Farmer Field Schools as a transformative learning space in the rural African setting

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Doctoral Thesis
Swedish University of Agricultural Sciences
Uppsala 2013

Acta Universitatis agriculturae Sueciae
2013:47

Cover photo: A Farmer Field School group carrying out field analysis of their crops. (photo: D. Duveskog)

ISSN 1652-6880
ISBN 978-91-576-7832-4

Print: SLU Service/Repro, Uppsala 2013

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Abstract

The aims of this research was to understand how education in the rural African faming setting can contribute to development and well-being in a way that is empowering for the poor. The Farmer Field School (FFS) approach provided an empirical frame for the research. By reflecting on experiences of FFS participants in East Africa, the research tried to answer how the FFS learning experience play out in the daily lives of participants and their families and the role that FFS play in assisting participants to take control over their own development and enhanced well-being. Conceptually the research was framed by constructivist line of thoughts, adult education and transformative learning theories. The research applied a mixed methods approach with a variety of qualitative and quantitative tools including participatory identification of indicators of empowerment, large-scale household surveys with a total of 2000 farmers and in-depth interviews. Data analysis from the quantitative survey work indicated a relationship between farmer participation in FFS, empowerment and increased wellbeing in all three countries studied. The study thus argues for an empowerment route to well-being, triggered by group based learning. The research further indicate significant impact of FFS in terms of building the capacity of people to make choices and decisions that ultimately lead to increased uptake of agricultural innovations, access to services and markets as well as collective action. Qualitative data revealed significant social impacts of FFS in terms of changes in everyday life of participants, transformation of self-concept, change in gender roles and relations, customs and traditions, community relations and an increase in household economic development. A number of pedagogical tools applied in the FFS were found to be instrumental in facilitating transformative learning and empowerment. Major conclusions of the study are the need for investment in human capacity and the importance of an appropriate mix of technological and social advancement for development. The implications of the research are relevant within the fields of rural development, gender studies and for transformative learning and adult education theory. Further, the study contributes knowledge on how to measure empowerment in the poverty setting.

Keywords: Farmer Field Schools, East Africa, transformative learning, experiential learning, agricultural extension, empowerment

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Dedication

To all learners and educators in pursuit of knowledge, may your learning journey not be one of domestication, but of liberation.

Knowledge is not extended from those who consider that they know to those who consider that they do not know. Knowledge is built up in the relations between human beings and the world, relations of transformation.

Paulo Freire

Contents

List of Publications

This thesis is based on the work contained in the following papers, referred to by Roman numerals in the text:

I Duveskog, D., Friis-Hansen, E., and Taylor, E. W. (2011) Farmer Field School in rural Kenya: A transformative learning experience. *Journal of Development Studies* 47(10): 1529-1544.

II Friis-Hansen, E. and Duveskog, D. and Taylor E. (2012) Less noise in the household: the impact of Farmer Field Schools on gender relations. *Journal of Research in Peace, Gender and Development* 2(2): 044-055.

III Friis-Hansen, E. and Duveskog, D. (2012) The empowerment rout to well-being: an analysis of Farmer Field Schools in East Africa. *World Development* 40 (2): 414-427.

IV Taylor, E., Duveskog, D., and Friis-Hansen, E. (2012) Fostering transformative learning in non-formal settings: Farmer Field Schools in East Africa. *International Journal of Lifelong Education* 31(6): 725-742

Papers I-IV are reproduced with the permission of the publishers.

The contribution of Deborah Duveskog to the papers included in this thesis was as follows:

All papers included in this thesis were produced by close teamwork among all contributing authors. For papers I, III and IV the doctoral student held the primary responsible for all planning and organization of fieldwork in Kenya and was responsible for the collection of secondary data. Sampling and establishment of contacts with respondents in the field as well as interviews

with key informant were the responsibility of the doctoral student. All co-authors were involved in conceptualisation of the studies, the interview field data collection, analysis and writing. Most writing was done collectively, however the doctoral student wrote parts of the introduction and background sections alone. The doctoral student held a major responsibility for certain parts of the discussion. For paper I, where the doctoral student is the first author, she student held the primary responsibility for finalization of the paper for journal submission.

Paper II was equally prepared by both co-authors who were both involved in all stages of the conceptualisation, analysis and writing. However, major parts of the collection of empirical material were carried out separate by the two authors. The student was solely responsible for the planning and collection of the empirical material in Kenya and Tanzania. In Uganda the doctoral student was responsible for one of the quantitative elements. In all three countries, the student was responsible for method development related to the participatory identification of variables for measurement of *empowerment*. The analysis in SPSS software was jointly conducted by the two authors, but with the doctoral student taking a lead in the analysis of the data from Kenya and Tanzania while the first author took a lead in analysis of the Uganda data set. Some section were written entirely by the doctoral student. The theory section was designed together by both authors, and writing was done jointly.

Abbreviations

AESA	Agro-Ecological System Analysis
ASDP	Agricultural Sector Development Programme
ASSP	Agricultural Services Support Programme
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer Field Schools
HIV	Human immunodeficiency virus
IFAD	International Fund for Agricultural Development
IPM	Integrated Pest Management
NAADS	National Agricultural Advisory Service
NAEP	National Agricultural Extension Policy
NAEP	National Agricultural Extension Project
NALEP	National Agricultural and Livestock Extension Programme
NALERP	National Agricultural and Livestock Extension Rehabilitation Project
NFE	Non-Formal Education
NGO	Non-governmental organization
PRSP	Poverty Reduction Support Programmes
SIDA	Swedish International Development Cooperation Agency
SPSS	Statistical Package for the Social Sciences
SRA	Strategy to Revitalize Agriculture
T&V	Training and Visit extension system
TL	Transformative Learning
TOT	Training of Trainers
UNDP	United Nations Development Programme

1 Preface

This thesis has its roots in my work practice in Eastern Africa over the last ten years. Young and relatively inexperienced, but well equipped technically I was assigned as soil and water conservation specialist at a field duty station in rural Kenya in 1999, my role being mainly to provide technical support through group based learning among smallholder farmers. I eagerly embarked on providing advice to extension staff and farmer groups on how to conserve soils and better harness scarce water resources. However, quickly I realised the complexity of local farming and livelihood systems and discovered the gaps between theory and practice. The skills and knowledge I had did not always seem relevant in the local context. Each farm was different and the technological innovations that I knew the design features of so well often proved in appropriate, for reason I had never imagined. I gradually got involved in Farmer Field School activities, and initially tried to focus my input within my areas of technical expertise, but over time found myself doing less and less advising and more of running around solving all kinds of problems that seemed far from my domain. Linking people up with each other and with information sources of all kinds seemed to be the most valuable use of my time.

My shifting role in practice, initially led to disorientation as trying to respond to demands was constantly throwing me outside my area of expertise and into areas of work where I felt less confident. I gradually came to see myself more as an information broker and facilitator than technical advisor, and this is when I started drawing parallels with my own experience and what I saw in the field among extension staff, and realised that the personal change that FFS facilitators were undergoing in their endeavor to serve farmers was in many ways identical to what I was experiencing.

During my numerous visits to rural FFS groups I was amazed by the variety of pathways that the skills and knowledge gained through education seemed to take; one 82 year old lady had suddenly decided to go back to formal school

since she had realised that literacy would be important for her to sell her crops, a child in Taita mentioned that his father had stopped drinking alcohol and now put more effort and time in his farming. A woman described that there were less conflicts with her husband since she now had her own little income, a group that originally was trained on maize production had suddenly realised maize was actually not that profitable and instead gone into commercial tomato jam production and many more cases. The increased confidence and proud that farmers developed through their education experience was exemplified by Catherine's statement of "*before if somebody asked me what I do, i used to say 'nothing', but now if somebody asks me, I proudly say I am a farmer*". This made me conclude that learning and experimentation in the agricultural field seemed to serve more as an entrypoint for making informed decision and change, in all aspects of life, rather than as an end in itself. It seemed not to matter so much *what* people learned, the difference in impact seemed more related to *how* people learned and the relationships that emerged along the way.

