

Not everything that counts can be counted: the epistemological challenges of grounding ethnographic enquiry in participatory agronomy

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ABSTRACT

The paper explores the use of grounded theory as a theoretical tap root to bridge the contrasting goals of ethnographic enquiry embedded in a participatory context. Grounded theory was uniquely applied to a limited investigation within an open ended and emergent experiment with an organised group of Zulu speaking traditional farmers of KwaZulu-Natal. These farmers purposefully requested assistance in commercialising traditional homestead farming in an attempt to retain their culture and take advantage of economic opportunity. The methodological approach constructed a theoretical model for the emergent solutions which accounted for the complexity of social agronomy, the rational responses made by farmers in dealing with uncertainties precipitated by change, the open ended process of emerging ideas and practice, the co-construction of knowledge and meaning through facilitated learning experiences, and the relationships and tensions between values and beliefs and technical practice for commercial production.

Key words: Decolonising Practice with Indigenous peoples, methodology, grounded theory

I. INTRODUCTION

In traditional African culture, it is the complex network and maintenance of relationships that create social cohesion and define an African way of life. In the search for an African solution to economic development in a post-colonial agronomy, we have to consider the importance of relationships, not only as part of maintaining internal relationships, but also in dealing with the uncertainties generated by linkages external to the farming system. In the process of establishing networks, which would enable farming to continue as a 'way of life' and contribute to sustainable development amongst resource poor farmers, we also have to create the capacity to co-operate in a way that allows for the possibility of social and economic change. Research that is able to make explicit the indigenous wisdom and solutions to this process is in a position to inform agrarian policy and services for supporting preferred livelihoods in rural areas.

The empirical research referred to in this paper, is based on an experiment with an organised group of Zulu speaking traditional farmers of KwaZulu-Natal who refer to themselves as the Ezemvelo Farmers Association (EFO). Commercialising subsistence farming practice is a strategy they have practiced since 2002 in an attempt to preserve their rural way of life alongside opportunities for economic development. The methodology discussed in this paper aimed to construct a theory for how participants determined change from subsistence farming to commercial farming activities in a conscious and meaningful way. Grounded Theory was used as the theoretical taproot for the methodological approach. This process was designed to abstract a conceptual model for a journey that linked researchers, farmers and their market in a co-created reality of commercialising traditional subsistence agriculture. Grounded Theory was adapted for use within the confines of a limited investigation to interpret a loosely connected learning experience unfolding in a process that allowed for emerging ideas, practice and participant learning. Grounded theory

as data collection and analysis, allowed the researcher to account for the complexity of social agronomy, the rational responses made by farmers in dealing with uncertainties precipitated by change, the open ended process of emerging ideas and practice, the co-construction of knowledge and meaning through facilitated learning experiences, and the relationships and tensions between values and beliefs and technical practice for commercial production.

II. 'I SEE IT AND IT MATTERS'

The methodology presented in this paper was aimed at interpreting radical democracy – the meaning in the process of individuals who have determined and continue to define their future. The research questions itself was, how have the farmers specific to the EFO gone about becoming commercial farmers at their own request? The events observed over the three years of data collection were either formal steps or associated activities of a loosely connected project partnership between academic scientists committed to development and individual research agendas, farmers who consciously chose to re-allocate scarce resources towards the growing of commercial crops and a market that was sympathetic towards small-scale commercial farmers. For the farmers who were members of a community structure called the EFO, commercialisation was a deliberate shaping of a new reality. This reality was implied in the EFO constitution as a shared set of values and beliefs and made explicit in the re-allocation of scarce resources in response to the market and learning opportunities offered.

Scientists and society perceive uncertainty from very different perspectives. The scientist relies on scientific uncertainty as a natural outcome of progressive science. Research begins with a problem demanding an answer. Each progressive step in the scientific method resolves one question using a framework that recognizes valid features from the old perspective or theory and incorporates the new evidence. Unaccounted for uncertainties are simply posed as new research questions to investigate. Society on the other hand perceives uncertainty as threatening because it cannot be resolved and may possibly spin out of control. The individual has to live with these consequences where as scientists just absorb them into their research agendas (Nowotny *et al* 2001).

Research when it is conducted as part of a development or empowerment process has to deal with the production of knowledge, which is a product of science engaging with society over uncertainties. If development deals with knowledge as a 'thing to be applied' the emphasis in development is for 'narrowing gaps in knowledge'. But, as experience with the EFO farmers showed, certainty of knowledge is not necessarily a product of rational givens (as in a positivistic science or social science), it is a reality constructed from the interaction with their environment. Regardless of whether it matches the researcher or markets' logic, the farmer's response is and must be considered as a rational response to the complexities of homesteading and subsistence agriculture.

For example, in an on farm poly culture trial which was part of the farmers' research agenda scientific data for the improvement of identified soil parameters was not statistically significant. The principle researcher in the study explained to the farmers that these results would not prove that the soil had been improved.

The farmers disagreed and said the results of the experiment were valid because the soil itself was different. The organic matter and bulk density of the soil had changed as a result of the experiment and was perceived by farmers as an improved tillage and fertility in the soil. This was significant they said, because it affects the 'effort' it takes to farm.

In another example, during a group discussion about the challenges of the previous year for commercial activities, a farmer explained that:

'...My heart was broken over my sweet potatoes' the researcher/gate keeper came and told us 'to plant' (sweet potatoes). When the crop was about to be harvested, the

researcher took samples– but... (throws hands in the air)...‘nothing’. (Field Notes, 10 January 2008).

