

Maculate Conceptions: Power, Process, and Creativity in Participatory Research

Alexandra Lyon

*Gaylord Nelson Institute for Environmental Studies
University of Wisconsin-Madison*

Michael Bell

*Department of Sociology
University of Wisconsin-Madison*

Nora Swan Croll

Ripton, Vermont

Randall Jackson

*Department of Agronomy
University of Wisconsin-Madison*

Claudio Gratton

*Department of Entomology
University of Wisconsin-Madison*

ABSTRACT Justifiably concerned about power dynamics between researchers and participants in participatory research, much of the literature proposes guidelines for including participant voices at every step of the research process. We find these guidelines insufficient for dealing with constraints set up by the social organizational structures in which researchers and participants find themselves. We argue that the process of building relationships between scientists and farmers is unavoidably imperfect, but nonetheless necessary and rewarding. We contend that the potential problems of participatory research originate more from the social organizational structures in which it takes place than in failure to follow particular rules. By acknowledging these structures and the resultant interests of participant and researcher we can make room for the messy reality of negotiating participatory relationships. We suggest that transformative engagement can be born of what we term the “maculate conceptions” of dialogic process and the building of mutual trust.

Introduction

It took a few tries to figure out how to arrange the tables in the barn. We were a group of researchers from the University of Wisconsin, preparing for a field day with farmers who had collaborated with us to study the ecology of grazed pastures. This was the second field day we had arranged, and we hoped we had learned a few lessons from the first one.

At that first meeting, which had taken place the previous summer in the machine shed of a university research farm, a few of us stood at the front of the room, using graphs on PowerPoint slides to explain a year's worth of collected data. This was how research was often presented at meetings between farmers and scientists, an arrangement to which both groups had grown accustomed. But this was no customary project—we had undertaken it hoping to engage farmers and scientists as partners. Yet at that first field day, when some farmers challenged the scientists' reasoning, we reacted defensively in spite of our intentions, and the atmosphere in the room grew tense.

Fortunately, the whole dynamic of that day changed after lunch, when we left the machine shed and walked out to the pastures. Perhaps lunchtime conversations had made everyone more comfortable, because now the farmers and researchers walked next to each other out to the plots. When the scientists began to talk to the group again, the challenging questions continued, and even intensified, but the bristling tone dissipated from people's voices.

Now, as we arranged the tables for the second field day, this time held at the farm of a participant, we were remembering our experiences from last year: the tension and the way it had dissipated when people moved away from the lecture setting. Rather than rows of seats facing a presenter, which had served us so poorly last time, we really needed a big round table. After some head scratching and floor scraping, we found an arrangement that would work: putting our four rectangular tables together into a square. We hadn't achieved a circle, but at least the sides were equal.

This scene told much about our experience of the participatory research process itself. Over the course of our involvement, we found that the best way to proceed often wasn't evident until we had already started. We encountered constraints to participation that might reasonably have led us to abandon the effort, but instead we proceeded the only way we knew: by trying for participation despite the constraints, until, in the process of engagement, those constraints began to fall away.

We wish to present these experiences in the context of an ongoing debate about handling power dynamics in participation. The participatory research literature presents us with two evolving lines of commentary. One seeks to mitigate the effects of power by developing guidelines and scales of participation—what we call *ordered process*. The other line of commentary asks whether the participatory framework itself creates problems of power that cannot be averted through revisions of method—an argument which, for lack of a better shorthand, we call the *power critique of process*.

In our work with scientists and farmers on this project, we found that the social and historical contexts of each community created constraints to participation that made it nearly impossible to follow recommendations from the literature of ordered process. But as the two groups continued to work together, a more participatory relationship began to emerge as those constraints shifted. We contend that the potential problems of participatory research originate more from the social organizational structures in which it takes place than in failure to follow particular rules. We use the term *maculate conceptions* to describe this messy, sometimes disorderly process through which transformative engagement can develop, responding to and reconfiguring power but not eliminating it.

Participation, Power, and Process

For us, participation offers, as it has for others, the hope of transforming power relations and involving researched communities in conversation with the researchers, producing science that is both more useful in the real world and a more accurate reflection of that world. Even in an endeavor meant to empower, though, dynamics within and between communities can reinforce the oppressive structures the project set out to change. Efforts to deal with problematic power relations have generated a body of literature that proposes various hierarchies, scales, and typologies of the degree of participatory interactions (Adnan et al. 1992; Arnstein 1969; Pretty 1995). These scales often judge the quality of participation by the handling of two main problems: initiation (who should start a participatory project) and procedures (how a project should be conducted). For most of us, ideal participatory projects are initiated by participants rather than researchers. The researched community should set the research agenda and define the research question (Mikkelsen 1995). Moreover, procedures must be formalized in order to ensure that everyone is heard, respected, and informed. The central issue for Smith (2001) and others is that of “deliberative design,” in the structuring of ordered process.

But some doubt whether such participatory best practices really do eliminate power and injustice in knowledge production. David Mosse (2001) provides examples of projects that have a high level of participation according to the scales literature, yet still show problematic power relations. Particularly vigorous debate has taken place over participatory development, launched by the edited volume *Participation: The New Tyranny?* (Cooke and Kothari 2001). The editors contend that “the proponents of participatory development have generally been naïve

about the complexities of power and power relations,” missing how participatory processes override existing local decision-making methods and lead to decisions that “reinforce the interests of the already powerful” (14, 8). Similarly, Hayward, Simpson, and Wood (2004:95) describe “a mythologizing of the power of participatory methodologies to accomplish problem solving, emancipation or empowerment.”

