Participation and Social Learning: Supporting Farmer Innovation in Central Ghana

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Abstract
This paper presents a learning process approach to farmer innovation through a case study of a collaborative, participatory research and extension project in natural resources management in central Ghana. It describes the learning process, and the institutional partnerships between research, extension and development supporting farmer innovation. The study builds on concepts in social learning theory to examine, within a particular natural resource management context, the outcomes, potentials and transaction costs in facilitating learning in the management of innovations. The discussion illuminates the potentials inherent in an extension approach that requires institutional actors not only embracing farmer centered processes of learning, but also undergoing shifts in values and normative positions relating to the roles of farmers in the innovation process.

Introduction
There is a wide gap between agricultural technologies produced in research institutions, and the adoption of such technologies by small farmers and rural households in sub-Saharan Africa. One explanation around which many scholars have converged is that the technologies offered by extension do not often fit farmers’ contexts, and are thus often perceived as irrelevant. Similarly, compelling arguments have been made that the traditional linear technology generation and adoption process characteristic of public sector extension systems have tended to subsume the innovative potentials and local ecological knowledge farmers accumulate through experience and adaptation to contingent circumstances. It would seem that by unwittingly privileging technical products, research and extension have not done very well in transforming people’s capacities and skills in ways that support sustainable agricultural production and management of natural resources.

This realization has gradually encouraged the view that the targets for research and extension should be more than just technologies (products) for crops and animals. Interactive interpersonal relationships between farmers, institutions and rural communities are now increasingly perceived as central to the goal of enhancing people’s learning in the agricultural and rural development process. For agricultural extension agents, this means fundamental changes in the way they have worked with their rural clienteles. Rather than merely serving the role of service provider, alternative views position the extension agent as a catalyst and facilitator of learning processes.

This emphasis on learning, participation and partnership is fundamental to “engaged” relationships with farmers and farmer organizations for sustainable agricultural development (Bawden & Packham, 1993; Pretty & Uphoff, 2002). Such partnership arrangements tend toward democratic relationships that are often characterized by inter-institutional collaboration, situating the farmer more as learner, than as mere recipient of agricultural technology. This case study provides an example of such a learning approach to farmer innovation. It describes the process and learning outcomes of an informal youth association experimenting with “grasscutter” domestication as an alternative natural resource management strategy in the transitioning savannah region of Ghana known as the Greater Afram Plains (GAP).

Grasscutter Domestication and Farmer Innovation

The grasscutter (Thyromomis swinderianus), also known as cane rat, belongs to a family of rodents found in the savanna grasslands of Ghana. It is considered a delicacy, and is a popular source of protein in many rural households in Ghana, and in the neighboring countries. It commands high market value, and has important livelihood and food security implications. The most popular method of hunting grasscutters is by setting fires to the dry savanna grass with the intention of forcing the animals out of their burrows.
The bushfire strategy however is controversial for several reasons. It has been one of the major factors accounting for environmental degradation in Ghana, and has on a number of occasions been responsible for the destruction of farms and property, leading to serious community conflicts. Grasscutter domestication (raising grasscutters under controlled conditions) emerged as an alternative management strategy for resolving the tensions between environmental destruction, sustainable resource management and market demand for grasscutter meat in central Ghana. This case study presents the learning experiences of the “early innovators” in grasscutter domestication in the region, and describes the participatory social learning embodied in the process. It highlights key characteristics of the institutional partnerships supporting the learning experience and identifies some of the emerging outcomes of farmer innovation and capacity building.

**Social Learning and Farmer Innovation: A Conceptual Framework**

Social learning has been described as a process by which a community of interest or group of individuals learns how to engage in sharing and reflecting on knowledge gained either through experience or action to enhance innovative capacities (Bawden & Packham, 1993; Korten, 1980; Engel & van den Bor, 1995).

Because agricultural production is embedded in the social and cultural contexts of people and their communities (Pretty & Uphoff, 2002), it becomes necessary to understand the innovation process—the design of new technology, or adaptation of existing technology, as inherently a social process. At the core of the innovation process is the cognitive transformation that occurs as new understandings merge with existing knowledge derived within particular circumstances and local contexts. Ultimately, such a process of learning becomes both reflective of, and responsive to, the social and agro-ecological circumstances of farmers.