The other elderly female farmers were nodding in assent and shared frustrations over this memory.

“It takes time to plant, “It is the fault of the gate keeper that our sweet potatoes were not accepted (by the market).” “If the people from the market came to our fields and saw how we worked, they would then appreciate our efforts.” A younger woman finally stood up and said, “no it is not the fault of the gate keeper. I was also not able to sell the sweet potatoes I grew, but what happened was that the market was saturated with sweet potatoes and they could not accept ours. This is the way that the market works.” (Field Notes, 10 January 2008).

Agriculture is inherently about using resources to produce food, fibre and fuel. The knowledge we need in developing agriculture-based communities is not a new theory vying for centre stage such as “organic farming, sustainability, commercialisation”, but a way in which to manage the relationship between our technical knowledge and the way in which we arrange our world. We (scientists) can reflect and the Farmer can reflect on his/her reality as knowledge, but for both of us, we have to find a way to overcome the potential fallibility of that knowledge in a changing world. The emphasis in understanding decision-making processes is to try and describe how the farmers manage the relationship between cultural knowledge and technical practice. For example, in an unsolicited narrative, a key informant told described the following experience.

“I dug up my amadumbe (which were ready to harvest) and discovered muthi - (meat & fat) on the side of the field. I discovered a reduced yield – (she was only getting the tuber that she planted as the mother plant - no actual increase) in the amadumbe field but my beans and sweet potatoes were fine.”

S believes that this is due to jealousy from someone because her fields do well. It is not necessarily because of her involvement with the crop trial, but her whole farming enterprise. She hasn’t dug on the crop trial for which she donated land and doesn’t know if those plants have been affected. She calls this “*babulele insimuami*” *they have killed my fields. This evil she says has been allowed because her husband has neglected the family.* (Field Notes, Farm Visit 27 April 2007)

When probing individual experiences of a field trial, I asked: “What if anything, did they (two female farmers) think was a learning experience from having the students around and EFO activities for the last three years.”

L – the most important thing which I have learned is to be self reliant...I also learned from the intercropping trial that we all participated in...before the EFO, working in the fields was a way of life...Women were expected to do something with their time and if they did not work in the fields, what would they do all day? I did not even notice what or why I did things or make observations about them. Regardless of how the harvest turned out, it was done as a ‘way of life’ and we didn’t notice anything nor did we learn anything. However, I now have knowledge with which to think about what is happening with my farming. I can now ‘plan’ and ‘see’ the results of my efforts. At the end of the day or while I am working I can reflect on and learn from what I observe and do. I know why I am doing something; I know how and why to rotate. My yields/crops are GOOD and **I see it and it matters.**– I am aware of so much now and **this encourages me to do it again.** The other thing is that now my husband has taken notice. Before, my farming was just something that he thought I did to spend time. Now however, **he respects what I am doing** and is willing to invest in my farming...

In this research then, the methodology needed to account for the processes and relationships in the dynamics that influence decision making with regard to commercialising indigenous crops with resources that have historically been allocated to subsistence farming in an agrarian way of life. We need to identify how inequalities (or the quality) in knowledge add to other inequalities (or qualities) to influence the structures and institutional relationships that affect the farmers, markets and natural resources. The challenge is to describe, what the farmer is learning, what the market is learning and what the researcher is learning about sustaining agriculture as a lifestyle within the context of communally owned land in Rural KwaZulu-Natal.

III. SHIFTING MENTAL MODELS

Typically, in Agricultural science, we formulate a research hypothesis on theoretical grounds and test it through research activity. In participatory learning, knowledge and meaning is constructed through facilitated experiences. Working with the farmers, researchers were not only committed to being facilitators, but also to being learners on an equal footing with farmers through shared experiences. Participatory decision making in the field with farmers in Umbumbulu had already been a useful strategy for developing management independence and addressing technical and organisational problems in the transformation of homestead farming to small-scale commercial agriculture (Caister 2006). It was in fact the process by which this study emerged (Table 1).

Being ‘participatory’ meant that stakeholders had a voice in the process. Some of these voices come from within the community both at an individual and collective level; some of these voices are external. The agenda then that informed the participation was both participatory and catalysed by specific personalities. This agenda and its subsequent crop trials for improved soil, adaptive production technology and improved *amadumbe* cultivars, provided a focus for interaction around which decisions are made and the tolerance for and inclusion offered to Modi’s¹ students (such as myself) to enter, observe, explore and work alongside the community in developing a conceptual model for social agronomy.

On a recent Friday afternoon, when inspecting an on farm crop trial, I asked a farmer why she was motivated to donate the energy and cost towards an experiment from which she could not eat or sell produce. She replied that when someone (referring to Modi) brings you something, you do not reject it. You match that person’s effort with commitment. We also do this, she added, ‘because we are always interested in learning and know that these experiments will benefit us in the future (Mrs. Mbila, personal communication, 2007).