We find a degree of truth in both these perspectives. We suggest moving forward from this debate with a more dialogic approach that acknowledges that power differentials continually arise from the social and structural contexts of any participatory interaction, and that these contexts also create constraints that make ordered process difficult. Participation involves negotiating the legacy of context, not eliminating it. For us, hope lies not in finding a way to make participation immaculate of power, but in the way that power can shift and constraints can lose their hold in the messy process of building mutual trust through engagement.

Methods

We are an interdisciplinary team of researchers from the University of Wisconsin. The principal investigators on the team—Michael Bell (a sociologist), Claudio Gratton (an entomologist), and Randall Jackson (an agronomist)—developed a three-pronged research project: investigating the impact of livestock management on nitrogen retention and carbon fluxes in grazed pasture, studying the impact of those same management changes on microarthropod food webs, and examining farmer-researcher collaboration by involving graziers in on-farm research. The sociological track of the research, which this article describes, thus took up the question “How can university scientists collaborate with farmers to do participatory research?” Nora Swan Croll, a graduate student in sociology, and Alexandra Lyon, a graduate student in agriculture and ecology, helped carry out the research and analysis related to this question.

Our research took place from the summer of 2005 through the summer of 2008. Jackson, Gratton, and their research assistants set up test plots at eight farms recruited through grazing-community events and existing contacts. The on-farm experiments were mensurative only, measuring the selected variables under the farmers’ existing management practices. Carrying out the on-farm research also provided an impetus for informal conversation between the natural scientists and the farmers, which would prove important for developing participatory dialogue. At Franbrook, a university-owned research farm where the researchers could control the way that treatments were applied, they

established manipulative experiments. Both the mensurative and manipulative experiments compared four pasture treatments: managed intensive rotational grazing, continuous grazing, mechanical harvesting for hay, and no harvesting. In each treatment they measured greenhouse-gas fluxes, inorganic soil nitrogen, ground cover, and arthropod abundances (Jackson, Bell, and Gratton 2007).

Meanwhile, the sociologists conducted interviews with the farmers and the natural scientists. Six of the eight farms were represented by couples who attended field days and participated in interviews together, while two of the farms were represented by only one primary farmer (in both cases men). This added up to a total of 14 farming participants in the study: 6 women and 8 men. They were paid for their participation and reimbursed for travel expenses associated with field days. All the farmers were white, as were the researchers. Most of the farmers were middle-aged, with the exception of one younger couple. Among the researchers, the principal investigators were roughly in the same age group as the majority of the farmers, while the graduate students were the youngest people involved in the project.

From the university, we had eight participating researchers, including principal investigators and student research assistants. We began with a round of interviews with farmers and scientists during the summer of 2005, when the on-farm research plots were just being established. In May 2006, we organized a field day to share preliminary results from the grazing research and allow farmers to tour the controlled plots at Franbrook. We hoped that the field day would give farmers and scientists a chance to engage with and respond to each others' perspectives, but we were also interested in the obstacles that might emerge to such a dialogue. We then conducted follow-up interviews focusing on participants' impressions from the field day. In August 2007, we conducted a second field day, this time at one of the participating farms. We followed up with a final round of interviews during the spring of 2008, exploring the changes that had taken place during the project, both as a result of field days and of the interactions on the farms during the agronomic research.

Although our goals for the first and second field day were similar—to develop the dialogue between farmers and scientists—we changed the format of the second field day based on our experiences the previous year. At the first field day, as mentioned, we had started the morning with a PowerPoint presentation of the scientists' results, inadvertently reinforcing the power dynamic we were hoping to break down. At the second field day, as described in the introduction, we set up the seating in as close to a circle as we could manage, and started off the day with a more casual open discussion. By the time the scientists presented their

results (which were on handouts instead of a projector this time), the farmers seemed to feel much more comfortable interrupting and questioning the scientists. Another difference between the two field days was that by the time of the second field day, the scientists had changed some of their data collection methods to reflect the comments farmers had made at the first field day. This development reflected the dialogic change that had taken place, and was reflected in the opinions expressed in the last set of interviews.

The findings discussed here emerged from 33 interviews and during the on-farm research, as well as participant observation at the two field days and incidental conversations and interactions with participants over the course of the research. Over the course of the project, we conducted 3 interviews per farm, with the exception of one farm that withdrew before the last round of interviews, for reasons unrelated to our project. This added up to two rounds of 8 interviews and one round of 7 interviews, or 23 farmer interviews in total. We also completed three rounds of interviews with the two principal investigators among the natural scientists. Other scientists and research assistants were interviewed once or twice as they were available. In the end we had a total of 10 interviews with scientists (which excluded the two sociology research assistants, who conducted the interviews).

Our interviews were semistructured and 30–90 minutes long. Kathy Charmaz's iterative grounded theory (2000) guided our approach to analysis. For us, this meant reading and rereading our transcripts and notes after each round of interviews, looking for themes that reoccurred with multiple respondents. Our analysis from each round of interviews shaped the questions that we asked in the following round. This iterative approach allowed us to discuss our analysis with the farmers and scientists as it emerged. While we had to be careful not to ask leading questions, we valued the open approach to analysis, seeking participants' opinions of our ideas (and clarification of their own statements) during the research process rather than unilaterally announcing our findings at the end of the project. We also submitted drafts to all the farmers before submitting our findings for publication, giving farmers another chance to disagree, and to verify that their privacy was sufficiently protected.