Central in the focus on a learning approach is the building of joint capacity among the various actors in the innovation process (Lightfoot et al, 2001; Bawden & Packham, 1993). This joint learning is in turn characterized by “face to face” interchange of ideas, farmer-led analysis and planning. A critical aspect of the joint learning process then is the opportunity it creates for farmers and change/extension agents to reflect on new ideas and experiences, and on how such new insights can inform and guide subsequent action. Such a process also reflects a view of extension agents, not merely as service providers, but as facilitators, linking farmers to networks of knowledge and resources that support productive activities.

An important value of a social learning approach is that extension professionals are themselves enabled to learn their way through on how to work with farmers in a participative, rather than a didactic, top-down way, while creating the social networks for facilitating exchange of knowledge between farmer to farmer, as well as between researchers and farmers (Pretty, 1995; Lightfoot et al, 2001). Rather than exclusively focusing on convincing farmers to adopt introduced technologies generated outside their environments, a social learning approach provides an opportunity for farmers to tap their capacities to innovate in spontaneous response to situation specific challenges in their farming systems.

The social learning approach provides a relevant conceptual framework for exploring the grasscutter innovation, and examining how an informal youth association in central Ghana has partnered with public and private extension professionals and researchers in learning together, how to generate and disseminate new knowledge and practices in natural resources management.

**Data and Methods**

Data was obtained through participatory research involving twelve members of an informal youth association in three rural communities in central Ghana—Nokwareasa, Samari Kwantan, and Samari Krom. Because the youths involved in the process are all farmers, “youth” and “farmer” are used interchangeably in the paper. The process included semi-structured interviews with youths and community members. Focus group sessions with the youths facilitated in-depth analyses and understanding of the learning process, and the motivations underlying their participation. Diagramming techniques were used to help youths articulate their perceptions of existing institutional linkages and the impacts on farmer innovation.
Data was also generated through personal interviews with institutional partners collaborating in the experimentation and innovation process. The main institutional partner, World Vision is an international NGO whose rural water project provided the entry point for examining broader issues of resource management and agriculture in the region. In addition to providing initial startup costs for the experimentation, World Vision also provides other types of institutional support, including extension services. Community-based extension agents interact regularly with community members, providing critical support of on-going development initiatives and projects, including the grasscutter experimentation project. Other institutional partners include the Ghana Ministry of Food and Agriculture and the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.

A Graduate Researcher lived in the community for three months, closely interacting with the collaborators, while facilitating interviews, and documenting personal observations of the process of grasscutter innovation. All interviews and focus groups were taped and subsequently transcribed for analysis using the qualitative research software QSR N5. This qualitative software supports the identification, coding and clustering of common conceptual themes across a range of data for in-depth analysis.

### Social Learning and Grasscutter Innovation

#### How Farmers Learned

Five learning processes emerged in the analysis as critical in how farmers perceived and understood the ways by which they were gaining knowledge and improving their management strategies in grasscutter domestication. These are shown in Table I. Individual experimentation and personal observation of animal behavior and informal small group forums were identified by all the participating youths as the most frequent experiences they had in the process, and ones in which they felt the most learning occurred.

In the focus group sessions, youth-farmers described in rich detail how their knowledge, skills and management techniques for producing grasscutters under caged conditions have grown as a result of their participation in the experimentation project.

#### Table 1

**Farmers’ Learning Processes in Grasscutter Innovation**

<table>
<thead>
<tr>
<th>Farmers’ Learning Processes</th>
<th>Frequency of Responses</th>
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<tbody>
<tr>
<td></td>
<td>Always</td>
</tr>
<tr>
<td>Individual Experimentation</td>
<td>12</td>
</tr>
<tr>
<td>Personal observation of animal behavior</td>
<td>12</td>
</tr>
<tr>
<td>Visits to other youth projects</td>
<td>8</td>
</tr>
<tr>
<td>Informal small group forums</td>
<td>12</td>
</tr>
<tr>
<td>Visits from researchers/extension agents</td>
<td>4</td>
</tr>
<tr>
<td>Community based meetings with extension agent (WV)</td>
<td>12</td>
</tr>
<tr>
<td>Field trips</td>
<td>12</td>
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</tbody>
</table>

The processes of learning together through local level experimentation however, did not necessarily negate their perception of the value of expert scientific knowledge. Youth-farmers themselves acknowledged that they have limitations in certain domains of knowledge for which they perceived researchers and extension agents who visited with them as important resources. It was evident from the interpretive analysis of the focus group discussions that the farmer experimentation process had evolved into a group learning process. As an elder in the village observed, “They come together to share ideas and they are learning from each other so it seems their lifestyle has changed. (Other people) respect the youth in one way or another because they have started something” (Pilot farmer).