To be able to reflect on this emergent practice and make theoretical statements would require a systematic data collection and reflection process as agile as the context. A constructivist approach for both research design and analysis, would be sensitive to the complexity of small-scale agriculture and allow for the identification of meanings of concepts, nature of relationships and values important to the research participants (Soullier, Britt, Maines 2001). Grounded theory is particularly suitable for research that allows for thinking and creating knowledge while following emergent practice through open-ended action (Bruner, Vygotsky, Feurerstein 2007, Charmaz 2005). The focus in this study of issues relevant to the study population (emic issues) is a characteristic of ethnographic intentions to explore the worldviews and values of the community under observation. In ethnographic work, the researcher generally attempts to avoid impacting the context. In contrast, the situation under investigation was about a deliberate intention to change whereby each researcher was invited and expected to be a part of that change process

In dealing with the complexity of learning about commercialization in this context then, the methodology needed to be able to traverse the terrain between the scientific world (research process) and

¹ ‘Modi’, refers to Professor Modi, the researcher from UKZN who has maintained a long term relationship with the EFO and is Project Leader for the development process. I use this name because this is what he is called in the field by farmers and researchers alike.

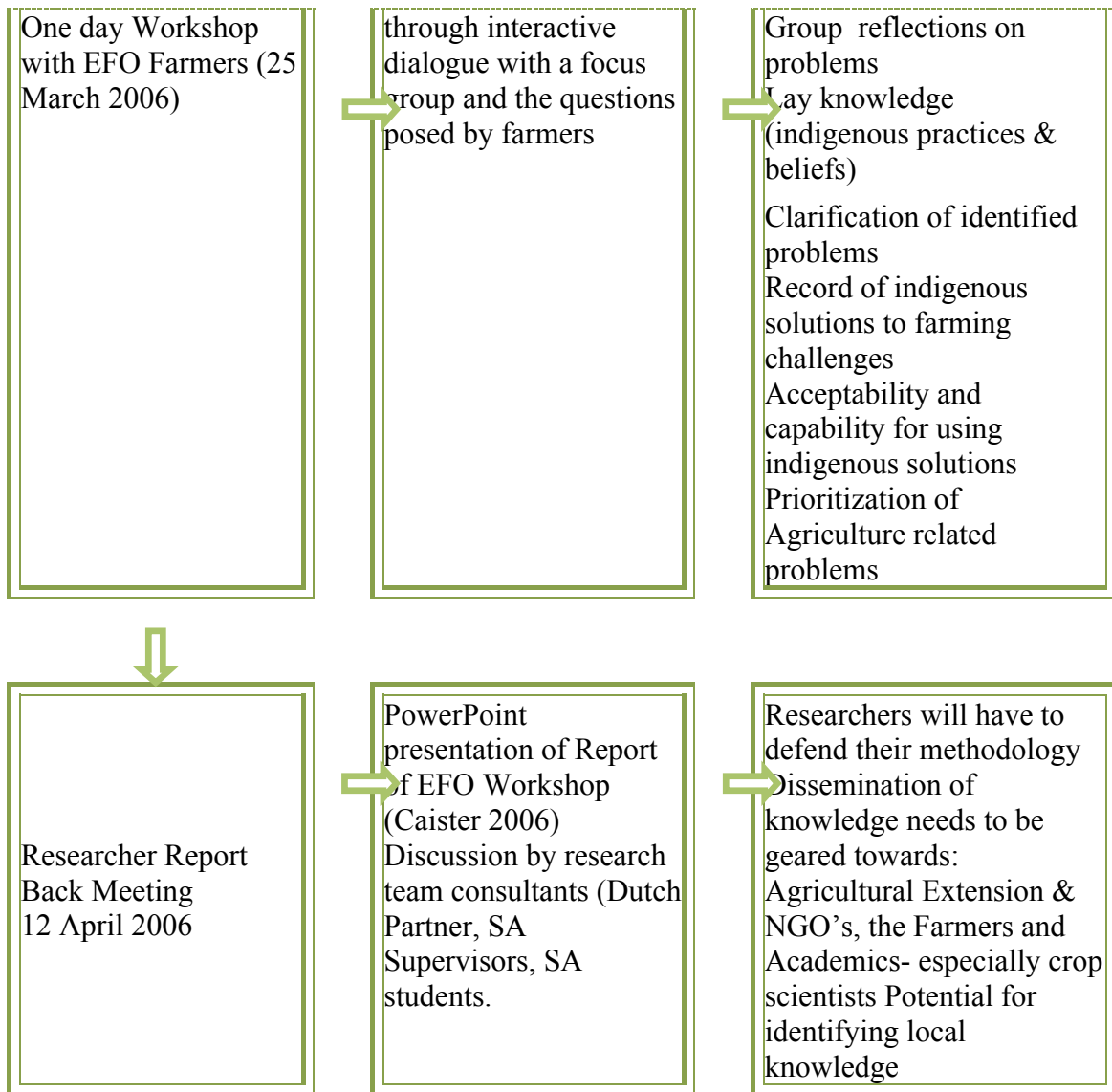
the social world (Mouton 1996 Fig. 5.1, p.26). The methodology must draw on real needs, realities and visions employed in the process of change. A method for this study was needed which would match the purpose: to develop new conceptions, explore possible evidence of a new way of thinking and provide the flexibility to explore the process of the research as equally important to the theories being developed.

In order to encompass these realistic yet methodologically contradictory expectations, grounded theory was used by this study as a discovery process (Figure 1). The use of grounded theory allowed the identification of concepts characterizing the change to emerge from the actual unfolding of events. The use of grounded theory in an ethnographic approach however, is not without epistemological issues to consider. For example, credibility, confirmability and transferability needed to be accounted for in the collection and analysis of data. The concepts and procedures of Grounded Theory defined by Glaser, Strauss and Corbin are not a set of precise methodological rules (Kelle, 1997). They do however; provide the researcher with useful procedures for the capturing and analysis of data, and terminology that is useful for communicating the systematic nature of developing theory. A challenge for this research with grounded theory is that in its abstraction from the data, Grounded Theory is ‘not concerned with understanding the world of the research participants as they construct it’ (Glaser 2002, p 3). Integrity of interpreting reality would depend on the skill of the researcher as an investigative tool.

