

The meaning of practices: Farmers' conceptions in agricultural development strategies.

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Abstract

Agricultural development programs often produce unexpected results. This can be attributed to the fact that the farmers they target already have knowledge and competencies in their own field. This existing technical knowledge determines which practices are used. An innovation has to be appropriated by a local group of farmers before being rejected or adopted by all farmers or by a sub-group of farmers with a specific social position.

The author proposes an approach to understand the conceptions of a local group of farmers with respect to technical processes. What is demonstrated is both a technical conception of the way the process is managed, and a social conception, in the sense that the variables are linked with sub-groups of farmers classified according to characteristics that are significant to the group.

The place attributed to farmers' conceptions in different research and development approaches is analyzed. The benefits to be gained by agricultural scientists through an understanding of these conceptions are discussed. Three examples are given of the utilization of this knowledge in agricultural research or development programs.

Introduction

This study was written from the perspective of agricultural extension, and its links with agricultural science. It discusses the issue of farmers' forms of knowledge about technical processes, insofar as this knowledge may differ from that of agricultural scientists. Olivier de Sardan (1998) states that "development consists in trying to transfer certain know-how that is closely linked to the system of meaning of the development workers to populations with other systems of meaning". "It is hard to appropriate know-how when it comes from a quite different system of meaning, and is based on mechanisms that are not necessarily foreseeable". A development action does not take place in virgin territory. The farmers concerned already have their own knowledge of, and competence in, their own context. If one accepts the hypothesis that the innovations development agents wish to introduce are preferable (because they are more effective, or more profitable, or more environment-friendly) than existing know-how and skills, it is nevertheless crucial to take local knowledge into account, in order to understand how the transfer process can be best accomplished. It is local technical knowledge that determines which practices are used, and scientific knowledge cannot replace it. At the most, the introduction of new techniques will lead to a change in the technical knowledge required for action, which may then move in an unpredictable direction. Darré (1996) showed that this change occurs during dialogs between neighbors. In this way innovation is "domesticated", and subsequently either rejected or adapted and finally appropriated by all the farmers, or by a sub-group of farmers.

As an agricultural scientist, my concern is: can our knowledge of farmers' conceptions of a technical process increase the relevance of the suggested changes, and thus better control the consequences of development actions?

To speed up the search for answers to this issue, a group of agricultural and animal production scientists in the department of scientific research for action and sustainable development, at INRA (France), worked together with a socio-anthropologist to formalize a method to reveal local farmers' forms of knowledge (Darré et al, 2004). In this paper we first present the role of farmers' conceptions in different development models. Second, we discuss the sociological

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principles underlying this debate and ways of revealing local forms of knowledge. We then detail the contribution of these kinds of knowledge in one of the development models, and give three examples of such models in these kinds of studies

I Role of farmers' conceptions in different models of agricultural development

The methods of development selected are presented in Table 1.

Table 1. Different methods of research and development in agriculture

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|---|--|
| <p>1- Transfer of knowledge The contents of the message are elaborated without the farmers' knowledge. The message only needs to be passed on.</p> | |
| <p>a- Innovations are produced in research stations by agricultural scientists.</p> | <p>Farmers are already familiar with similar practices. The change only concerns technical practices. Adoption of new practices leads to varying degrees of change in local knowledge.</p> |
| <p>b- Action research approach. Farming systems research.</p> | <p>Practices are adapted to farmers' aims and to farm constraints. Proposals vary with the types of farms. The role played by farmers' conceptions is the same as above (1-a).</p> |
| <p>2- Methods that take into account farmers' conceptions</p> | |
| <p>a- Suggested innovations take farmers' conceptions into account.</p> | <p>The changes in practices are more pertinent for farmers. Development workers can provide support for the change in conception.</p> |
| <p>b- Co-active search for solutions. The starting point for the construction of innovations is the farmers' problems, and the aim is to solve them.</p> | |

1- Methods used for the transfer of knowledge

The two first methods cited require a pedagogical approach on the part of the development worker. The "message" is that the farmers should change their practices: development workers only have to inform the farmers and convince them that the changes they propose will be beneficial. What they implicitly try to do is to replace farmers' way of thinking, perceiving and describing things by their own, i.e. the expert's way. In this context, two periods can be identified that correspond to different paradigms and methods (Sebillotte, 1994, Matlon, 1994, Le Gal and Milleville, 1994).

a- Transfer of technical knowledge

In this development model, which was used in the period from the end of the 1950s to the end of the 1970s, agricultural research formulated the basis for technical change in agriculture together with technical models for progress; and agricultural extension was responsible for carrying out the transfer. Farmers were supposed to adopt the new ways of making progress. However, although these methods produced very convincing results, some proposals were not accepted by farmers, or not by all the farmers, or did not produce the expected effects when

put implemented. The reasons for these failures were blamed first on lack of technical capacity on the part of farmers, and second on extension methods. As a last resort, researchers questioned their own contribution to the failure and designed technical changes that were better adapted to the needs of specific agricultural contexts. This led to the second model.