Emergence of group consciousness, enhanced status, trust and shared learning were reflected in the dialogues. Farmers, for example, shared their observations of changes in animal behavior under caged conditions, and mating behavior. Quotes from interviews and focus groups indicated that the youths were learning their way through an alternative approach to grasscutter production, quite different than
previous top down approaches to technology development and adoption. One pilot farmer put his experience this way, “Learning is a process – so I cannot say I have completed learning about something – so I hope to have more” (Pilot farmer).

What farmers learned. Through a participatory asset mapping and visioning process, farmers were able to share their visions of future innovations in grasscutter housing and management. Krietzman and McKnight (1993) have compellingly articulated the potential of an asset-based approach to development that intrinsically recognizes local actors as having capacities that can be galvanized for supporting critical change processes. The asset-mapping process facilitated learning and knowledge exchange as each farmer discussed rationales for particular design structures, and their perceptions of how particular designs can improve management, including the health and productivity of the animals.

Table 2

<table>
<thead>
<tr>
<th>Types of knowledge</th>
<th>Frequencies</th>
<th>Extensive</th>
<th>Marginal</th>
</tr>
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<tbody>
<tr>
<td>Knowledge on feeding habits and nutritional requirements</td>
<td></td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Knowledge on structures for housing animals</td>
<td></td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Knowledge on disease management</td>
<td></td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Knowledge on breeding behavior</td>
<td></td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Knowledge on animal behavior under caged conditions</td>
<td></td>
<td>12</td>
<td>-</td>
</tr>
</tbody>
</table>

In response to questions about their current knowledge status relative to their knowledge at the inception of the experimentation process, farmers felt that they have gained extensive knowledge in the animal’s feeding habits as well as their behavior under caged conditions (Table 2). Farmers also felt they have less knowledge in disease management. The focus group sessions indicated that they relied more heavily on researchers when animals got sick, and also felt they have relatively less knowledge about breeding behavior.

The grasscutter experimentation process shows that farmers have the capacity to learn, develop knowledge, and gain new skills for production. However, it was revealed in focus group discussions that they equally recognized that the knowledge they possess is partial. Indeed while members acknowledged their familiarity with some aspects of grasscutter behavior through personal observation, there was a clear appreciation of the opportunity to validate their local knowledge through the social interactions, reflections, and exchange of knowledge with other farmers and institutional stakeholders. Farmers seemed to value the fact that researchers and students perceived them as having capacities to generate knowledge. As one youth-farmer quoted: “it makes us feel important that outside people can come to us because they think we possess knowledge about grasscutters” (Youth-farmer BBS, Samari Krom, Ejura district).

The opportunity to participate in an active, rather than a passive way in a process in which their own powers of observation and cognitive capacities were clearly valued appeared to constitute an important underlying motivation for participation in the innovative process. These cognitive abilities were evident at various instances of focus group discussions. At one such focus group discussion on forage and feeding behavior, samples of twenty-three different types of forages and sources of animal feed were compared and analyzed, with farmers describing in rich detail their rationales for choice of particular forages, as well as their observations of the effects at different growth stages and levels of maturity.

The youth-farmers were actively engaged in not only describing their own experiences and insights accumulated through their sustained engagement in the experimentation project, but were also validating, testing, comparing and sharing knowledge. Farmers made frequent reference to information relating to particular aspects of grasscutter management obtained through visits of animal scientists from the University and the
Ministry. Experiential knowledge and scientific technical knowledge it would seem were gradually converging to enrich the learning of the farmers.

The range of activities embodied in the experimentation reflects a dialogical process in which exchange of experience and observations appear to be gradually codified into new knowledge and cognition. This dialogical nature of farmer exchange can be viewed as an emergent property of the social learning process that becomes evident when relationship building, trust, and respect for others’ experiences are key elements in the process of group innovation.

In this experimentation, the dialogue process engendered mutual learning among the stakeholders and shows how joint analyses can evolve into forums for reflection on individual actions that, in turn, contribute to knowledge accumulation. This approach to learning mirrors Argyris and Schon’s (1996) iterative process of double and triple loop learning. Double and triple loop learning relates to opportunities for reflection on knowledge generated through experience and action that in turn, engenders more critical learning that informs further action. The learning processes enabled other stakeholders—including community elders to perceive through the “eyes” of the farmers, the interests and opportunities that can be the basis for farmer centered research and extension partnerships in community-based resource management.