Participation and the Grazing Community

Over the last few decades, managed grazing had become increasingly important to livestock farmers throughout the Midwest. This type of farming employs principles of grassland ecology to increase the productivity of permanent, mixed-grass pastures, providing food for grazing

animals while protecting soil under perennial cover. For Jackson and Gratton, both ecologists at heart, these pastures provided a rich setting in which to study ecosystem interactions.

For Bell, Croll, and Lyon, using participatory methods to research grazing seemed particularly appropriate because of the emphasis the grazing community places on collaborative and experiential learning. Central to the spread of managed grazing in the Midwest have been grazing networks—groups of graziers who hold regular discussions on their farms to educate themselves and each other about this farming method. Moreover, the recent increase in managed grazing in the United States has been situated (however hesitantly) within the alternative and sustainable agriculture movements (Hassanein 1999:15–21), which have their own history of advocating for participatory research (Dlott, Altieri, and Masumoto 1994; Pretty 1995). But alongside the seeming enthusiasm for collaborative learning we sensed a reticence among graziers about engaging with the university. One reason that seemed likely, and which Neva Hassenein (1999:18–22) had already documented, was the way that public agricultural research has promoted the practices of agribusiness to the detriment of alternative practices like grazing. Chipping away at this distrust, we felt, might be the strongest argument of all for using participatory methods rather than top-down research as usual.

Our combination of interests—in the ecology of grazing and in the complexities of participation—put us in the position of researching from within the research. We were studying how carbon and nitrogen accumulated and how microarthropods behaved in grazed pastures, and at the same time we were studying how our research process unfolded. This meant that for social scientists, our research partners (and sometimes we ourselves) were often the subject of our research, as we studied the interplay between farmers and scientists. We were critiquing our own methods, an awkward role perhaps, but an important and revelatory one.

Results

INTERVIEWER: What factors influenced your decision to participate in this research project?

FARMER: The big one was that I didn't have to participate much.

“It should be noted,” writes Sherry Arnstein (1969:216) about her Ladder of Participation, “that the typology does not include an analysis of the most significant roadblocks to achieving genuine levels of participation.” For Arnstein, these roadblocks include histories of privilege and

oppression that make it difficult for people to proceed in the way she recommends. While accepting their importance, we understand these problems as *constraints*, with the connotation of mutability: constraints can loosen and fray when people begin to work away at them.

Several constraints impressed us as most powerfully shaping people's experiences of participation. These were themes that appeared spontaneously in interviews with many different participants, and which developed further when we asked about them in subsequent interviews. There were many constraints for both farmers and scientists, some of them interrelated. Some constraints were felt by all farmers, or all scientists, and some constraints were felt by only one individual. Most were somewhere in between. In this article we elaborate six of these constraints (three for farmers and three for scientists) that were mentioned most frequently by the largest number of farmers and scientists.

Farmers' Constraints to Participation

Graziers harbored a number of hesitations about working with the university in any way. These included the constraint of time, a general distrust of the university, and a feeling of being unqualified to comment on the scientists' work.

1. Time and priorities. An interview with Rick, the farmer who was relieved that he "didn't have to participate very much," showed how farmers must organize their time and choose priorities, which are necessary due to their heavy and complex workloads. Rick and his wife, Nancy, explain how the priorities of farming often clash with those of research: "When we do have to participate, it isn't that we're not doing it willingly. It's that sometimes it just doesn't work in. Something comes up that day that is a priority, and you don't do your end of it and then you feel like you failed in the research."

Another couple told us they wanted to attend our field day, but something might come up at the last minute to prevent them from coming. Knowing that they might have to respond quickly to the unpredictable demands of their farm, they hesitated to make commitments with their time.

Such expressions of time as a constraint remind us of Hayward et al.'s (2004) argument—that nonparticipation or minimal participation is sometimes a rational choice based on the participant's own priorities, rather than a reflection of poor participatory process. For these couples, the demands of the farm presented a compelling context that constrained their willingness to commit time to participating in research. For the scientists, in contrast, research was a priority in their work—a

context that allowed them to commit more time to the project. Such divergent time priorities show how these two groups experienced constraints from very different structural contexts.

2. *Distrust.* Graziers' participation was also constrained by a history that has led them to distrust the university. In part, this distrust arose from farmers' sense that university people experienced the world so differently that they would never understand the problems of real farms. A grazer who was involved in previous research explained: "You can't just put out a bunch of plots and expect what you learned from the plots on the research station to apply on anybody's farm. There's a huge disconnect between the people who are doing grazing and the researchers on campus, even the researchers who are doing grazing research."

Another couple recalled how a team of researchers spooked the dairy cows while measuring the water level in a creek. On a hot day, this caused the cows to move out of the shade and away from their drinking water, which could have affected their milk production. This wouldn't have happened, the farmers thought, if the researchers understood cow behavior—if they were "cow people."

These examples show how graziers distrusted scientists' understanding of their farms. But their distrust ran deeper, questioning the motivations of the university itself, aside from the capabilities of any individual scientist. One couple blamed commercial funding of research for a bias toward industrial agriculture: "It's not [university scientists'] fault, but you guys get sponsored and paid for by companies. And there's a lot of money to be made in industrial agriculture with big companies, because you've got to buy your inputs."