Changes in practices inevitably require farmers to change their conceptions. This involves a change in the normal way of behaving, and may also lead to changes in the social position of farmers within a given group. These changes occur during dialogs between neighbors outside the development network, and may lead to subsequent changes in the conceptions that govern normal behavior, or new techniques may be implemented without a change in conception, but with a loss of control by farmers. When the new practices are implemented, the farmers' old conceptions can lead to a decrease in their command of the situation. This may explain the gradual drift away from the transferred know-how, as well as changes that may occur subsequently, and the choice of development actions by smallholders (Olivier de Sardan, 1994).

b Farmers' participatory research

To overcome these difficulties, from the 1970s on, methods were developed to identify the conditions of production that influence farmers' decisions. The principles underlying these methods were that farmers are indeed able to define their own needs, and can develop collective competence to implement them in collaboration with researchers and development workers. As a matter of fact, it was the farming system research that was developing. The success of any agricultural development project depends on the farmers' aims, and these are not always exactly what agricultural scientists think; and farmers may be powerless to overcome certain constraints, and this may explain why they do not accept certain techniques that have been shown to be more profitable elsewhere.

This approach was used primarily in the diagnosis stage of development projects to better understand local situations (Guèye, 1999). Revealing the range of farmers' objectives and constraints is one important result of this kind of research. As in the case cited above, little attention was paid to the farmers' forms of knowledge.

2- Methods that take the farmer's conceptions into account

In the two methods described below, the farmer's conception is taken into account in the definition of innovation, or to find solutions for the farmer's specific problems. This method reveals the farmer's knowledge, and this knowledge is recognized as being different from that of the agricultural scientists. Researchers and advisors took into consideration the gap between these two types of knowledge and its consequences for development actions.

a- A study of farmers' conceptions precedes any suggestions for innovation

In this case, the problem is defined by researchers or by civil society in such a way that it is perhaps not relevant to the local agricultural community, even though local farmers' conceptions are taken into account in the design of the innovation. The recommendations or technical models designed by researchers are however implemented with the farmers' conceptions in mind (Darré et al, 2004). This is this approach described below.

b- Co-active search for solutions

In this case the role of development workers is to help farmers in formulating their own problems and in solving them, or even, in the case of an external problem, in working out their own solutions (Darré, 2004). The farmers' discourse is thus the focal point of the process. Farmers are considered to be the people who produce the knowledge needed to solve

the problem. Farmers work in collaboration with advisors. In this way, any initial imbalance can be repaired that may have occurred between the thoughts and the socially recognized ability to think of the researchers and advisors, and of those whose thoughts are often discredited, i.e. the farmers.

II Principles and methods that enable agricultural scientists to reveal farmers' forms of knowledge

Olivier de Sardan (1998) says: "tools for acquiring knowledge about rural communities require hard work and competence, and have little to do with accepted wisdom (listening, needs, active participation) or with the ideas that development workers use to make believe they really take local communities into account, without going to a lot of trouble to really get to know them". The method we propose here to understand local farmers' knowledge of technical processes and their dynamics is one such tool.

1- The sociological approach

This approach is linked to Weber's comprehensive sociology (1956). The cause of social activity lies in the meaning that the subjects give to their behavior. Instead of a sequence going directly from historical or biological processes, or from differentiation of socio-economic situations to behaviors, Weber uses a sequence in which meaning plays a role, i.e. the way in which subjects judge a situation and choose an answer that seems appropriate to them. Behaviors are not defined by circumstances and history; the latter only define the conditions in which the choice between behaviors can be made.

The meaning Weber describes does not refer to deep-seated beliefs or to the subconscious mind, but can easily be understood and reconstructed by observers. The typical object of Weber's sociology is activity made intelligible through aims and values. And in this case what organizes and justifies the ways of behaving is not individual values (motivation), but knowledge and conception. The former refer to individual psychological aspects, which sociologists hope will combine to produce social facts. The latter refer not to individuals, but to the societies and local communities that produce the conceptions, or forms of knowledge. And it is in the latter context that we position ourselves (Darré, 1999).