Through a combination of reflection on my personal practice as technical advisor, and my observations of what was taking place in the field sprouted an interest in me for understanding more deeply what education is all about and what learning does to people. I engaged in a search for literature on theories and concepts that would explain what I experienced and saw. It is a great privilege to have had an opportunity to pursue this passion into formal PhD research. Doing this alongside my work practice has provided unique opportunities to along the way improve actions and development practice based on information and lessons gained. It has thus been a truly transformative experience for myself as well as many around me.

2 Introduction

This study is about the realities of daily life among resource-poor farmers in rural Africa and the ways by which participatory education impact on these livelihoods. It looks at what happens when people jointly learn together and how this may stimulate individuals and groups to gain more control and power over their lives.

While most developing countries are making progress towards the UN goal of halving poverty by 2015, Sub-Saharan Africa is not. This region, where nearly a third of the world's extremely poor rural people live, continues to descend into poverty, according to IFAD's Rural Poverty Report 2011, a cause for serious concern. The development community broadly agrees that fostering pro-poor economic growth and favouring poor people's access to services is crucial in order to support poverty eradication and provide an acceptable standard of living for all. IFAD (2011) estimates that seven out of ten of the world's poor live in rural areas and derive their main livelihood from agriculture. The agricultural sector thus forms an obvious platform for poverty reduction. The *World Development Report 2008* (The World Bank 2008) marked the culmination of a long row of international reports that all point towards smallholder-based agricultural growth as being the most effective way of reducing poverty in Africa (NEPAD 2007; IAASTD 2009). Even though structural transformations are important in the longer term, more immediate gains in poor household welfare can be achieved through agriculture, which can help the poor overcome some of their critical constraints (Chikaire et al. 2011).

Agricultural education and advisory services, commonly termed extension, is considered key to support farmers' efforts in enhancing agricultural productivity, income generation and poverty reduction in a changing world, since it assists farmers to solve problems and take part in the agricultural

knowledge and information system (Christoplos and Kidd 2000). Extension was one of the top priorities listed by twenty-four African countries for a poverty reduction strategy (Inter Academy Council 2004). However, a bulk of the existing extension approaches do not fit the resource-poor farming context of the South who operate in rapidly changing environments and contexts (Scoones and Thompson 1994; Chambers 1993; Leeuwis 2004). In *Beyond Farmer First* (Scoones and Thompson 1994) it is argued that agricultural research and extension practice is far from a set of rational, systematic acts, but a dynamic process of coming to terms with conflicting interests, changing alliances and competing worldviews. To achieve agricultural and rural development, new approaches that make better use of knowledge among farmers and provide for them a stronger voice to demand advice and services and negotiating power are needed (Christoplos 2003). The specific concerns of women and youths must also be addressed further. Following the collapse of the, in the past, extensively applied Training and Visit extension system (T&V) (Anderson, Feder et al. 2006; Gautam, 2000) there has been a search for improved methodologies that respond better to farmers' demands. This has led to a shift towards more broad based, participatory and group-focused approaches (Leeuwis, 2004; Friis-Hansen 2004; Neuchatel Group 2006; Davies 2006).

From having considered extension as mainly an act of transferring technologies to farmers there is now a focus on participation of communities in a facilitated innovation and experimentation process. Knowledge and information are seen as powerful tools in the process of change. The strengthening of human capital, and the production of knowledge for a framework of action is thereby crucial for agricultural development (Haug 1998). This implies that the domains of technology transfer and community empowerment, for long treated separately in development work, need to be more closely interconnected. In the often traditional societies of Africa agricultural practices is also closely connected to culture and society in the broader sense therefore the biophysical and social aspects of rural livelihoods can often not be separated. In reality though there is little recognition for the fact that large segments of populations in Africa are affected by violence, conflict, gender inequity, HIV, natural disasters that highly affect the ability of these populations to best utilise their natural resource base and build sustainable livelihoods, thus necessitating a wide range of life skills. Human development is about much more than the rise or fall of national incomes. It is about creating an environment in which people can develop their full potential and lead productive, creative lives in accordance with their needs and interests.

People are the real wealth of nations. Development is thus about expanding the choices people have to lead lives that they value (IFAD 2011).

Farmer empowerment is nowadays generally seen as an important element in developing demand-driven advisory services (Barlett 2005). The concept was first recognized in the World Development Report 2000/2001 (The World Bank 2000) as one of the three pillars of poverty reduction. Despite the lack of robust data (Alsop and Heinsohn 2005), empowerment is increasingly seen among donors and development actors as a major contributor to development outcomes (The World Bank 2000; Narayan 2005). In practice though, low priority continue to be given to human resource development support in new agricultural development policies and there is often a lack of a 'human' side of the poverty debate. Furthermore, major investment programs such as the Alliance for a Green Revolution in Africa funded by the Gates Foundation and the Rockefeller Foundation primarily emphasize input and technology options overcapacity-building as ways of solving rural poverty challenges. The currently trend towards more demand-driven advisory services emphasises strategies for privatisation, decentralisation, greater participation among farmers as the way forward to improve effectiveness of extension. This means that a shift is needed from seeing extension as transfer of predefined technology messages to farmers instead making their own decisions (Friis-Hansen 2004). Based on Freire's (1973) understanding this could be seen as education that is *liberating* in nature rather than *domesticating*.

However, for demand-driven extension systems to take root in practice, farmers must be empowered to develop their capacity to articulate their demands and exert pressure on the system to deliver what they want (Rivera and Alex 2004; DANIDA 2004).

An alternative participatory extension approach that seems to address some of the emerging needs is the Farmer Field Schools (FFS) approach, which provides a platform for farmers to meet regularly in groups to study the '*how and why*' of farming. There is currently a multitude of FFS initiatives globally (Braun et. al. 2005; Neuchatel Group 2006; Qamar 2006) funded by various development agencies. The approach is increasingly gaining attention among development actors in East Africa as a community-based, demand-driven, non-formal education program that appears to stimulate both technological and human development. The FFS approach differs significantly from mainstream extension practice by its emphasis on group peer learning, facilitation rather than a teaching pedagogy and local innovation processes rather than technological message transfer. It also includes the building of life and management skills (Duveskog 2006).

The Food and Agriculture Organization of the United Nations (FAO) initiated in 1999 the *East African Sub-regional Project for Farmer Field Schools* in Kenya, Uganda and Tanzania with a second 3-year expansion phase of the project starting in 2003 (FAO 2005). This program forms the empirical basis for this study of how agricultural education can contribute to change and transformation among resource poor. The research rests on the assumption that the need for individual and collective agency among smallholder farmers in East Africa is on the increase and that in order to create development processes that are sustainable in nature an appropriate mix of technological and social advancement is required. The extent by which FFS contributes to supporting better lives in this holistic sense among poor farmers in east Africa forms the focus of this study.

The thesis consists of four published papers attached to this summary, briefly outlined below:

I *Farmer Field School in Rural Kenya: A Transformative Learning Experience.* This paper looks at the impact of FFS on the daily lives of participants and their families through the lens of transformative learning theory.

II *Less noise in the household: the impact of Farmer Field Schools on Gender Relations.* In this paper gender roles, relations and customs as how they play out in the FFS setting are analysed and changes observed following FFS participation.