With such critiques, graziers implicated public agricultural research in the industrialization of American agriculture. They are not the first to draw such connections—a wide body of literature has documented the role of research institutions in driving technology treadmills and encouraging high production at the expense of the environment and rural communities (Hassanein 1999:19–22). Past and present alliances between public research and agribusiness continue to damage graziers' trust of scientists, despite increasing university interest in sustainable agriculture and new funding sources that prioritize small farms and sustainability.

The constraint of distrust might also be understood as resistance on the part of the graziers to the power of the university. Farmers often have had the choice either to participate in research on the university's terms or not to participate at all. Given such a choice, the view that participating wasn't worth their time could be seen as an assertion of the farmer's power to reject research agendas. By any interpretation, though, the

constraint of distrust surely demonstrates that historical social contexts continue to complicate relationships between graziers and the university.

3. *Feeling Unqualified.* A third constraint mentioned in interviews arises from similar contexts of alienation. Some graziers were hesitant to participate fully because of their sense that research should be left to the “experts.” This sentiment varied—some were more comfortable questioning the scientists than others. Tim was one who was less comfortable: “I’m not an expert. It’s not my call to go out there and say, ‘Are they doing this right, or not doing this right?’ or to critique what they’re doing.”

Others expressed hesitation less directly. Nancy joked that Rick was probably happy to have missed the researchers when they visited the farm. Rick laughed and agreed—seeming satisfied to have the researchers gather samples without him. This might be interpreted as a time constraint—he was too busy to interact with them. But we doubt graziers would have experienced time constraints the same way if they thought that they had the expertise to engage in research. Rather, some farmers’ impulses to leave the work to the scientists suggests that they felt unqualified to participate. Similar self-doubt showed in one farmer’s hesitance to suggest research questions at the statewide grazing conference where we first introduced this project to the whole grazing community: “At the grazing conference they asked for [research questions]. And I thought about a lot of different things, but I couldn’t come up with a single thing to study. That’s why I didn’t volunteer, because I didn’t have a good question I wanted them to look at.”

As a result, this grazier told us, he almost declined to participate. Similar hesitations suggested that several graziers did not view the knowledge they had gained from experience as sufficient for engaging with scientists, an attitude that recalls a legacy of privileging scientific knowledge over local knowledge (Hassanein 1999). This legacy, and other aspects of the complicated history of agricultural research and alternative farming, provided the social contexts that created the constraints of distrust and feeling unqualified, just as the demands of everyday work produced the constraint of time priorities.

Researcher Constraints to Participation

Social, physical, and organizational contexts, as noted, placed serious constraints on farmers’ participation with the university. The same was true for scientists’ participation with farmers. Just as farmers were driven by a desire to maintain their farms as viable enterprises, scientists were

driven by a desire to advance in their careers and build their reputations as academics. Though these matters of self-interest were far from the only motivations, they strongly influenced the way each group responded to its contexts. The desire to advance in an academic career tied researchers into the values of science and university structure, constraining their interactions with farmers and the potential for participation as envisioned in the ordered-process literature.

1. Grants and Publications. Researchers, particularly professors, pointed out the importance of grant proposals for career advancement. Winning proposals for funding did more than pay for projects—it also demonstrated the caliber of scientists' work. One natural scientist brought this up when asked how the structure of the university influenced his choices of research projects: "Funding enables everything. The way the university compares us as up-and-coming researchers is cash grants, preferably from external sources. If you've gone to an external panel that means you have been evaluated by your peers, and by the experts in that field . . . so that stamp of approval is really important to the university."

If grants demonstrated that a community of peers approved of the research idea, publications showed scientists' ability to carry that idea through to fruition. He continued: "You can get a grant, but you might be great at coming up with ideas and terrible at executing them. Executing them and getting results is what publications are about. . . . It's really hard, otherwise, to say, 'What are the indicators that this researcher is good enough to stay on for tenure?'"

The university emphasis on grants and publications constrained scientists' approaches to research. They felt the pressure to identify projects of interest to national panels, and to carry out research that would produce publishable results for journals in their fields. As one natural scientist said, "There are certain questions in grazing that are not going to be advancing our careers very much, and those are things we have to worry about."

Grants and publications tied the contexts of academic structure to the values of science. Researchers had to align their work with the goals of funding agencies and the values of the academic journals that might publish it. These constraints influenced both the types of research questions scientists addressed, and the methods they used to address them.

2. Choosing projects. One of the clearest ways that funding influenced research priorities was encouraging questions that were general rather than specific to one place. National-level funders—the most prestigious—were interested in questions that applied on a national

level. This posed complications for scientists working on grazing, who often found that farmers posed questions about site-specific problems that were difficult to generalize. One natural scientist confessed that he had come to dread farmers' questions because, although they were fascinating, addressing them was often unfeasible: "When I start talking about these things with the farmers, my juices get flowing and I'm like, 'Yeah, that would be really interesting!' And then on the ride home I'm thinking, 'But—a waste of time for me!'"

Hesitating, he restated: "I mean, not a waste of time, because . . . you're building a relationship, and you're also getting your other data that is going to be of use. But, you know, from a publication standpoint. Because that has to be my bottom line."

Authors of the ordered-process literature would say that in a truly participatory project farmers would have an equal, greater, or even the sole role in developing the research questions. But for these scientists, some of whom were still seeking tenure, their involvement in the project depended on it producing research that would contribute to their careers. This problem demonstrates why adhering strictly to the ordered-process approach to participation would have prevented this project from ever getting started, as we suspect might be the case with other participatory projects.