Using grounded theory as the theoretical root of the methodology allowed the discovery process to aim at using an open mind and receptive ear as long as possible. Abstracting concepts allowed the researcher to reflect on the shared value base of the learning that occurred to identify labels that link the unfamiliar abstracted concept with the vehicle or pattern familiar to the substantive context. Confirmability of interpretations assists in ensuring accuracy of interpretations. Evocative accounts and use of voices in the development of concepts contribute to the ability for readers to connect to the context and identify with it. The urgent task then was to identify and implement a systematic way of dealing with the data that could be defined, documented and would eventually result in abstract concepts (sufficiently abstracted from people, time and place), but also represented the wisdom of the voices contributing to the dynamics of commercialisation thereby accounting for an understanding of the research situation.

TABLE I. SEQUENCE OF PROJECT EVENTS PRECIPITATING THIS STUDY

Event	Instrument for participation	Focus of interaction
Stakeholder meeting held at University of KwaZulu-Natal (21 October 2005)	Stakeholder meeting SANPAD Start-UP Workshop Report EFO Constitution Document	Terms of reference for stakeholder (including student researchers) participation and sensitization
Researchers visit community and meet with EFO executive and members to formally request a participatory research agenda (22 October 2005)	Introduction (observation) of researcher to world view of EFO farming practice Field Notes	Farmer identified problems Sensitization to farming community and location of study area.
One day Workshop with EFO Farmers (25 March 2006)	Self (farmers) completed question lists Collective learning	Group priorities Group perspectives Group visions



IV. SUBJECT OF THE STUDY

The unit of study in this research was the formal community structure known as the Ezemvelo Farmers Organisation. Because of its collective nature it is in fact made up of farmers skilled in traditional agricultural knowledge and subsistence practices and who shared the common goal and set of values fundamental to the EFO. As individuals they are themselves members of a variety of households, extended families and tribal authority structures, which determine the social institutions and cultural milieu within which the EFO operates. The study has at three points invited the entire membership of the EFO to engage with answering the question of this research. Notably, the original workshop which established the research agenda for the participatory NEPAD project itself, the marketing workshop and reflection workshop to which all members of the EFO were invited. Individual farmers were used as key informants because of their commitment and interest in the research, their accessibility to the researcher and or because they represented a cross-section of homesteads interested in commercial agriculture or included in other studies being carried out by other research in the project. In other words, all informants were conveniently sampled.

V. GROUNDING ETHNOGRAPHIC ENQUIRY

The first challenge in designing an enquiry into the problem was to establish the question being answered. The project itself was participatory in nature and after establishing a rapport with the community and slowly coming to grips with the nature of this research as opposed to the participatory

process we were all engaged in (Table 1), there emerged a single, overriding theme; to investigate the dynamics that influence decision making with regard to commercialising indigenous crops with resources that have historically been allocated to subsistence farming.

The enquiry presented as the research question in this study arose from reflection on farmer researcher dialogue at the workshop held on 25 March of 2006 (Table 1) that was designed to engage with farmers on researchable problems that farmers perceived as constraints to successful commercialisation of traditional cropping practice and supply to markets. A subsequent report back and reflection on this workshop by the research team on the 12 April 2006 concluded that there were two essential dimensions arising from the farmer’s discussion. The first related to production of crops for exchange. The other, forming the basis for this research, related to communicating the way in which collectively determined relationships enabled successful engagement between traditional agriculture practiced by homesteads and a marketing opportunity provided by a national food chain (Caister 2006).

This process naturally embedded the research process in the priorities of stakeholders in meetings where the researcher heard the terms of reference presented by community representatives and how they wished to engage with the researchers themselves. Final clarity over the research problem was derived by investigating what other researchers in the team identified as the social aspect of their research goals (Table 2)

The concept of ‘matching’ mentioned in Table 2, arises from the social agronomy approach as experienced in other African developing countries. It assumes that the homestead farmer is being rational in his/her approach to the complexities of homestead farming (Modi 2005, point 5.2). The research needed to identify how inequalities (or the quality) in knowledge added to other inequalities (or qualities) to influence the structures and institutional relationships that affect the farmers, markets and natural resources. In effect, it asked the question: what was the farmer learning, what was the market learning and what was the researcher learning about sustaining commercial agricultural activities as a livelihood option within the context of rural KwaZulu-Natal.

TABLE II. PERCEPTIONS OF COLLEAGUES ABOUT THE ROLE OF THIS STUDY IN THE PARTICIPATORY PROJECT

EFO	“In the next two years, Mrs Karen Caister will help us determine the impact of the research on our homesteads, the EFO and the markets...”
My research supervisor:	To what extent has the ‘market’ changed the way people farm?
The SANPAD Project leader (South African Research Partner):	...“we expect Karen to be everywhere – to observe all of our interactions. Karen will be observing my impact as a catalyst.”
Myself (researcher)	An identification of decision making patterns –that will support the desired links between homestead farms and markets
SANPAD Research Consultant (Netherlands research Partner)	Research planned for this project should seek to identify strengths and weaknesses of ‘matching’ homestead farming and commercialization.