Social organization for learning: new role relationships. This social organization of innovation reflects a unique flexibility and character quite different than conventional ways by which extension agents and researchers work with local people. It reflects what some scholars have described as a bipolar (Pretty & Uphoff, 2002), triangular (Merrill-Sands, 1990; 1995), and circular (Thrupp, 1996) set of relationships. The social learning process clearly expands the role of extension beyond the conventional “extensionist as communicator”, to extensionist as facilitator, organizer, coordinator and network builder for intra and inter-group learning. According to Campbell (1994) such shifts in the role of extension entail the fostering of group synergies among farmers, while linking them to sources of information and knowledge within and outside their communities.

World Vision’s extension para-professionals support farmers’ local innovative activities as they learn through the process of adapting existing local technologies and trying out information and knowledge obtained through external linkages. Community based extension agents working directly with the youths play pivotal roles, linking grasscutter innovators to public and private sector researchers, as well as to international communities of interest, including student researchers and faculty. A diversity of coalitions characterizes the learning process in the grasscutter domestication. Starting from a narrow set of institutional actors at its inception, the initiative has evolved into a diverse coalition of social actors, flexibly connected through a web of relationships.

A faculty member and animal scientist at the University of Science and Technology in Kumasi Ghana, and an animal science senior extension officer in the Ministry of Agriculture have been among important stakeholders in this process, linking scientific technical knowledge on grasscutter domestication to local emergent knowledge on the ground. This mode of social organization for innovation is not a cumbersome formal structure, but rather, “opportunistic creations fashioned and guided by like-minded individuals” (CIIFAD Annual Report, 2000, p.120). The new role relationships emerging in the grasscutter innovation project show how community partnerships are becoming critical to local innovation. This is different than conventional development strategies that focused on the individual actor to the exclusion of the social context in which (s) he is embedded.

The synergies that have been created in this local level case of farmer innovation indicate that where partnerships and participation with farmers and rural communities are democratic and farmer centered, extension services are more likely to identify the appropriate actors in the most effective way. However, among the important emerging lessons is that establishing and sustaining effective partnerships between farmers, rural communities and extension institutions do not just happen. There are often important transaction costs involved in forging such partnerships and facilitating process.
Transaction costs and lessons learned in farmer-centered research and extension.

Informal discussions and focus group sessions with the stakeholders in grasscutter innovation indicate the importance of spending much more than fleeting moments with communities, particularly at the initial phases of project development. Barriers to community participation are often embedded in uncertainties relating to potential risks and outcomes of the collaborative process.

Because poor farmers often need to balance a number of farm and non-farm production activities to sustain household livelihood security, they tend to be the more risk averse and less likely to participate in early innovative processes. Insights from the group forums and semi-structured interviews showed that the development of the informal youth association was a slow process, partly owing to difficulties at the initial phase to reach a critical mass of youths, who invariably were engaged in more conventional and “safer” production activities. It was evident as the experimentation process evolved, that time spent in the community interacting with the youths was time wisely invested towards building social capital, which in turn, helped to reduce social risk barriers among the community.

The development of group identity and trust between individuals and institutional actors engaged in participatory learning require tremendous investments in time, and to a lesser degree, material resources. The community-paced approach adopted in the grasscutter domestication process meant that stakeholders could slowly learn their way through on how to partner in the process of innovation. Pretty and Uphoff (2002) suggest it is important for outsiders working with local groups to first foster an environment where dialogue, negotiation, humility, patience and respect for local norms are critical preconditions for facilitating learning in a participative and democratic way. Studies have shown that where such social capital indicators are evident, local people are more likely to be motivated to participate with genuine commitment to the innovation process. (Kroma & Flora, 2001; Russell & Ison, 2001).

Conclusions

This case study has illuminated the process by which stakeholders (farmers, rural communities, extension, researchers and NGOs) are learning their way through to a partnership that supports farmer innovation in agriculture and natural resources management. This study identifies key elements and characteristics of effective collaborative partnerships for innovation. It shows that small group forums for joint analyses and farmer-to-farmer exchange of knowledge are significant factors in sustaining motivation for participation. Socializing learning processes clearly foster important synergies between youths and institutional partners, and in the broader community learners are embedded.

Most importantly, the study illuminates the potentials inherent in a broader role of extension. Indeed as national economies inexorably link into global economic restructuring processes, and are confronted with imperatives for macro-economic changes, emerging realities at local levels will demand a more strategic extension, responsive to new complexities in community resource management and agriculture. Such a strategic extension approach will require institutional actors not only embracing participatory methods, but also undergoing shifts in values and normative positions relating to the roles of ordinary people in the process of innovation.

References


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