III *The empowerment route to well-being: an analysis of Farmer Field Schools in East Africa.* This paper explores the links between FFS participation, empowerment and enhanced well-being and evaluates the role that empowerment can play in development practice.

IV *Fostering transformative learning in non-formal settings: Farmer Field Schools in East Africa.* In this paper the FFS process and learning experience as a form of non-formal education is explored from an educational point of view and in the light of transformative learning theory.

3 Research overview

3.1 Problem orientation

Following the worldwide collapse of past major extension systems, the decline in donor and public funding for extension and the growing recognition that past efforts in agriculture development have yielded little impact (Anderson et al. 2006), agricultural extension has in the last decade experiences a crisis. Past approaches have proved costly and ineffective, yet no obvious solutions have been put forward as alternatives, which means that while there is recognition for the need for farmer education governments and donors have been hesitant to invest in extension activities without indications of impact. The new paradigm in extension thinking *demand-driven extension* is globally considered the solution (Haug 1998; Leeuwis 2004; Neuchatel Group 2006). However, how to make the paradigm shift in practice is a complex and challenging endeavour. The theory tells us that demand-driven, participatory and farmer-led extension is the way to go but in practice extension actors face great challenges in trying to implement participatory and or farmer-led extension services in the field and there are still limited practical solutions to make demand-driven extension work in reality (Neuchatel Initiative 2004; Macadam 2000). In particular there is little knowledge available about opportunities for alternative extension systems in the South and among subsistence farmers in particular. The issue is made even more complex by the growing recognition of the need for holistic rural services that address a broader livelihood perspective spanning far outside of the farming domain. Smallholder farming is undergoing a transition and advisory services therefore need to change accordingly. Farming is being done in more fragile areas in complex and unpredictable situations (Chambers 1997) where no standard technological solutions exist. Traditional forms of extension support to rural farmers, mainly addressing crop and livestock production through technological packages, do thereby not

respond adequately to farmers' needs. Solutions need to emerge locally and by farmers and what is needed is analytical and problem-solving skills that enable farmers themselves to the main agents in solving problems faced (Friis-Hansen 2004). The need for cash has triggered a diversification of income sources among rural communities and the poor increasingly draw on multiple strategies to secure a livelihood that go far beyond simply production (IFAD 2001; Farrington et al. 2002; Christoplos 2003). These transitions require new skills and capacities among farmers and calls for an innovative farming system that is able to adjust to changing situations.

Further, in order to penetrate markets for produce, collective action is required among farmers. Farmer organisations are a key vehicle to strengthen farmers in their interaction with market forces (DANIDA 2004) and allows small farmers to pool their resources as well as benefit through greater economies of scale, bargaining power and a stronger voice (Farrington et al. 2002). This suggests that for extension to be effective in rising incomes and well-being among small holders social capital and collective action needs to be harnessed and research and extension must thereby become more farmer-centred and market-driven (Swanson and Samy 2005) and contribute more directly to building local institutions for collective action. Despite believes that producers' organisations and cohesive farmer groups will contribute to poverty alleviation, little has been done to draw poorer farmers into cooperative arrangements. This shift from focus on individual level to collective level in agricultural development requires a rethink of what extension is all about, and what the emphasis should be when it comes to providing small-holder farmers with support and assistance. There is also still a great need for mechanisms that can ensure the genuine participation of citizens (Dill 2009) and improve understanding of how participation can encourage more equal gender relations.

In the context of poverty alleviation it is becoming clear that the processes involved in alleviating poverty are complex (Kristjanson et al. 2002) and when the poor themselves define the meaning of poverty, income is only one of a range of aspects which they highlight. Recently, poverty has been defined in terms of absence of basic capabilities to meet these physical needs, but also to achieve goals of participating in the life of the community and influencing decision-making (Farrington et al. 1999). This means that a crucial aspect of poverty alleviation is access to information and human empowerment (Sen 1997). However, to aim to facilitate empowerment and social capital through extension interventions is new and there is very little information about how this can be done effectively in practice. Further, as the system of extension changes, increased attention is given to the question of what kind of services are in demand by farmers. Leeuwis (2004) argues that farmers demands go far

outside of the domain of technological innovations and include marketing, communication, networking etc. Furthermore, established tools and methods for measuring empowerment impact of community education efforts are still largely lacking.

Many countries in Africa, and particularly the East African countries have a strong commitment for empowerment and demand-driven agricultural services. Following recent changes in policies to allow more farmer-centred extension interventions innovative programmes such as NAADS have emerged. Decentralisation of extension services to district level is underway in Kenya, Tanzania and Uganda.

The Farmer Field School (FFS) approach is widely applied in a range of contexts and often suggested to bridge the gap between the technological and social needs of farmers. Though most documented evidence of the approach relate to technological impact there is growing recognition that FFS impact span far outside of the technical domain including outcomes of human development (Braun et al. 2005; Davies 2006).

These observations including the need for new models for farmer learning and empowerment of rural poor, the popularity of the FFS approach but lack of evidence of its broader impact on the lives of participants as well as the gaps between theory and practice in relation to non-formal education in African contexts provided inspiration for this study.

3.2 The research aim and questions

Based on the problems articulated above the broader aims of this study was to develop a better understanding of how education in the rural African farming setting can contribute to development and well-being in a way that is empowering for the poor. An overall assumption of the study was that joint learning processes such as in FFS lead to knowledge and skills among participants that when translated into mind change and action, depending on favourable contextual factors, result in enhanced well-being. Enhanced well-being in this context is implied as a broader and more holistic definition of poverty than the common definition of well-being (Ravnborg et al. 1999, 2001). Since this research was framed with the researchers work space it also had an action learning purpose aiming to provide advice and support for practitioners and policy makers in the sector. Based on the above considerations the objective of this study was to establish what role non-formal education can play in the development and poverty reduction agenda.

By using FFS experiences in East Africa as the empirical frame and reflect on actual experiences of participants in the field, the primary research question was: ***1) How does the FFS learning experience play out in the daily lives of participants and their families?*** By exploring this question it was envisaged to develop an understanding of to what extent the learning experience was instrumental and empowering in nature for participants. The second research question followed onto this: ***2) What role does FFS play in assisting participants to take control over their own development and enhanced well-being?*** The third research question stem out of the strive to find a mean for interpretation and analysis of the content of question one and two, and is thus theoretical in nature: ***3) To what extent can the learning process in FFS and its effect on participants be explained though transformative learning theory?*** Literature review revealed that adult education in general but more specifically transformative learning theory may offer possible explanations for changes experienced by individuals involved in deeper learning events. On the other hand since most research has been conducted in western settings and on individual learners this study provided an opportunity to contribute to theory development by exploring transformative learning in a non-western group based learning setting.

The research aim and questions (see table 1) above are addressed to varying degrees in the four papers that make up this thesis. All papers contribute to the aim and each of them addresses in some aspects the study research question.

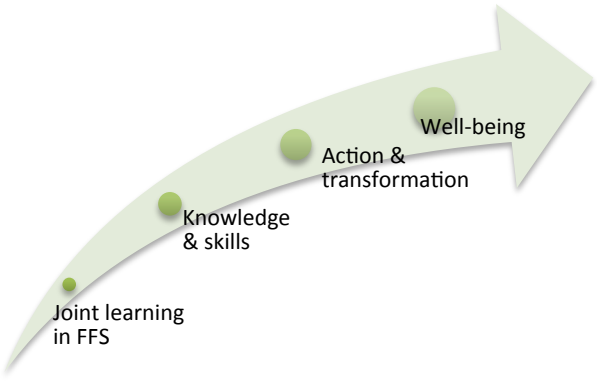

Figure 1. The assumption of the study was that joint learning processes lead to knowledge and skills that when translated into mind change and action result into enhanced well-being.