VI. DESIGNING A METHOD TO ANSWER THE QUESTION

To create a systematic way of identifying concepts and the relationships between them in this study, a complementing (iterative) system of purposeful data collection has been combined with reflective interpretation that systematically works through three levels of abstraction; description, analysis and interpretation. This documented the generation of a theory identifying critical concepts that were sensitive to the context and allowed continued dialogue regarding the confirmability of the concepts and how these concepts would be transferrable into other contexts. We can represent the inductive process used in this research in following way (Figure 1).

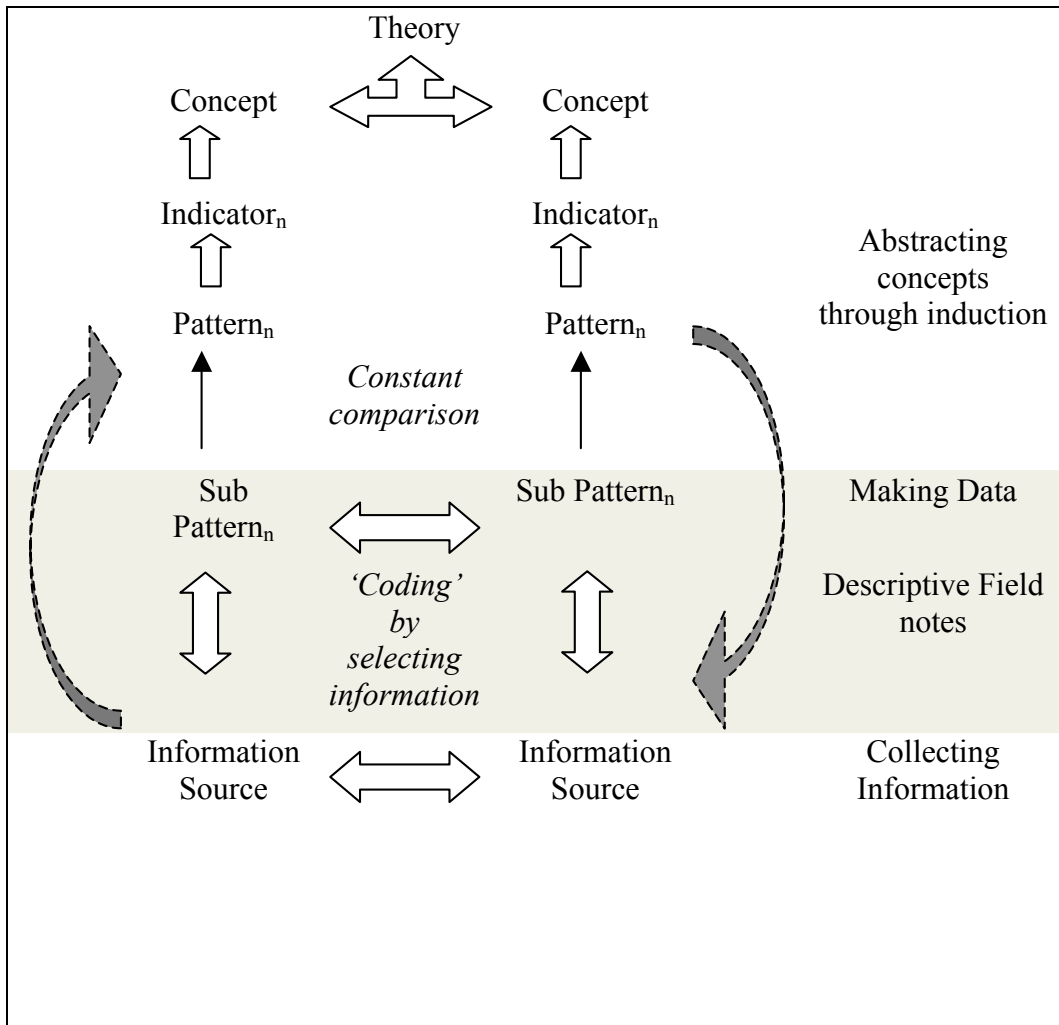
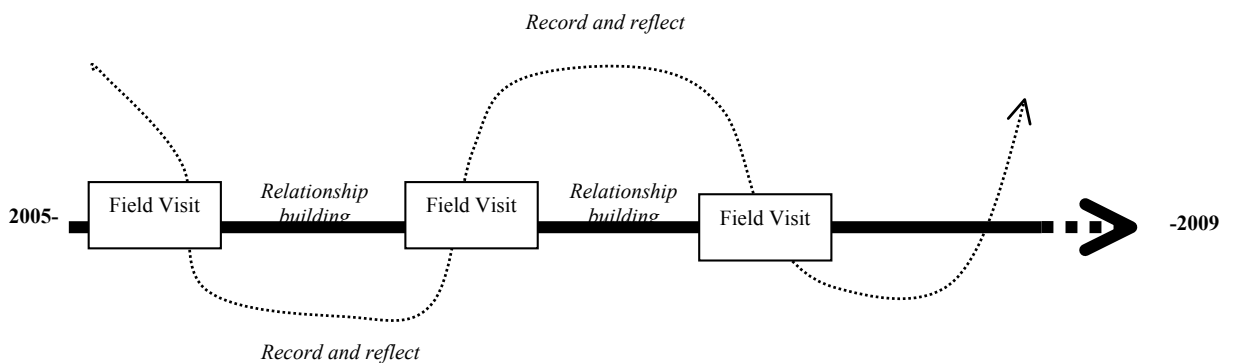


Figure 1. Inductive process of producing grounding theory

Characteristics of the process were the continuous cycle of collecting and analysing data (Figure 2). In what may also be termed an ‘emerging’ grounded methodology, the participatory nature of the project itself determined a sequence of activities that unfolded as regular opportunities to enter the field for observation, participation and probing through the use of interviewing skills (Table 4).