3. *Determining experimental design.* The values of the scientific community and the demands of career goals constrained scientists from sharing control of the research questions. The same was true with sharing control of experimental design. As described earlier, the research plots were set up on eight participating farms and at Franbrook, a university research farm. The on-farm sites, though, presented challenges for the scientists because conditions such as soil type, climate, and management practices varied so much from farm to farm. These confounding variables made it difficult to draw conclusive insights about the effect of the treatments on any farm, although the scientists were in the end able to publish an article that used the on-farm data to estimate the effect of management on various ecological goals (Jackson et al. 2007).

Scientists knew they couldn't ask graziers to rearrange their pastures or their grazing schedule around the experiments, so they made do with existing conditions on each. At Franbrook, on the other hand, they could control when and where cattle grazed. They could be assured that the different plots were all managed similarly, except for the treatments they applied. This level of control allowed them to do manipulative experiments, which would carry more scientific weight than the mensurative experiments on farms. These conditions made

the researchers protective of their control at Franbrook, and hesitant to include it in a participatory project. As one remarked:

In the participatory world I'm probably going to say things that are heresy, but I think Franbrook is where we get to do what we like to do, in the way that we like to do it. If we don't have control over how the experiment is done and if we don't collect the variables the way we think they should be collected, this is where the experiment falls apart. So having growers coming and saying, "Boy, I wish you could do this," or, "Could you incorporate other treatments?" I think could lead to disaster.

Furthermore, the scientists' constraints strongly influenced the way the project was initiated. The scientists developed research questions, outlined an experimental design, and applied for a grant on their own, seeking farmer involvement only after they knew the project would be funded. Their description in the grant application of how they would seek farmer participation probably helped them secure funding, since participation is now a standard priority for some grant-making agencies. Nevertheless, scientists' need to design a project in order to secure funding (and to secure funding before committing any more time to a project) severely limited the role farmers could play in initiating the project and choosing a research direction. While this top-down initiation conflicted with the vision of participation in the ordered-process literature, it would have been hard for the scientists to engage with farmers in any other way and still answer to their academic constraints.

Constraints, Social Structures, and Dialogue

We have argued that, from the outset, participants and researchers face structural constraints over which they have little control and which make it difficult to interact as equal partners. Yet we have also hinted that better participation emerged as constraints shifted. We propose that this shift was possible because peoples' experiences of their structural contexts changed as mutual trust developed through dialogue. The process of conducting research, including informal conversations that occurred during the scientists' visits to the on-farm research plots, helped spur this dialogue.

Constraints to participation arise from the contexts of peoples' lives. Some of these contexts, such as soil and weather, are biophysical. Others reflect social structures, the "rules and resources recursively implicated in social reproduction" (Giddens 1984: xxxi). Two arguments in Anthony Giddens's structuration theory help us conceptualize structure

and constraint in participation. First is that “structural constraints do not operate independently of the motives and reasons that agents have for what they do” (181). In our case, if scientists were not interested in advancing in their careers, they might not find academic structures so constraining. Likewise, graziers might not find the political positioning of agricultural research constraining if they were not committed to farming differently. Social structural contexts are constraining because of the goals and desires that individuals pursue in life, what Bland and Bell (2007) call the “intentionalities” that hold patterns of relations, or “holons,” together.

Second, Giddens says that although individual actors do not themselves create social systems, they “reproduce or transform them, remaking what is already made in the continuity of *praxis*” (Giddens 1984:171, his emphasis). In this view, enduring social structures provide the setting in which individual actors recreate them. But in contrast to theories that see individuals as unaware of social structure, Giddens holds that human agents are knowledgeable about the structures in which they operate, and can knowingly transform those structures. We find hope for participatory methods in this idea: though actors are constrained by social structures, social structures are reproduced and transformed by individual actors. This dialogue between structure and individual agency allows us to see how the inevitable structural constraints to participation might change, and relationships become more participatory than when they started.

Loosening Constraints

Having established the theoretical possibility for a shift in the quality of participation, we turn to how this unfolded in our project. We began this piece with a vignette of the second field day between farmers and scientists, where we tried to find ways to create a more open conversation than the tense question-and-answer session that had taken place on the first field day. Our square table arrangement probably did help a bit in allowing everyone to face each other. But more than seating had changed, for this field day felt completely different from the first. People were laughing, interrupting each other, agreeing or disagreeing as one response invited another. This changed tone at the second field day accompanied other changes, both in farmers’ attitudes toward the project and in scientists’ attitudes about involving them. Clearly, something about people’s experience of their structural contexts had changed, because more participation had developed than their constraints would have seemed to allow.

We propose that this change occurred through two interrelated dialogues. The first, a dialogue between farmers and scientists, developed during field days and informal conversations when researchers visited the on-farm plots. Through this dialogue people in each group began to see themselves, their social contexts, and the other group in slightly different ways, which caused a second dialogue between people and social structures. This second dialogue is related to Giddens's point that people's experiences of structural constraints are shaped by their motivations, or what Bland and Bell (2007) call their "intentions." The changes that occurred through farmers' and scientists' dialogue with each other allowed them to change the way they related to their structural contexts and experienced their constraints.