Table 1. *Research purpose and questions of the various thesis papers.*

Research Purpose	*Research Questions*
I - Farmer Field Schools in Rural Kenya: A Transformative Learning Experience	
• To explore how FFS impact on the daily life of participants, their families and the wider community. • Explore transformative learning theory as possible explanation for changes observed in participants lives.	• Does FFS contribute to a transformative experience among participants? • What are the ways in which FFS participants experience transformative learning?
II - Less noise in the household: the impact of Farmer Field Schools on Gender Relations	
• To explore the impact of FFS on the everyday life of participants, in terms of gender roles and relations. • To examine the relationship between collective group processes and gender relations.	• What happens when men and women from a patriarchal society spend time collaborating in non-hierarchical mixed groups? • What is the nature of the relationship that develops among non-spousal partners and how does this impact on spousal relationships? • What is it about the collective experience that that fosters or inhibits the development of relations with non-spousal partners?
III -The empowerment route to well-being: an analysis of Farmer Field Schools in East Africa	
• To explore if effectiveness of support for agricultural development can be enhanced by being combined with support for empowerment and institutional development i.e. the validity of an "empowerment route to well-being".	• Is there an interlink between joint learning in FFS, empowerment and increased well-being among participants? • Does joint learning in FFS lead to empowerment of participants? • Does empowerment contribute to enhanced wellbeing? • Does FFS enhance well-being among participants?
IV - Fostering transformative learning in non-formal settings: Farmer Field Schools in East Africa.	
• To explore and better understand the practice of FFS and its relationship to fostering of transformative learning within a non-formal setting.	• How does the practice of transformative learning manifest itself in a non-western setting? • What role does instrumental and communicative learning in FFS have in fostering transformative learning?

The ways in which the papers deal with various domains of the assumed cause chain explained earlier and levels in terms of individual and group /collective level is indicated in table 1. Paper I focus on the learning process in FFS while papers II and III look at the skills, knowledge and resulting expressions of

action and transformation in participants' lives. Paper IV focuses primarily on the aspect of empowerment and enhanced well-being of participants. While the papers provide some answers to the research questions described above there are new questions and theoretical angles emerging through the findings of the study, described further in the discussion section of this document.

Figure 2. A typical small-holder farming situation in East Africa. (Photo by D. Duveskog)

4 Background

4.1 The changing nature and needs of small-holder farming

The farming context for rural small holders is changing rapidly. Land availability for agricultural production is becoming scarce in many areas and the scope for expanding irrigation is constrained. This means that farming is increasingly being done on marginal, fragile and more risk prone areas (Chambers 1997; Percy 2005). Climate variability and changing rainfall patterns put additional limitations to farming in these areas. Changing environments, mean that many farmers can no longer rely on their local knowledge the way they have in the past (Percy 2005), and through the HIV/AIDS pandemic there are large number of orphaned youths that grows up without learning basics agriculture skills from their parents, the way they naturally would. The collapse of markets of major commodities, the move towards food sales being done increasingly through supermarkets and urbanisation brings new niche market opportunities for farmers as well as increased risks (Leeuwis 2004).

Cash is becoming increasingly important due to the need to pay for health care, schooling of children etc. and this has triggered a diversification of income sources among rural farming communities (Ellis 2000). The growing importance of non-farm income for African rural households has been described as de-'agrarianization' by Bryceson (1996) bringing about significant changes in the often traditionally agricultural based livelihoods of African communities.

The changing situation requires farmers that are innovative and able to adjust to changing situations and new skills and capacities are needed by farmers. Traditional forms of support to rural farmers, mainly addressing crop and livestock production, do not respond adequately to farmers' needs. It is increasingly evident that agricultural research alone cannot generate site-specific technologies for the wide diversity of conditions of resource-poor

farmers - who live in socio-economically diverse and complex situations and require adapted options for land and farm management.

This together with the increasing recognition for farming as a social as well as technical practice seems to be underlying factors for the emerging focus on innovation, experimentation and deeper learning among farmers. The past has taught us that no generally applicable agricultural development models exist, and what is needed are agricultural systems that are flexible and adapted to their environment (Leeuwis 2004). The nature of the knowledge farmers require are complex, diverse and local, and solutions needs to be developed or adapted 'on the spot' in close co-operation between farmers, researchers and extensionists (Leeuwis 2004).

Past extension support have often focused on farm management and innovation at individual farm level. However the nature of the challenges faced by small-holder farmers today, is above the level of individual farms and necessitates a high level of co-ordinated action and co-operation among farmers (Leeuwis 2004) if they are to access more lucrative markets for their products. History has proved that the success of farm innovation mainly depend on factors that transcend the farm level, and successful application of new innovations and technologies have collective dimensions, i.e. they require new forms of interactions and agreement between multiple actors (Leeuwis 2004). The roles farmers play in such multiple stakeholder negotiations are often determined by the social networks among actors and social capital thereby becomes a prerequisite for collective action (Ostrom 1995). However, poor farmers are rarely members of local organisations or groups, and the ones that exist often suffer from poor leadership and management capacity.

4.2 Community empowerment in the poverty debate

The perception of what poverty is, is gradually emerging from the definition of people living on less than 1$ per day to a much wider and more holistic concept of peoples general *well-being* (Coudouel et al. 2002; Kristjanson et al. 2002). Lately poverty has been defined in terms of absence of basic capabilities to meet these physical needs, but also to achieve goals of participating in the life of the community and influencing decision-taking (Farrington et al. 1999: Chambers 1987). The Voices of the Poor study (Narayan 2000; Chambers et al. 2000) conducted in 60 countries showed that voicelessness and powerlessness are pervasive among the poor, affecting every aspect of their lives. Trapped in poverty and barred from opportunity, poor people live with little expectations that future will bring about any change in their lives. Sen (1997) highlights information as a crucial aspect of poverty, since it is only when poor people

know what monies and services are available, that they can hold programme functionaries (public or private) to account.

Community empowerment has been an important element in political and educational practice for long but has only become a significant part of the agenda of agricultural development in the past two decades (Barlett 2005). The concept was first recognised by the World Bank in its World Development Report 2000/2001 (World Bank 2001) as one of the three pillars of poverty reduction. As an advanced form of participation, it entails farmers making their own decisions rather than adopting recommendations. Despite the lack of robust data (Alsop and Heinsohn 2005), empowerment is increasingly seen among donors and development actors as a major contributor to development outcomes (DANIDA 2004; World Bank 2001). The World Banks empowerment sourcebook states that a growing body of evidence points to the linkages between empowerment and development effectiveness both at the society-wide level and at the grassroots level (Narayan 2002). In particular empowerment is thought to (i) have a positive impact on good governance and growth; (ii) influence growth to be inclusive of the poor; and (iii) improve the outcomes of development projects (World Bank 2001) and in pro-poor market development (Narayan 2005). Rather than being the expression of any kind of liberation movement, such as the case of women's empowerment or empowerment of indigenous people, farmers taking greater control over their lives is seen in a more non-threatening way for other sections of society (Barlett 2005).

Farmer empowerment is seen to be important for developing demand-driven advisory services with farmers articulating their demands on the basis of improved knowledge and analysis of their situations. Linked to farmer group organisations this can secure better service provision and the more efficient use of public resources. A range of disciplines shares the term empowerment and it is understood varies. It is often difficult to define in action as it takes different forms for different people and in different contexts (Page and Czuba 1999). By definition empowerment is a social process, since it occurs in relationships with others. The definition of empowerment applied for the purpose of this study is:

> Empowerment is the process of increasing the capacity of individuals *or groups* to make choices and to transform those choices into desired actions and outcomes. (DANIDA 2004, p 3).