Figure 2. Purposeful data collection



As soon as information was collected, the analysis began through the use of memo writing, reflective essays and selecting words, phrases, paragraphs (information plus its context) as data for concept

development. Concepts were built through identifying characteristics, patterns and tensions that served as indicators of the abstract concepts themselves. Although theoretical saturation is a goal in grounded theory; practically, the researcher has to determine an end point for the research. In this case, a time frame had been established by the project manager of the SANPAD Project for duration of research activities and this established that data could be collected between 2006 and 2009.

The purpose of the analytical process was to manipulate data in order to generate a theory from empirical categories about what had happened within the interactions of researchers in commercialization activities between Nov 2005 and Dec 2009. Analysing the information collected required several levels of activities. Invariably these activities were neither discrete nor sequential (Table 3). There were two aspects involved in analysing the information from this research. Firstly there was the exploration by the researcher or conversation with the situation. This needed to identify the perceived and practiced pathway to commercialisation as well as identify who set the boundaries or means by which the process was kept on track. Then a conversation within the realm of the scientific community was needed to crystallize concepts and relationships. In between lay the reflexive accounts by the researcher on everyday experiences in the relationship between researchers and the market-orientated activities of farmers. Therefore, in selecting information to analyse from the data, the most basic screening for analysis was: does the information have to do with the relationship between production and a market?

Generally, all information is coded in traditional Grounded Theory analysis. In this research however, in addition to the focus on the relationship between production and a market, the selection of information for data was also informed by the sensitizing concepts identified through the researcher's reflection on the EFO constitution document. These consisted of researcher interpretations of what farmers perceived as sustainability, culture and development. This was the fundamental explicit statement by the context of shared values, beliefs and vision for commercialisation.

VII. MAKING DATA FROM INFORMATION

The essence of the method used for analysing data can be described as an iterative cycle that revolved around entering the field, logging formal field notes and information records in the NVIVO data base (Table 3) and pursuing pieces of the information that showed promise for theory development. Examples of these were comments and decisions that showed values, beliefs, patterns and assumptions. Open coding was used to select these pieces of the information, which once selected became the 'data' used for concept development. Reflection, memos and concept modelling allowed concepts induced from this data to be pollinated and examined within the researcher's assumptions, farmer's assumptions, and assumptions of the research, secondary data and against existing literature.

Grounded theory uses constant comparison as its core analysis strategy (Dick 2005). In this methodology one interview or set of information was compared to another in order to begin to develop a feeling for what was happening. Comments or direct extracts from the information such as a quote or a quote within a paragraph (the context) were 'noted' to identify this growing understanding. This is referred to as coding, and the selected information now became data that I used to develop themes. While coding, I recorded observations and thoughts as 'memos' which NVIVO allows you to link to other coded information. Sometimes these reflections required further illumination. There were two ways I responded to this. I referred back to an informant in the field to probe the point of interest (theoretical sampling to saturate your concept formation) and/ or I engaged with literature to bring together the participants' and the researchers worlds for reflection (reflective essays).

TABLE III. ITERATIVE CYCLE OF DATA COLLECTION AND HANDLING

Place	Methodological Activity	Data Handling
In the field	Participate (experience), listen, observe and record while in the field.	Selective collection of complex, context specific information records

Upon return from the field	Re-write raw data into NVIVO to form a Log of Field Notes.	Formal logging of information records using NVIVO*
Between visits to field	Ponder the significance of information by looking for patterns of values, beliefs, capabilities (skills, theory, attitudes and behaviour) and relationships.	Generating data (selecting and comparing from information sources); generating memos, annotations, background material and reflections – adding these to the NVIVO data base
	Concept modelling including comments and insights from colleagues Memo writing Reflective writing	*Selection of information from records to use as evidence of analysis
	Exploring literature for existing theory, conceptualizations and similar research experiences	
	Re-formulating focus of probing to take advantage of next visit to field.	Shaping of concept development
Return to field	Participate (experience), listen, observe and record while in the field.	Add to existing field log and data

As I collected more data it was compared to the ‘notes’ already made and a further deepening of understanding developed. Eventually themes emerged as understanding of the situation began to reveal patterns and relationships. From the themes, drawing diagrams and models of the coded data based on the patterns helped identify characteristics of sub-concepts. It is these concepts, which eventually become indicators of the theoretical concept that replaces the theme in the theory formation.

The most frequent process involved reflecting on a statement or observation in the field by drawing a diagram on a flip chart and then beginning to construct meaning around it by filling in information (looking up theoretical concepts, background information and current research) other content from field notes, and conversations with academics in the discipline. Often this included reflection from colleagues whose challenges and input helped to crystallize concept formation.

