. I believe that this is particularly true where the hard sciences are concerned, perhaps because the idea of human domination and control over nature is still well entrenched, as opposed to humans as being an integral part of nature.

A broader systems view of scientific fields including ecology is increasingly focusing on more holistic methods, which seek to include communities in the scope of research projects (Berkes 2003). With an understanding of the issues posed by scientists, more and more it is being realized that without the inclusion of community members, attempts at solving problems that are related to the communities may be in vain (Berkes 2003). As agents of change, communities should be involved in the process of knowledge generation, communication and utilization (Castillo 2000). Communities are part of the natural world in which they live. This presence, along with other components and systems, helps to shape the landscape.

In order for there to be a shift towards more integrated forms of scientific research, there must be a shift in paradigm whereby researchers at publicly-funded institutions are rewarded for services rendered for the betterment of rural communities and wider society. Students should have the opportunity to be made aware of the potential offered by this kind of research, by offering more courses such as this one on community-based research.

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