4.3 The evolution of agricultural extension

The understanding of the term and practice of agriculture extension has largely changed over the decades; this section provides a historic view of extension from the 1960s to current time.

4.3.1 The Training and Visit era

The prevailing extension system applied since the 1960s was based on the *diffusion of innovation* concept developed by Rogers (1962). This concept assumes that transfer of technology and knowledge from scientists to farmers trigger development. Once innovative farmers 'early adopters' has adopted the new technology, others 'late adopters, followers, laggards' will copy them. The model is widely referred to as the linear model as it assumes a linear relationship between researchers, extension providers and farmers (Sulaiman and Hall 2002). The role of the extension agent is mainly to assist farmers putting ready-made technologies developed by research into practice, and the idea is that given certain conditions there is basically *one* way of managing a farm. The economic rationale for the technology diffusion concept was new high-yielding, fertiliser-responsive crop varieties available for dissemination, and high market prices caused by food shortages (Lipton and Longhurst 1989).

In the 1980s most countries in the developing world embraced the World Bank funded T&V system, which built on the *diffusion of innovation* concept but aimed to strengthen it by facilitating stronger linkages between research and extension, professionalism of extension staff and improved management structure of extension. The system is based on trained extension staff and subject matter specialists, who regularly, often fortnightly, visit predetermined contact farmers, according to a detailed schedule and workplan (Schwartz and Kampen 1992). The contact farmers are assumed to adopt the extension messages and spread them to other farmers in the community. Up to fifty countries adopted this system, and T&V has dominated agricultural extension in South Asia and Africa for more than two decades, much because of the strong support offered by the World Bank. More than a third of the World Bank extension projects since 1974 utilised the system, or a modified form of it (The World Bank 1990).

The term extension, as it has been used over the last decades, has no definite definition, but Van den Ban and Hawkins (1996) arrives at a synthesis that seem to harmonise the various perspectives into five goals: transferring knowledge from researchers to farmers; advising farmers in their decision making; educating farmers to be able to make similar decisions in the future; enabling farmers to clarify their own goals and possibilities and to realise them; and stimulating desirable agricultural development. The concept of

technology transfer or *diffusion of innovations* has in recent years been increasingly challenged and discredited by a number of authors (Lipton and Longhurst 1989; Röling 1994; Foster and Rosenzweig 1995; Biggs 1998), following the growing recognition for farmer innovation, the need for local contextual solutions and the increased focus on local and household food security in marginal areas. The underlying assumption that other farmers will follow the adopter of technologies is often invalid. In many cases the 'some farmers are jealous of the more advantaged farmers who are then victimised rather than copied (Hagmann et al. 1999). Further, extension agents often seemed to prefer to interact with large scale and richer farmers (Moore 1984) and this meant that the contact farmers tended to not be representative of the main body of resource-poor farmers, thus hampering the diffusion among farmers (Haug 1998). In addition, with the collapse of markets for many of the major commodities, together with structural adjustment reforms aimed at reducing public sector expenditure, funding for extension has reduced drastically in most countries in the south (Umali and Schwartz 1994; Haug 1998; Chapman and Tripp 2003; Christoplos and Farrington 2004).

Even though some positive impact of the T&V system has been reported, in terms of farm productivity and profits (Umali-Deininger 1997) and adoption rates and increased yields (Birkhaeuser et al. 1991; Salmen 1999) the system is nowadays largely considered a failure (Anderson et al. 2006). A World Bank study (Purcell and Anderson 1997), based on independent evaluations of thirty-three agricultural extension projects, highlighted some serious deficiencies such as inadequate adaptation to local conditions and inadequate extension messages. A review of evaluation studies of the T&V system revealed its impressive gains, in terms of productivity, in irrigated areas but also its failure to make impact in a majority of rainfed areas (Farrington et al. 1998).

The approach has proved too top down with most important decisions being made at HQ level and with little flexibility to modify the content of the extension message according to local agro-climatic and socioeconomic diversity (Mitti et al. 1997; Sulaiman and Hall 2002). This meant that often the technical packages promoted were inappropriate at local level (Osborn 1995; Haug 1998; Hagmann et al. 1999; Salmen 1999). Further, the approach proved expensive in regards to recurrent costs (Moore 1984; Haug 1998; Anderson, Feder et al. 2006) and of particular concern was the fact that a bulk of the funding seemed to be used for travel and lodging of extension staff during the numerous training events and workshops (Mitti et al. 1997). The strict schedule of visit by extension staff to predetermined contact farmers and strict supervision by superiors tended to promote quantity rather than quality in extension activities, causing a lack of accountability among staff towards

farmers (Anderson et al. 2006). A study in nine countries by Salmen (1999) showed that the approach has mainly benefited better-off farmers and male farmers, and been poor at involving women (Mittim et al. 1997). A study in two countries based on farmers assessment of the T&V system revealed major short comings in the sense of lack of renewal of extension themes, low coverage and diffusion, lack of means among farmers to apply extension message, such as inputs (Salmen 1999). Actual impact has proved very hard to evaluate and document due to the lack of baseline information, unavailability of control groups and since managers usually mainly focused on reporting on input indicators but not impact as such (Birkhaeuser et al. 1991). In 2000 Gautam (2000) carried out a comprehensive analysis of T&V in Kenya and found the impact to be insignificant. Similarly a study in Pakistan (Hussain et al. 1994) and data from India (Moore 1984) showed no impact.

4.3.2 A "new" extension paradigm

Following the failure of past extension systems and the recognition that sustainability of the process of agricultural improvements is not necessarily to be found in the technologies introduced, but in the social process of active farmer managed innovation and dissemination of ideas there has in the last decades been a growing recognition for the role of knowledge and learning within agricultural extension. In many situations the disseminations of standard packages of inputs and practices are no longer relevant, if indeed it ever was and blueprints and blanket recommendations are inappropriate (Hagmann et al. 1999). Sustainable agriculture often requires different types of agricultural knowledge than the one generated by research organisations, and require farmers to mange and coordinate ecological processes (Leeuwis 2004). In addition the type of knowledge used by a farmer to manage his/her farm is contextual and cannot be separated from the person who practices it (Friis-Hansen 2004), and therefore it is not possible a priori to define what constitutes relevant technology for farmers. Appropriate technological solutions will vary depending on local circumstances and therefore awareness of the local situation is essential and require knowledge that is complex, diverse and local (Leeuwis 2004). Experiences with applying the sustainable livelihood analysis framework show that the complicated nature of resource access reinforce the perception that design of interventions need to be part of a process of learning, reflection, and course action (Farrington et al. 1999).

Knowledge generation therefore need be seen as a process and emergent questions are how poor, weak and vulnerable groups can be strengthened to experiment, enhance, share and spread their own knowledge and how they better can articulate their needs (Leeuwis 2004). From having considered

extension as mainly an act of transferring technologies to farmers there is now a focus on participation of farmers in the innovation process and facilitation of experimentation among communities. The building of farmers' management and problem solving capacity requires joint learning through practical field work (Hagmann et al. 1999). This requires a shift from previous perceptions where farmers were seen mainly as 'adopters' or 'rejecters' of technologies but not as providers of knowledge and improved practices (Chambers 1993). Many studies have shown the ability among farmers to innovate and develop their own solutions to problems, thereby being part of the innovation system rather than just recipients (Scarborough et al. 1997; Biggs 1998; Hagmann et al. 1999). The development of solutions under such circumstances requires a new and more farmer-oriented approach to problem solving and decision-taking procedures, where farmers are involved in the entire process of searching and applying new solutions, which may comprise both social and technical elements (Friis-Hansen 2004; Ortiz et al. 2005).