In fact, this set of dialogues was related to one more: a dialogue of solidarities between farmers and scientists. As Bell (1998) argues, people's willingness to take collective action involves a solidarity of interests as well as a solidarity of sentiments. A solidarity of interests might emerge, for instance, when people have common goals or share common risks. A solidarity of sentiments forms when people find that they can get along with each other or, better yet, that they like each other and experience mutual commitment and a feeling of understanding. In collective action, solidarities of interests and sentiments contribute to each other, and glue together through trust, as trust is reaffirmed in both material and social ways. As our discussion of the constraints in the previous section showed, both farmers and scientists entered this project with doubts about whether they could form a solidarity of interests, and with historical reasons to doubt the mutual commitments of a solidarity of sentiments. A solid sense of trust wasn't there. In the next two sections we will describe the internal dialogue between farmers and scientists, the external dialogue between individuals and structural constraints, and how these dialogues found that glue and built solidarities of both interests and sentiments.

Changing Ideas—Internal Dialogue

Through dialogue, farmers and scientists' ideas about each other began to change, allowing them to trust each other in ways they did not foresee. They began to understand each other's constraints both through conversation and through actual experience of each other's work during the on-farm research. A growing mutual understanding of the constraints they all faced allowed scientists and farmers to empathize with each other better and thus helped build a solidarity of sentiments.

For scientists, this understanding included a new appreciation for the diverse areas of knowledge and work involved in grazing, and how

university research fit in. Some researchers talked about how their ideas about grazing management had been confirmed or challenged by the farmers. One natural scientist said, “I have learned a tremendous amount just by seeing what [graziers] do, understanding the challenges that they have, and realizing that they have a lot more to think about when they’re managing their farm than just, ‘Does rotational grazing affect carbon storage or arthropod diversity?’ ”

Such insights helped scientists rethink one of their frustrations about working with graziers: that each seemed to prioritize a different set of research questions. As one researcher began to understand, “Maybe there is no prescriptive answer for how to manage these grasslands.” Indeed, at the second field day the group discussed how, while scientists needed generalizable results to satisfy their academic and scientific constraints, farmers’ constraints often made them more interested in knowledge that was specific to their farm, making the findings of the research less useful for them. No one was able to completely resolve the tension between scientists’ needs to generalize and farmers’ need for specific knowledge, but now there was a mutual recognition of this tension. (See Bell et al. 2008 for details.)

Farmers also got a better sense of scientists’ constraints, and why it was difficult for them to address specific research issues. This understanding showed during the second field day when a researcher told the farmers about his frustration at hearing interesting questions from them but knowing that he would not be able to take them up, for reasons of his own career constraints.

Debra, a grazier, spoke up. “Well, isn’t that partly because of our general ignorance of the research process and what’s involved in it? We really need to do more to address the science education question. We need to have a discussion with the farming community.”

A second grazier, Sharon, addressed the researcher. “But the farming community needs to understand your limitations and your needs and what you can and cannot do for us.”

Debra agreed. “And how long it takes to do those things.”

This conversation shows how each group had not only begun to understand the other’s structural constraints but also to realize that the other group understood theirs. Such understandings went a long way toward allowing farmers and scientists to believe they could trust each other. Given the constraints that each group faced, it was difficult beforehand for either to see how collaboration would serve their interests. But of the eight original farms in the project, seven stuck with it until the end, which totaled 26 months. In addition, farmer comments led to better science, as we describe in the next subsection, which in turn led

to results that satisfied both the researchers and farmers more—a solidarity of interests. In the process, farmers and scientists came to understand each other better, and even to enjoy each others' conversation—a solidarity of sentiments. And this dialogue of solidarities had even further repercussions.

Changing Actions—External Dialogue

Earlier we proposed that the dialogue between farmers and scientists created another dialogue: between people and social structures. In this external dialogue, individuals' interactions with their social structures shifted, and so did their constraints. This allowed them to act in ways that seemed unlikely before.

One of these changed actions occurred when scientists, who had at first reacted defensively to farmers' critiques of the experiments at the Franbrook university farm began to include those critiques into experimental design. One of the variables that scientists had been measuring at Franbrook was the productivity of pastures under different grazing-management styles, including management-intensive rotational grazing (MIRG) and continuous grazing (CONT). All of the graziers in our project practiced MIRG, believing that rotating livestock through small paddocks kept pastures healthier and more productive. They were, therefore, incredulous when scientists at the first field day presented results suggesting that CONT paddocks were equally productive to MIRG ones or even more so.

On their walk through the pastures that day, the graziers made several observations that to them explained the difference between their view of MIRG and the scientists' results. For example, some of the graziers thought that the way scientists were measuring continuous grazing didn't account for cows' selective eating habits—tough, mature grass that cattle would refuse to eat was being counted as feed in biomass calculations of pasture productivity. Under MIRG, the intensity of grazing limits selective eating, so the grass is consumed before it becomes unpalatable. Yet the scientists were comparing total grass biomass, not usable grass biomass.

Debra and Sharon noticed this measurement problem and were quietly discussing it off to the side when one of the graduate students overheard them and brought the matter to the front of the conversation. As was the trend during that field day, the scientists tried to defend their decisions, and some of the farmers left wondering if they had been heard, which threatened to reinforce farmers' distrust and hesitation.