The proposals cited above require forms of knowledge that are not scientific to be taken into consideration. Each form of knowledge is only relevant to a specific social group (Berger and Luckmann, 1986). This knowledge is not only determined by circumstances, but is continually produced by the social community: human activities can be explained by the meaning the subjects give to them, and this meaning did not previously exist, it is continually being created.

Putnam (1984) states that a society creates a system of thinking that is the result of breaking down reality as a function of its own experience. Conversely, people describe their experience based on the way they perceive things. The linguist Prieto (1975) shows that an object does not have an identity of its own. It is the way a social group creates categories and put objects into these categories that provides the identity through which a person perceives an object. Consequently, two social groups that have different activities and different social positions will have different conceptual systems. This assertion is not necessarily obvious. It is impossible to conclude that knowledge is the result of construction by a social group and does not come from the object itself simply by looking at the object, but only by referring to another form of knowledge of the object.

Each social group qualifies an object using features that are relevant to its own viewpoint. It follows that people who have different points of view will create categories of objects or meanings that are different from what other people may mean when they use the same word.

For people to understand one another, they need to be able to create categories of objects or classification systems that are sufficiently similar to one another.

It is during normal everyday conversation that people create and change the description of their own reality. They do not do this knowingly, but while speaking with others who have other objectives: by asking questions, by trying to influence the other, by forming an opinion or simply while chatting. Struggles may take place while each tries to grasp the meaning of a word and these struggles lead to shifts in the meaning and finally to a convergence of opinion about the meaning of the word (Bakhtine, 1977; Roger & Kincaid, 1981). There is a constant process of readjustment in the meaning of words, a short period of stabilization at a given moment of understanding that it is impossible to predict, and a permanently ongoing reconstruction of the meaning of words and things within the group.

2 - Methods

To reveal the knowledge and conceptions of a group of farmers, individual interviews are held on technical practices. The researcher gives an instruction at the beginning of the interview that determines the scope of the interview. During the interview, farmers are encouraged to express themselves in their own way. Farmers do not necessarily know in advance what they are going to say, so the interviewer needs to encourage the farmer to enable her/him to examine her/his own ideas in order to express them in a way that is easily understood. The interviews are always recorded and written out in full.

The analysis that follows the interview is an analysis of the words that have been spoken. Being able to reveal forms of knowledge depends on acknowledging the equivalence between the meaning one gives to things and the meaning one gives to words. The meaning of the words is indicated by their position in word fields or series of sentences: it is the sentence that gives meaning to the words. The context of a given word and the features with which the word is qualified are not the same for farmers, researchers and advisors. Words such as ewe, cow, plot, far or nice, do not always have the same meaning for the three different groups of people. The context in which such a word appears in each interview provides information about the place of the word in a semantic field, in a field of thoughts, or in a given context. The word is played off against another word, linked with another word, used to qualify another word, and so on, until it has acquired a specific meaning for its users.

III How to use this knowledge in agricultural research and development programs

1- How does this knowledge benefit agricultural scientists?

For a local professional group of farmers these results reveal:

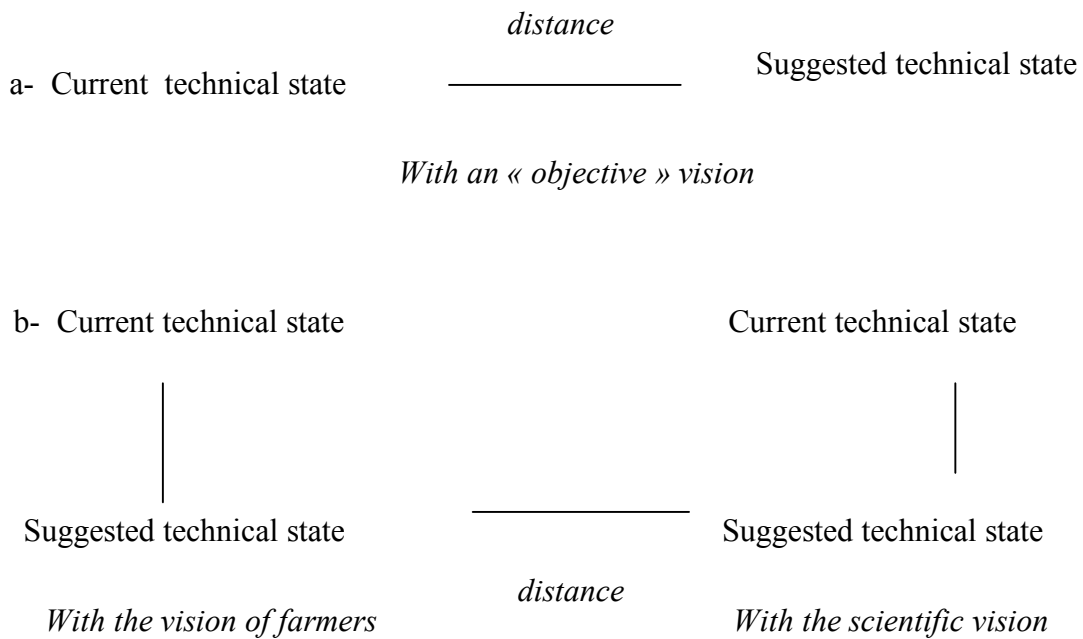
- the way the farmers conceive the technical process, and how to manage it, together with the conditions observed, the indicators used, and the rules for action;
- local variations in the way the technical process is implemented, linked with the characteristics of sub-groups of farmers (big/small, young/old, men/women, for example).

Figure 1a shows that in programs in which agricultural scientists ignore the existence of the different ways of perceiving reality, they focus on the gap between existing technical practices and the technical improvements they wish to implement. They imply that they assess the technical levels objectively, and necessarily in the same way as these would be assessed by the farmers. If farmers find it difficult to accept change, it is due to the material distance between the levels, or to elements that interfere with objective appreciation: the farmers' lack of training, their lack of education, or the weight of tradition. When the agricultural scientists accept that conceptions can differ, the results can be seen in figure 1b. The difficulties farmers have in accepting change are no longer due to the distance between the technical levels, but to

the distance between the ways the two groups construct and assess reality, whether ongoing or imagined.

Figure 1 The distance as an object worthy of consideration in a development program
a- When farmers' conceptions are not considered to be different from those of agricultural scientists.

b- When farmers' conceptions are considered to be different.



Researchers and advisors need to create a new approach. Researchers can build models of reality that take into account farmers' conceptions. Advisors can propose training programs to change the farmers' conceptions. Alternatively, it is possible to create "intermediary objects" that can be used in mutual discussion.

In addition, understanding farmers' conceptions helps reveal the social dimension of their technical practices and this fact is often ignored by agricultural scientists. Local conceptions are guidelines for action based on different social positions in the local group, and what actions these positions allow. These conceptions are associated with different ways of doing things, and challenge the idea that local knowledge is uniform or that there is a common consensus for solutions for local issues. This knowledge enables identification of changes in local social positions that can affect the outcome of a development project. It enables the dynamics of the development action to be analyzed as a function of the true local stakes. Further, it brings to light the question of who the advisors' interlocutors really are. Do they belong to a particular social sub-group? Are they the real target of the development action?

2- Examples

a- Management of grazing in the Jura Mountains

Improvement of grazing is generally assumed to be linked with the use of rotational grazing. Agricultural scientists believe rotation helps control grass growth, and creates a better balance

between the grass grown and the grass consumed. However this technique was difficult for Jura livestock farmers to accept because of their own conception of grazing management. In rotational grazing, a given area of grazing is allocated to the cows during the spring period (May-June). Cows cover the area several times. Depending on the state of the grass, the whole or only part of the area will be grazed at each passage. The farmers we interviewed in the Jura do not determine the grazing area during the spring period. During this period, they refer to the entire farm as “fields”. Cows move from place to place depending on the state of herbage, and are limited by an electric fence. At the end of June, the grass grows too long and become “tough”, and the cows will no longer graze new areas. They are brought back to the first part of the fields they already grazed. This area is then named “pastures”. Its size is considered by the farmers to be the result of what happened during the spring period, particularly the speed of growth of the grass. These views make it difficult for farmers to accept delimiting a given area during the spring period (Mathieu and Fiorelli, 2002).

From the farmer’s point of view, the success of grazing management depends on having a large enough area available for “pastures”. A local innovation was developed to gain better control over the size of the grazing area. It consisted of turning the cows out very early to graze the grass in the earliest stages of growth. In the end, the issue, and the way to solve the problem, was quite different from rotational grazing.

What questions does this raise for agricultural scientists?