TABLE IV. RESEARCHER-FARMER INTERACTIONS PROVIDING DATA FOR THIS STUDY

Category of Interaction	Type of interaction	Instrument for data collection	Data arising from interaction
Monthly Meetings (1 st Monday of every month)	Group decision making and reporting	Participant observation Minutes	Field notes Records of decisions
Farm Visits	Household interviews (2006)	Semi structured interviews with family groups of household systems	Flip chart summaries of household information Field notes
Data Collection questionnaires	Field Trial Visits (2006-2009)	Probing conversations	Field notes
	Community Garden interviews (2007)	Semi structured group interviews Probing conversations	Time lines Field notes: *
	Farming System Interviews (2008)	Questionnaire	Field notes:**
	Soil Names and Indigenous knowledge group interview (2009)	Questionnaire Probing conversations	Qualitative Data Field Notes***

	Farming Technology Questionnaires (2009)	Questionnaire Probing conversations	Qualitative data Field Notes
EFO member workshops	Marketing Workshop (18 April 2008)	Breakaway group discussions Group Feed back	Flip chart summaries (translated later into English)
	Reflection workshop (27 Nov 2008)	Breakaway group discussions Group Feed back	Flip chart summaries of breakaway group discussions Field note summaries of consensus discussion
* Researcher assisted with data collection for masters research (Ndlovu, M (2007). Towards an understanding of the relationships between homestead farming and community gardens at the rural areas of Umbumbulu, KwaZulu-Natal. This provided access to questionnaires on Household information about interviewee's' farming system and data for triangulation.			
** Researcher assisted with data collection for masters research (Maragelo, K P (2008). Traditional agriculture and its meaning in the lives of a farming community: the case of Embo. This provided access to questionnaires on Household information about interviewee's' farming system and data for triangulation			
*** Researcher assisted with the data collection for masters research (Buthelezi, N N (2010). The use of scientific and indigenous knowledge in agricultural land evaluation and soil fertility studies of Ezigeni and Ogagwini villages in KwaZulu-Natal, South Africa. This provided access to questionnaires on Household information about interviewee's' farming system and data for triangulation			

VIII. COLLECTING INFORMATION

Three ways of collecting information were utilised. Primary data arose from field notes of participant observations, individual and group interviews, and survey questionnaires, which were used as tools in the field.

It was the systematic unfolding of events which gave the data a dimension in terms of time allowing the researcher to develop themes arising from relationships and decision-making patterns. The individual activities of collecting data and making choices about the combination of method and instruments to use were unique to each engagement within the research field (Table 4). The sequential events of the project helped determine the appropriate method for identifying and collecting information. Firstly, there was empirical primary data. For example, homestead visits entailed observation of trial sites and or probing discussions with farmers about questions arising from previous visits or sparked by an immediate observation. These questions would invariably revolve around Farmer worldviews, practice and learning from the agricultural activities relating to the commercial aspects of farming. Attending monthly EFO forum meetings produced data through the minutes, which documented collective decision making. Participant observation at these meetings generated information (field notes) about the airing of emotions and how information was collectively gathered and shared. Group interviews and workshops provided opportunities for the farmers themselves to discuss specific issues prompted by the researcher and a platform to express their concerns, views and knowledge in language that they were comfortable with.

Two PhD's, three masters and two honours research projects contributed research data that was treated as owned by the project and accessible to the student researchers. This enabled specific reflections between primary data and the work of colleagues when appropriate. The results of project members' individual research projects were treated as secondary empirical data sources for this study even when the researcher herself participated in the data collection events (Table 5)

Secondary data, which contributed, was from literature of previously published research focussed on the farmers of the EFO and from minutes of farmer forum meetings, the EFO constitution, individual research team member data, and workshop reports.

TABLE V. INDIVIDUAL RESEARCH AGENDAS ARISING FROM THE PARTICIPATORY RESEARCH AGENDA (RESEARCHER REPORT BACKS, 5 JUNE 2008, CEAD MEETING ROOM, UKZN)

Researchers/presenters	Project Data
Charity	Crop Trials - intercropping
Rorisang	Amadumbe Starch cropping trials
Karen	Grounded theory development of commercialisation process
Nomusa (Charity, Ncebo, Karen)	IK - Soil survey – focus group of lower eZigeni farmers
Modi, Umfundo, Karen, Charity	Research Agenda Workshop
Charity & Karen- 2006-2008	Farm Visits - interviews, observations, RRA
Charity/Karen/Modi 2007	Intercropping questionnaire
Kitso, Charity, Karen, 2007	Survey of Indigenous Farming Knowledge (Focus group data)
Mfundo, Charity, Karen 2007	RRA -Role of Community Gardens

IX. AVOIDING VULNERABILITY

The ethnographic interests identifying the farmers reality was incorporated in the theory development through the selective coding of direct translations of farmers comments. These added an evocative account of farmers' values and beliefs in their own words and help the reader to identify and connect to the context from which the theory emerges. The participatory and self determining nature of the commercialisation process was recorded through the description of decision making processes that determined the way in which decisions were made at individual and collective levels, both by internal and external players. The use of the iterative and purposeful collection of data that was used to draw abstract meanings from the context is the grounded data collection and analysis, which bridges the ethnographic interests and the participatory nature of the project itself.

Any reflective process itself is subject to the skill and consciousness of the researcher (Richards 2005). The ability then, for the researcher to build on his or her strengths in the conceptualization and practical aspects of making meaning, determines the effectiveness of research. Despite the consciousness that the researcher may have had prior to entrance to the field, the sharing of values and beliefs through learning experiences brought stakeholders much closer together in terms of shared values and beliefs. Using a constructive approach to the analysis of participatory processes allowed for the understanding of transformation to be connected to knowledge building through the reflexive engagement of the researcher with local and specific realities.