Fortunately, the scientists reconsidered graziers' comments, and incorporated them into the experimental design. For example, they changed the way they measured productivity to exclude the biomass that cows would reject. These changes contributed to the dramatically different dynamics that we witnessed on the second field day. Graziers were pleased that, with the effects of time and an updated experimental design, the results showed MIRC to be equally productive to or more productive than continuous grazing. Perhaps even more importantly, graziers saw that the researchers had taken their comments seriously. This development helped overcome some of the farmers' constraints of distrust and hesitation. At the second field day, Sharon, the grazier quoted earlier, reflected on how difficult it had been for farmers to raise their critique: "I think that comment almost wasn't made that day. I think some of us sometimes hesitate to jump out and say what seems obvious to us but is not on the table. I think maybe we need to do a better job of, if there's something we see, say something!"

This remark points out the sense of feeling unqualified that constrained farmers' participation, that they hesitated to bring up topics that scientists hadn't already legitimized. In Sharon's admonition to her fellow graziers to speak up, we see the loosening of that constraint. And her remark comes as a result of better understanding, through dialogue, of the scientists' point of view and structural situation.

For scientists, meanwhile, hearing this scientific critique from farmers shifted the way they thought about farmer involvement in the project. The researcher who had feared that a participatory approach at the research farm could make the whole thing "fall apart" became grateful for farmer participation that helped make Franbrook resemble the real world a bit better. Thus, listening to farmers helped researchers conduct better science than they would have if they had maintained the control they originally wanted at Franbrook. This helped scientists see how participatory research might fit with their interests, and allowed them to act in different ways than their constraints seemed to allow.

The changes in both groups' attitudes show how the process of engagement itself can build better participation. In the beginning, farmers weren't sure participation was worth their time, while scientists didn't think it would serve their careers. Yet as they got to know and trust each other, people also began to find ways through their constraints and toward better engagement, despite the continuing power dynamics of social structure. Sharon pointed out how the process of doing participatory research had helped build trust that did not exist when the project started. At the second field day, she said: "Maybe [the purpose is] to

build some trust. I mean, if we talk about some of these things like our discomfort with bringing something up that we don't know if it's relevant or not—maybe, if we all say, 'Well, we're all in the same boat, we're all feeling those things,' maybe we'll trust more." Later, in a response to an early draft of this article, Sharon reaffirmed that our efforts at participatory research had resulted in "progress from mistrust to support." Although our project did not adhere to formal process of participation, or perhaps because it didn't, the messy processes of dialogue and engagement had begun to build some trust that, at this writing, is continuing to develop into further research engagements, now that this one has concluded.

A Note about Power Dynamics in Our Project

In discussing this messy process, we must note the positioning of researchers and farmers that may have influenced the way the dialogue developed in our case. As mentioned earlier, all of the farmers and researchers were white. In more racially diverse communities, the power dynamics that accompany race would certainly complicate the process of building the glue of trust. However, based on the arguments we presented earlier, we would predict that in such contexts the importance of informal processes might be even stronger. Dynamics around age differences may have actually worked in our favor in this project, as the graduate students who conducted the interviews were younger than any of the farmers. Whereas university folk might usually wield power in conversational settings, this age difference may have helped even out the power balance. Certainly, with other groups, power dynamics around age might play out differently.

Our experience with gender dynamics seems to support this hypothesis. Debra and Sharon, two women graziers, had a difficult time being heard during the more formal setting of the first field day but were very vocal during the more informal second field day. Though more open dialogue had also been established in the ways we have discussed, we speculate that the more conversational approach may foster women's involvement better than ordered processes designed to ensure that everyone is heard, similar to what Trauger et al. (2008) found.

Finally, our positions as researchers influenced the way that dialogue developed. In our research team, there were some members (the sociologists) whose explicit role was to encourage everyone to reflect on our project as a case study in participation and the possibility for overcoming some of the difficulties discussed in the participation literature. In her response to our findings, Sharon went on to say, "I

can't help thinking that the presence of rural sociology and the fact that there was a research project on the research project made us all more aware of the need to cooperate." She described a potential role for facilitators of participation: "Not to mediate exactly, but to remind all participants that the outcome of the research is only one component of the project."

While we want to refrain from prescribing a formula for participation, this comment reminds us of a need for structures that encourage creative engagement. As long as participation remains difficult for both researchers and participant communities, there may be a need for facilitators to help them build the glue of trust. Our argument for messiness in participation perhaps implies a call for university structures to encourage and reward the skills for interdisciplinary and participatory engagement. That said, our experience should also encourage university scientists to embark on participatory projects despite existing structural constraints, rather than waiting for those structures to change.

Discussion

The vision of interactive dialogue creating the condition for participation departs from the view we described as ordered process. In the ordered-process literature we found an array of approaches to mitigating power dynamics in participation by using methodological guidelines for the initiation and procedures of participation. The trouble with this approach, though, is that ordered prescriptions for participatory processes unrealistically wave away the constraints and contexts participants face. Moreover, by working through conflicts and tensions, and by having the capacity to restructure the process of engagement as difficulties unfolded, farmers and scientists alike came to appreciate, and trust in, their emerging solidarities. It may even be that a more open process of participation promotes the potential for unanticipated ideas. Rather than seeing these messy dynamics as problematic, we suggest that they actually provide the pleasure of human interactions, for in unpredictability lies possibility.

It is this dialogic approach that we seek to describe with the phrase *maculate conceptions*. With the word *maculate* we refer to the imperfection of participatory processes that are always flawed in one way or another—the opposite of immaculate. *Conceptions* we mean three ways: in the sense of origins or beginnings, in the sense of ideas, and in the etymological sense of together-seeing (con-ception) as the origin of those ideas. Maculate conceptions are the messy ways we find to initiate and engage participation, maculate conceptions are the creative ideas

that develop from the tissues of this unpredictability, and maculate conceptions are the trusting solidarities of seeing together that we get from mutually engaging the messes of our contexts. Initiation of many projects would never happen if we insisted that it be done just so—participants directing and researchers denying their own interests. Likewise, participation gives us few ideas of importance and opportunities for the development of trust when we stifle dialogue with spotless order.