- For researchers, results concerning conceptions need to be viewed from a wider perspective; otherwise there is a danger of them being considered to be only relevant locally. If farmers’ conceptions are the same in other regions, then the tools used to simulate grazing management could be used with the same indicators and the rules provided by local farmers (Cros *et al*, 2001, Delaby *et al*, 2001).

-For development programs on grazing management, questions arise about the benefits of recommending rotational grazing. Local practices should be analyzed with this in mind, especially with respect to local innovations.

-If researchers and advisors nevertheless feel it would be useful in some cases to recommend rotational grazing, they should offer to train the farmers in this new conception of space and time.

c- Runoff and erosion in the Pays de Caux

Changes in farming systems on a loamy plateau named the Pays de Caux have resulted in a high rate of runoff and serious erosion, even though the slopes are not steep. Plowing up grassland was one of the main causes of the erosion. Analysis of farmers’ conceptions in a sample catchment basin showed that farmers could be classified in two categories: those I call ‘managers’ and those I call ‘livestock farmers’. The ‘managers’ thought about their financial results in terms of “gross margin”; grassland being considered to “unprofitable”, or at least much less profitable than arable land. The ‘livestock farmers’ thought about “making a living from farming”, and having a regular income. They were able to accept the idea of grassland and livestock.

Only the managers were looked on as modern farmers. Livestock farmers, especially small breeders, were considered to be people who do not move with the times. Their reduced status went beyond their production system and affected their personal status: they considered themselves, as did the managers, to be ill-informed, or lacking in brains. This opinion was due in particular, to the fact that they never managed to obtain subsidies, whereas managers obtained subsidies to plow up grassland and then to reseed it, thanks to agro-environmental measures. Due to their reduced status, these farmers cannot imagine setting their sons up on a livestock farm. They say that they personally like their job, that they had learn it because they

were “born into it” (in contrast to cropping which is taught at school), but nevertheless they encourage the sons to go away, or to take over the cropping part of the farm (Mathieu and Joannon, 2003).

Simulations in this catchment showed that an area of grassland equal to two small livestock farms would allow a reduction of 30% in runoff. In our opinion, it would consequently be useful to think of ways to improve the image of ‘small livestock farmers’. One possible way would be subsidies for the preservation of grassland.

c- Introduction of cropping systems that respect the environment.

This program has already begun. Here we discuss some of the questions we asked ourselves. In cropping regions, one aim is to reduce pollution by reducing inputs (herbicides, pesticides and fungicides). One way to achieve this aim is to design cropping systems (sequences of crops, and of techniques used on these crops) in which the rate of inputs is considerably reduced, as crops provide a good gross margin.

Agricultural scientists believe these cropping systems should be managed by making timely decisions that respect specific rules. Actions are not programmed in advance, but are decided according to the state of environment and of the crops, which is analyzed using indicators. The rules of decision-making allow an action to be launched when the indicators reach a certain threshold.

The type of crop, the amount of the reduction in inputs and the rules for decision-making are decided by a regional committee that brings together researchers and advisors. In this particular program, implementation of the chosen cropping systems is proceeding on 10 pilot farms.

In this type of program, knowledge of farmers’ conceptions helps answer two types of question:

- how do the farmers involved in the experiment view the reduction in inputs, and how do they manage their plots in order to achieve this aim? The answers to these questions could lead to modifications in the decision-making rules.

- what is the position of these farmers in the local community? Are they independent, or do they and their neighbors form a network? How do local conceptions about the reduction in inputs vary? How are these conceptions related to practice? These issues are important for the further diffusion of cropping systems with low levels of inputs.

Conclusion

We suggest that farmers’ conceptions about the management of technical processes should be formalized. This means acknowledging there can be other valid forms of knowledge than scientific knowledge. These other forms of knowledge cannot be ignored in a development action, and the status of farmers changes as a result. Farmers can no longer be considered as subordinates who merely execute actions designed elsewhere. The recommendations or innovations are worked over, and then adopted or rejected according to the local way of thinking, and it is possible to imagine that the farmers’ forms of knowledge are, in certain cases, more pertinent than scientific knowledge in the context of local development actions. At the same time, there is necessarily a change in the relations between the farmers and development agents, who can no longer be considered as the only source of useful knowledge. Olivier de Sardan (1998) proposed that anthropologists should “monitor development actions and suggest ways of adapting the project to counteract any drift away from their target”. What we offer here is a way to think carefully about how a project will be integrated in a local community before the project is implemented.

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