Scoones and Thompson (1994) refer to a broader paradigm shift underway in the direction of greater empowerment of local people, local level 'bottom-up' planning and low-external input agriculture. Based on the new focus on dialogue and rural innovation in extension activities Leeuwis (2000) uses *"Communication for rural innovation"* as the new term for what was previously labelled agricultural extension. Macadam (2000) calls the new paradigm 'learning paradigm' following the emerging appreciation of the need to enhance extension clients capacity to make informed and critical decisions, with emphasis on empowerment. The new paradigm challenge the conventional view of regarding agriculture as a technical income generating activity, and rather consider farmers, researchers and extensionists as social actors within the social practice of agricultural production (Sulaiman and Hall 2002).

While this new paradigm in extension has emerged fairly recently in the global extension debate, these thoughts are not entirely new. Paolo Freire, a Brazilian Marxist activist and educator already in early 1970s started voicing concerns over the practice of agriculture extension. He argued (1973), that the whole concept of extension through transfer of techniques is in direct contradiction to a truly humanistic worldview since it tends to transform people into things and negate their existence as beings who transform the world, and does not correspond to an educational undertaking through true action and reflection that is liberating;

> I am unable to see how persuasion (transfer of extension messages for farmers), can be squared with education: for true education incarnates the permanent search of people together with others for their becoming more fully human in the word in which they exist (p. 90).

In his book "Education for Critical consciousness" Freire (1973) expressed his concerns about extension practice and give directions for a new way of viewing the role of agronomists:

> Rather than a passive acceptance of propaganda, liberation implies the problematisation of their situation in its concrete objective reality so that being critically aware of it; they can also act critically on it. This then, is the real work of the agronomist in their role of educators. Agronomists are specialists who work with others on the situation influencing them. However, from a truly humanistic point of view, it is not for them to extend, entrust, or dictate their technical capacities, nor is it for them to persuade by using peasants as "blank pages" for their propaganda. In their role as educators, they must refuse to "domesticate" people. Their task is communication, not extension (p. 90).

It is interesting to note that while Freire's thought evolved from a very different context and perspective, his views have many commonalities with the current development debate about extension. For this study that examined the links between extension and empowerment, Freire's thoughts have been particularly valuable.

4.3.3 Demand-driven extension

Apart from the shift in view of learning there has been a shift in perception of roles among extension stakeholders. Haug (1998) refers to the new stage in extension (1995-onwards) as the 'institutional stage' where farmers are full collaborators in research and extension and in which alliances will be developed between different institutions. Leeuwis (2004) similarly refers to 'platforms' for learning among actors. In the context of FFS Isubikalu (2007) refer to the Uganda context and argues that FFS is more than a tool for farmer participation but that implementation of FFS requires adjustments of the agricultural innovation system at all levels in order to meet its objectives.

With recognition that farmers knowledge is contextual, and that farmers can be a source of innovations, farmer experimentation has come to play a central role in participatory extension and learning (Hagmann 1999; Sulaiman and Hall 2002; Percy 2005). Several elements of experiential learning are of

particular relevance to development and extension including the role of higher order experiences, reflection, and dialogue. Those facilitating development process thereby work with farmers to help them step back and analyze their situations and then together identify ways forward through experiential learning (Percy 2005).

The new paradigm in extension is often however referred to under the umbrella term *'demand-driven' extension.* 'Demand' is defined by the Neuchatel Group (2006) as what people ask for, need and value so much that they are willing to invest their resources, such as time and money in order to receive the services. The term offers an alternative to the definition of technology transfer and might be defined as "an agricultural advisory service based upon the idea of two-way communication promoting knowledge facilitation, knowledge generation, or knowledge sharing in a community development context and with focus on human resource development" (Haug 1998). It generally involves changing the distribution of power and responsibilities among three set of actors: clients, service providers and government (Rivera and Alex 2004). The Neuchatel Group (2006) describes its main principles as; services shall be driven by user demands, service providers shall he accountable to the users and users shall have a free choice of service providers.

Demand-driven extension is often connected with ideas of privatisation and a move away from free public services. On the other hand, it defends the continuation of some forms of 'subsidised' extension, but under much different criteria than the previous production-focused strategies. It urges public extension to concentrate on more marginal areas, to take account of the diversity of rural livelihoods, to be innovative in its organisation, and to develop the capacity for strengthening the demand side of extension (Farrington et al. 2002). Before demand-driven extension systems can take root, farmers must first develop their capacity to articulate their collective demands and exert pressure on the system to deliver what they want (Rivera and Alex 2004). Specific features normally considered in demand-driven extension systems are:

- *Client orientation:* Extension messages need to be tailored to the demands of the clientele and specific biophysical and socio-cultural conditions.
- *Broadened scope:* Following the recognition that a farmer should be considered a person with a number of educational needs the scope of extension is in a process of changing from a focus on technology transfer of agricultural techniques to cover a much wider scope of issues related to rural livelihoods in a broad sense (Qamar 2006).

- *Participatory extension methods:* There is a search for improved methodologies that respond better to farmers' demands and a shift towards more broad based, participatory and group focused approaches (DANIDA 2004; Davies 2006; Neuchatel Group 2006; Qamar 2006). Further, farmer experimentation has a central role in participatory extension (Hagmann, Chuma et al. 1999; Leeuwis 2004). Working with farmer groups have been found far more effective than working with individual farmers (IFAD 1996; Umali-Deininger 1997; Heemskerk, Lema et al. 2003; DANIDA 2004; Heemskerk and Bertus 2004; Leeuwis 2004), hence most extension methods of today are group based.
- *Change of attitude:* One of the biggest challenge for implementation of demand-driven services is change of attitude: behavioural and attitudinal change on the part of all actors involved involving a shift from a top-down supply-driven context to a bottom-up articulation of needs and demands involving lateral sharing (Chambers 1993; Christoplos 2003; Scoones and Thompson 1994; Sen 1997; Leeuwis 2004) as found in the case of Tanzania and Ethiopia and in Zimbabwe (Hagmann et al. 1999; Kibwana et al. 2001).

4.4 Agriculture extension in East Africa, from past to present

The history of agricultural extension in East Africa goes back to colonial times and pre-independence. In the beginning of the 20th century when the British colonised the area, plantation agriculture became common with peasants working as labour on large farms. In Uganda peasants occupying privatised land were transformed into tenants with tremendous extraction of commodity and land rents from tenants, which later on resulted in large peasant protest movements (Bazaara, 2000). Production by peasants was often based on force, and trade in agricultural products based on monopoly. This structure of colonial economy disadvantaged peasants and was characterised by a very top-down instruction based approach to teaching with disregard for local farming knowledge and innovation.

An appreciation of the colonial heritage of the study is not only relevant in order to understand the farming context, but also the context of education. Traditional African principles of knowledge emphasise collective humanism (Ntseane 2012) with a goal of living happily with other people of the tribe, clan or community, and informality (Ntseane 2007). Training methods were based on oral mode of instruction such as stories and metaphors. Colonialism on the other hand partly provided an imposition of the colonizers way of knowing, formalisation and control of knowledge produced with a suppression of cultural practices, spirituality, thinking patterns, beliefs and values (Chilisa

2011). Ntseane (2012) argues that the "major shortcoming of adult education in Africa has been that it elevated rationality over other forms of knowledge, human thought, and discourses that are probably critical for reflection and transformative learning" (p.279). This cultural heritage and potential conflict among individuals related to how knowledge and education is perceived should not be ignored when analysing FFS participants learning experience in this study.