We see an example of these messy dynamics in Carolyn Lee's (2007) comparison of two regional conservation projects, one which adhered to deliberative-democracy best practices and one in which stakeholder participation was sought through informal channels. The first had many of the characteristics lauded by the ordered-process literature, especially transparent representation for all stakeholders in each step of the planning process. Yet, Lee found that the participants in this project expressed less trust in the fairness and effectiveness of the deliberative process than participants in the second project, where meetings had been private and informal. In fact, the social pressure against changing one's mind in public led to gridlock in the more formal process, while the more relaxed and sociable meetings in the informal project actually allowed participants to build the glue of trust.

By making an argument for maculate conceptions we do not mean to imply that practitioners should simply stop worrying about power dynamics or the long-term effect of participatory projects on researched communities. We must acknowledge that troublesome power dynamics between researchers and the researched will continue to exist—that maculate conceptions are just that: maculate and imperfect. However, ordered attempts to control that power may simply make it more troublesome by making it less visible, as the "tyranny of participation" school has argued. Moreover, acknowledging the maculate conceptions of participatory research shifts our focus away from rules and formal procedures for participation and toward the constraining structural contexts of our work. Perhaps this can allow us to renew a critique of those contexts that make participatory and interdisciplinary endeavors so rare in academe.

Using maculate conceptions requires careful attention to, and mutual appreciation of, the social structures that constrain and enable people's actions, as well as the personal interests that motivate people's interactions with those social structures. This scrutiny of structure and interests must be leveled not only at the participant or lay community but at the scientific community as well. Everyone's interests and contexts should be openly acknowledged—but not allowed to stop a good project from

getting started. Accepting the maculate conceptions of our participatory work means recognizing the problems that we bring with us, but trusting the creative process of dialogue to uncover possibilities we do not yet see.

References

- Adnan, S., A. Barrett, S.M. Nurul Alam, and A. Brustinow. 1992. *People's Participation: NGOs and the Flood Action Plan*. Dhaka, Bangladesh: Research and Advisory Services.
- Arnstein, S.R. 1969. "A Ladder of Citizen Participation." *American Institute of Planners Journal* 35(4):216–24.
- Bell, M.B., A. Lyon, C. Gratton, and R. Jackson. 2008. "The Productivity of Variability: An Agroecological Hypothesis." *International Journal of Agricultural Studies* 6:223–35.
- Bell, M.M. 1998. "The Dialogue of Solidarities, or Why the Lion Spared Androcles." *Sociological Focus* 31:181–91.
- Bland, W.L. and M.M. Bell. 2007. "A Holon Approach to Agroecology." *International Journal of Agricultural Sustainability* 5(4):280–94.
- Charmaz, K. 2000. "Grounded Theory: Objectivist and Constructivist Methods." Pp. 509–36 in *Handbook of Qualitative Research*, 2nd ed., edited by N.K. Denzin and Y.S. Lincoln. London, England: SAGE Publications.
- Cooke, B. and U. Kothari, eds. 2001. *Participation: The New Tyranny?* London, England: Zed Books.
- Dlott, J.W., M.A. Altieri, and M. Masumoto. 1994. "Exploring the Theory and Practice of Participatory Research in US Sustainable Agriculture: A Case Study in Insect Pest Management." *Agriculture and Human Values* 11:126–38.
- Giddens, A. 1984. *The Constitution of Society*. Cambridge, England: Polity Press.
- Hassanein, N. 1999. *Changing the Way America Farms*. Lincoln, NE: University of Nebraska Press.
- Hayward, C., L. Simpson, and L. Wood. 2004. "Still Left Out in the Cold: Problematising Participatory Research and Development." *Sociologia Ruralis* 44:95–108.
- Jackson, R., M.B. Bell, and C. Gratton. 2007. "Assessing Ecosystem Variance at Different Scales to Generalize about Pasture Management in Southern Wisconsin." *Agriculture, Ecosystems, and Environment* 122:471–78.
- Lee, C. 2007. "Is There a Place for Private Conversation in Public Dialogue? Comparing Stakeholder Assessments of Informal Communication in Collaborative Regional Planning." *American Journal of Sociology* 113:41–96.
- Mikkelsen, B. 1995. *Methods for Development Work and Research: A Guide for Practitioners*. New Delhi, India: Sage Publications.
- Mosse, D. 2001. "'People's Knowledge,' Participation and Patronage: Operations and Representations in Rural Development." Pp. 16–35 in *Participation: The New Tyranny?* edited by B. Cooke and U. Kothari. London: Zed Books.
- Pretty, J.N. 1995. "Participatory Learning for Sustainable Agriculture." *World Development* 23:1247–63.
- Smith, G. 2001. "Taking Deliberation Seriously: Institutional Design and Green Politics." *Environmental Politics* 10(3):72–93.
- Trauger, A., C. Sachs, M. Barbercheck, N. Kiernan, K. Brasier, and J. Findeis. 2008. "Agricultural Education: Gender Identity and Knowledge Exchange." *Journal of Rural Studies* 24(4):432–39.