In qualitative research, the presence of the researcher in the field allows for the collection of information. The researcher is trying to understand the 'wholeness' of the phenomenon and so everything becomes potential data. What one sees, feels, smells, becomes conscious of and hears all add to the volume of information one is bombarded with and tempted to record. The researcher has to learn quickly how to focus information gathering without ignoring or shutting out possible gems of data. The selection process of what becomes data then, begins in the field; that which is recorded. The use of grounded theory

or any method of making data requires the focussed selection of 'pieces' of that information in order to generate data. Therefore, the writing up (digitising) of field notes and records and cataloguing of photos and diagrams became the first stage in engaging with the information to become data. Quotes and observations, which sparked a theoretical response or showed promise for further analysis were marked and 'named' (coded) in order to identify themes.

A constraint for the researcher was that she did not speak the local language and therefore all dialogue needed to be translated. Originally a weakness, this was converted into an opportunity to confirm the understanding of data. All probing questions and dialogue were translated by a fellow researcher present at the encounter and who was also involved in the SANPAD Project. Often this turned into a discussion between the informant, the translator and the researcher, paving the way for deeper probing, checking understanding and learning by participants. The translator was always a trained scientist and therefore instinctively communicated what farmers said using terms familiar to their field. For example, if the farmer described the soil as 'too wet', the scientist would instinctively use the term 'water logged'. In the beginning, the researcher probed for exact words used by the farmer in an attempt to be more accurate, but because of the translation process this was very time consuming and potentially diverted the real objective, which was to 'understand' what the farmer was describing. Within the first two dialogues with farmers the researcher abandoned the query of terminology used by the translator and released the need to know exactly what words the informant had used and embraced the growing understanding by both researcher, farmer and translator of the nature of the inquiry and our own subjectivity in terms of describing and recording what was important about the value, belief or decision being described. When we checked our understanding with the informant and we received a positive response, we accepted this as confirmation of our understanding. This added a richness and depth to the information providing insight for all of us interested in the navigation through the commercialisation process. From a practical perspective, the time taken for translation allowed the researcher to observe body language, take notes and reflect on the next question designed to explore a line of thought more thoroughly. The respondent also had extra time to think through answers as well as make connections themselves with previous conversations. The mutual question and answer process also contributed to a trans-disciplinary consciousness between researchers in the project as they began to understand the nature of the probing of social and cultural patterns. As research participants we developed an empathy with farming challenges, shared the excitement of 'successes', resulting in knowledge that was enriched by and emerges from the relationship. The literature identifies this process as 'immersion in the data so that they (the researcher) become part of the process' (Luca 2009). The knowledge is not independent of the researcher's involvement, and seeks shared meanings and new understandings. This embodied² learning helped to organise the information into coherent, reflexively processed conceptualisations of the commercialisation process. Pairing of researchers was also less invasive of the farmers' time. Two researchers could conduct a focus group discussion or farm visit and achieve two or even three research activities within the same space.

X. CRITIQUE OF METHODOLOGY: A VALIDITY FRAMEWORK

In positivist science we strive for 'validity' and 'goodness of fit'. In social science, the researcher is searching for 'truth' (Mouton, 1996 p.30). In this study however, the 'fit' between the theoretical postulates and the rich pictures from which concepts were abstracted is perhaps a little looser than the 'goodness of fit' and 'validity' of testing a hypothesis. Because of the restricted time frame for collecting data, confirmation and reflection replaced the usual process of concept saturation whereby the researcher would have returned again and again to the field seeking saturation of a concept. The use of grounded theory then enabled the development of a coherent, plausible and credible explanation for the way in which

² Embodied knowledge links know-how and sensory or empirical knowledge derived from action and experience, plus problem solving based on tacit knowledge, with the importance of context. It is therefore focused on the individual, within a context, and the individual derives power from this (Adolph, 2005, p.3)

the farmers went about commercialising agriculture through their social networking and adapted traditional technologies.

To assert the methodology and knowledge as valid in this study, we look first at the rigour with which the process and procedures were conducted for data collection and analysis. Besides the, rich pictures and individual voices of the farmers minimize superficiality as does the long-term relationship of the researcher with the members of the community. Bias was declared and explored during the reflection process of memo writing and reflective essays. Using NVIVO, Logs were kept of information (raw data), selected data (coded data), memos and reflections to manage the huge amounts of material and aid the process of developing themes and concepts.

Credibility was established with the informants through the regular and repeated visits to the field and conversations with the farmers, the duration of the research and from the multiple sources of information that included a variety of information sources. Checking of understanding and accuracy in data was facilitated by group consensus in the field, by email contact with other researchers and the pairing of researchers in the field. Peer debriefing occurred through face to face discussions with colleagues over concept diagrams, and the dissemination of research results and processes to other research team members. The extended nature of engagement provided trustworthiness in terms of confirming information between informants and also of recording the anticipated expectation of a particular decision with actual unfolding and subsequent understanding of events as they occurred.

INTERNET LINKS

The Social Agronomy of Compound Agriculture. SANPAD Dissemination Workshop 2010 [on line presentations and video] <http://www.moseskotaneinstitute.com/press-and-publications/daily-news/The-Social-Agronomy-of-Compound-Agriculture/default.aspx>

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