In the post-independence period in East Africa, the state dominated agriculture and provided general extension services and credit, controlled the provision of inputs and bought marketed outputs (Schwartz and Kampen 1992). The basic needs, growth with equity approach of the 1970s increased the emphasis on food production to decrease dependency on imports (Schwartz and Kampen 1992). The extension system of colonial times was followed by the T&V system in the 1980-90s.

Currently the trend among governments in East Africa is to promote demand-driven and decentralized services for resource poor farmers. This is to an increasing extent taking place in the policy context of 'Poverty Reduction Support Programmes' (PRSP's) and liberalization of government services in general. Below follows a brief description of the extension context in each of the target countries for this research from historical to current perspective.

Kenya

In the early 1920s Kenya adopted a policy that supported farmers to grow surplus for export and extension officers were appointed. However, the extension context remained largely dominated by white settlers until in the 1940s when measures were put in place to intensify African agriculture and when a number of Farmer Training Centres were established throughout the country (SSANAAS 2004). As the first country in Africa Kenya introduced the T&V approach on pilot basis in 1982, and by 1985 the program had expanded to cover thirty district (Bindlish and Evenson 1997). Following the introduction of T&V Kenya's extension expenditures increased with 19 percent and the proportion of farmers who reported receiving extension advice increased from 6 to 48 percent (Bindlish and Evenson 1997). Structural adjustment, the movement towards liberalization, as well as rising concerns of the efficiency of government-led extension in the nineties resulted in the increasing decentralization and privatisation of extension provision in Kenya (Mugunieri and Omiti 2005) and an end of the large T&V program in 1998. The history of poor performance of extension in Kenya (Gautam 2000) has given extension a poor reputation. In the Kenyan Strategy to Revitalize Agriculture (SRA) it is stated that:

> The current extension system is ineffective and is considered as one of the main causes of the poor performance of the agricultural sector (Government of Kenya 2004, p. 9).

Today there are many players in extension in Kenya, government, NGOs, bilateral organisations, farmer groups etc. The National Agricultural Extension Policy (NAEP) of 2001 was revised in 2006 in order to adapt to institutional and functional changes in the SRA (Government of Kenya 2004) and to make the policy more inclusive of all players in extension. Major components in the policy include focus on market oriented agricultural services, move towards privatisation of extension, decentralisation of services, quality control and regulation.

In 2000 the National Agricultural and Livestock Extension Programme (NALEP) commenced with support from SIDA. The NALEP framework supports multiple extension methodologies with the core of its field activities being undertaken through the *shifting focal area approach* where resources and extension assistance are concentrated in specific areas for certain period of time, following a comprehensive participatory rural appraisal and where *common interest groups* are supported. NALEP has until the end of its 2nd phase in 2011 been the largest extension related programme in the country both in terms of coverage and level of funding. FAO introduced the FFS in Kenya in 1996 on pilot basis, and the approach has since expanded and been taken up by a range of extension actors. By the start of this research in 2005 about 2500 FFS groups had been implemented in the country, and institutionalisation started by the uptake of FFS in national programmes such as the national MDG programme.

Uganda

During the early colonial period research stations were created to generate information on the cash crops that formed the backbone for the Ugandan economy. Up to the 1950s focus was on distribution of planting materials for cash crops and simple advisory, while later support to 'progressive' farmers emerged and facilitation of visits by other farmers to these. From the mid 70s activities stagnated due to armed conflict and political turmoil in the country. Only after recovery of basic services the agricultural support reappeared. Until 1991 when a new policy supported by the World Bank was put in place agricultural services were fragmented with parallel extension services in different ministries. The new policy harmonised extension nationally and provided services under the T&V model. However, in the end of the 1990s it

became clear that the system applied was inefficient, top-down and unsustainable and in line with the national economic policies the government started working towards a public sector reform which entailed liberalisation, decentralisation, and privatisation (SSANAAS 2004).

Thereby, in the context of the Plan for Modernising Agriculture released in 2000, agricultural extension has to a large extent been decentralized to district level through the National Agricultural Advisory Service (NAADS). NAADS was initially seen as a progressive demand-driven extension system aiming to increase agricultural productivity and commercialisation. Through NAADS service provision was privatised and decentralised. Despite that the early NAADS facing a number of challenges and constraints such as; tedious and costly process, lack of flexibility in the selection of 'commercial' enterprises by farmers, lack in poverty focus etc. (Friis-Hansen 2005), NAADS was one of the first attempts in Africa to implement demand driven extension system on national scale.

Tanzania

Agriculture in Tanzania took a slightly different pathway than other countries in the region, postcolonial. When Nyerere became the first president he adopted a policy of socialism. This entailed creation of huge farms where people were encouraged or forced to move into large villages in which food and goods would be produced collectively for the community. This led to a drastically slumped agricultural production in the country (Collier 1991). Through the history of extension in Tanzania the government has applied a range of approaches such as targeting settlement scheme, establishment of farmer training centres, setting up of demonstration plots, farming system research and extension, T&V etc. In the 60s the focus was mainly on commercial farming among settlers and progressive farmers. The T&V system was introduced in Tanzania in 1987 by the World Bank and continued until the support was phased out in 2002. Since the 1990s efforts were made to make the T&V system more demand driven, and less top-down, such as the launching of the National Agricultural and Livestock Extension Rehabilitation Project (NALERP) in 1989, however with little success. NALERP was in 1996 followed by the National Agricultural Extension Project II (NAEP). During the recent years Tanzania has undergone a Reform of Agricultural Extension Services and the Agricultural Sector Development Programme (ASDP) was formulated with the aim of developing a national policy for agricultural research, extension and training. This has led to a local government reform strategy whereby full responsibility of extension activities has been transferred to the local government at district level, including re-locations of a large

proportion of extension staffs from the head quarters to district level (Mlozi and Mvena 2000; Friis-Hansen 2004; Havnevik 2005).

The Agricultural Services Support Programme (ASSP) was launched in 2005 as a mean to implement parts of the ADDP policy and to reform and strengthen agricultural services. Most of the actual field implementation under ASSP has taken place through the Farmer Empowerment Programme Component which supports group formation processes and farmer education, building largely on the FFS approach (United Republic of Tanzania 2004). Through the ASSP programme Tanzania thereby is the first country in Africa to institutionalise the FFS approach fully within public advisory services.

5 Farmer field schools

The following section outlines briefly the history and evolution of the FFS and explains in more detail some of the key principles and features of the approach.

5.1 Background

FFS as an extension approach grew out of the T&V process at the end of 1980s in Indonesia, as a response to s rice insect outbreak affecting the country and for which conventional extension was not able to address effectively and for which Integrated Pest Management (IPM), i.e. use of minimal pesticides in a holistic way, seemed to be the solution (CIP-UPWARD 2003). When extension workers started to deliver information about IPM, using methods similar to those they had used in the past to transfer information about pesticides, they realized that the information about IPM was more complex and difficult to transfer using conventional methods (Ortiz et al. 2005). The T&V methods of delivering messages were often inappropriate and too simple to deal with complex problem and it proved necessary to instead ensure *local* decision making by farmers in their own fields. The hands-on practical learning in FFS, building on adult education principles and experiential learning emerged as a mean of facilitating critical decision making skills among farmers to deal with complex farming problems (Gallagher 2003).

FFS is a *school without wall* that provides a forum where farmers meet regularly to make field observations, relate their observations to the ecosystem and apply their previous experience and any new information for informed crop or livestock management decisions. FFS operates through groups of people with a common interest, who get together on a regular basis to study the *"how and wh*y" of a particular topic.

The topics covered can vary considerably; from IPM, organic agriculture, animal husbandry, and soil husbandry to business skills etc. (Braun et al.

2005). Apart from technical issues group dynamic exercises and session addressing "special topics" relating to non-agricultural issues are integrated in the learning approach. Song and dance is often used to internalize learning in a way that it can be expressed to others. A skilled facilitator guides the FFS learning activities.

The FFS approach was introduced in East Africa, with support from FAO in 1996 following the successes in Asia during the 1990s (Sones and Duveskog 2003). There are currently a multitude of FFS initiatives in Kenya, Tanzania and Uganda and elsewhere in the region, funded by various development agencies, and at varying degrees of scale and level of institutionalisation.

5.2 The learning processes in FFS

The learning process in FFS is undertaken based on some key principles related to attitude, type of farmers-trainer relationship, and source of information for learning.

Pretty (2005) outlines the five key underlying principles of FFS as:

- What is relevant and meaningful is decided by the learner and must be discovered by the learner. Learning flourishes in a situation in which teaching is seen as a facilitating process that assists people to explore and discover the personal meaning of events from them.
- Learning is a consequence of experience. People become responsible when they have assumed responsibility and experienced success.
- Cooperative approaches are enabling. As people invest in collaborative group approaches, they develop a better sense of their own worth.
- Learning is an evolutionary process and is characterised by free and open communication, confrontation, acceptance, respect and the right to make mistakes.
- Each person's experience of reality is unique. As they become more aware of how they learn and solve problems, they can refine and modify their own styles of learning and action.

There are a number of key learning tools and exercises that are carried out in the FFS as a means of enhancing learning, and as an aid for the facilitators to ensure participation, dialogues etc. in the groups. These are described in more detail below.

The way that key features of the FFS approach are described and classified varies across sources though the main features remains the same. The features listed below are mainly based on the researchers observation of practice over time as well as the elaborated *Non-negotiable principles* by the global FFS

conference held in 2003 in Indonesia (CIP-UPWARD 2003) where FFS actors across the globe came together to reflect on FFS experiences. It is also based on the National FFS stakeholder meeting in Kenya held in 2005 (FAO 2005) where about twenty different actors (government, NGOs, UN etc.) elaborated core indicators of quality FFS.

General learning principles

Learning by doing: FFS recognizes that farmers do not change their behaviours and practices just because someone tells them what to do or how to change. They learn better through experience than from passive listening at lectures or demonstrations. Therefore all learning in FFS is by doing, and testing out new ideas and practices in the field.

The field is the learning ground: The field, herd or the landscape is the main learning ground, around which all FFS activities are organised. Farmers learn directly from what they observe, collect and experience in their surrounding instead of through textbooks. Participants also produce their own learning materials (drawings, etc.) based on what they observe.

Competences, not information, is the goal: In FFS the focus is on developing skills and competences rather than assimilating information regarding new technology options. The focus is on understanding the basic science behind various aspects of the agro-ecosystem in order to enable farmers to carry out their own innovation process, i.e. understand the "why" behind the "how". Technologies are not taught as blueprint solutions but as examples of how to support various agro-ecological processes.

Experiential learning: The basic assumption is that learning is always rooted in prior experience, which is unique to each person, and that any attempt to promote new learning must in some way take account of experience. Therefore sharing and discussion among FFS members is a core element of FFS.

Discovery based learning: To as large extent as possible technical information is brought out through discovery-based exercises rather than in lecture style. These exercises are usually 1-3 hours long to fit into a regular FFS session, and addresses the learning topic of the day in a practical manner, for example constructing a insect zoo to observe behaviours and interaction of various insects, digging of soil pits for analysis of soil types and layers, breeding of ticks to understand lifecycles etc.

Figure 3. A typical FFS learning setting, under a tree in the field, Mwingi Kenya. (Photo by D. Duveskog)

Discovery-based learning is an essential part of the FFS as it helps participants to develop a feeling of ownership and to gain the confidence that they are able to reproduce the activities and results on their own. Problems are presented as challenges, not constraints. Groups learn different analytical methods to help them gain the ability to identify and solve problems. These kinds of exercises are often based on PRA tools and problem based learning tools (Chambers 1994b). There is no ultimate definition as to what a discovery-based exercise is but certain principles form a framework (Callo et al. 2001);

1. The learning field provides the main learning materials and any exercise should have its roots in the farmers' fields.
2. Activities are based on what is happening in farmers' field at *this* time. One cannot discover something if it happened in the past or will happen in the future.
3. Any activity should build on farmers' experiences of the topic, i.e. include discussion and sharing among participants in order to gain insights from local practices, as well as identify technical gaps.
4. The people who are discovering are primarily the *farmers*. The purpose is to help participants remember more of what they are learning,

therefore exercises are designed for practical discovery rather than only by seeing or hearing something.

Farmer owned curriculum

Farmers, not the facilitator, decide what topics are relevant to them and what they want the FFS to address in their learning curriculum. The facilitator simply guides them through their learning process by creating opportunities for participants to engage with new experiences. This ensures that the information is relevant and tailored to participants' actual needs. Training activities must be based on existing gaps in the community's knowledge and skills and should also take into consideration its level of understanding. Every group is different and has its own needs and realities. As participants develop their own content, each FFS is thus unique. Since agriculture usually is closely connected to other livelihood aspects the curriculum will also include non-farming issues defined by farmers such as human health, HIV, nutrition, environmental concerns etc. These are included as special topics in the weekly meeting schedule.

Another feature of the FFS curriculum is that it follows the natural cycle of its subject i.e. from "seed to seed" or "egg to egg". This so that farmers can discuss and observe aspects in the field in parallel with what is going on in their own fields, i.e. learning about weeding takes place when it is weeding time etc.

Group trials and experimentation

Innovation and experimentation are vital components of the FFS process and offers opportunities for learning and for building capacity among farmers to continuously adapt to change and improve the way they manage their resources. The experimentation in FFS is similar to the process of Participatory Technology Development (Selener 1997) but has less emphasis on generation of research outcomes related to technologies and more emphasis on the process of experimentation and analysis. Group managed trials, whether crop or livestock based form the nucleus of the FFS learning since it is the site of the trials that usually becomes the meeting point and learning space for the group. At the formation stage of the FFS an experimental theme is defined followed by decisions on the various technologies or practices to study and compare for addressing a given constraint. These may be research generated technologies or simply farmer innovations or local practices. Typical experiments in FFS may be testing and comparison of new crop varieties, options for improved soil management, poultry feed and housing and more.

In experimentation, a control treatment is usually included in the design, the purpose of which is to provide a standard against which various alternative

(new) options can be compared. Various types of control treatments can be used, depending on the experimental objective and theme of study. Frequently he control treatment is the farmers' common practice. This allows farmers to compare the new options directly with their own practice, for example in terms of required labour and inputs as well as performance. The process also demonstrates the link between farming practices and outputs, and demystifies for farmers the reasons for good yield or performance, an aspect especially important where farming is connected to superstitious believes (Sones and Duveskog 2003).

Figure 4. In FFS farmers conduct simple experiments that are monitored at every learning session. (Photo by D. Duveskog)

Facilitation, not teaching

In FFS trained facilitators (usually government, NGO extension workers or community facilitators) guide the learning process, not by teaching but by mentoring and supporting the participants to take responsibility of their own learning. In the discussions the facilitator contributes and facilitates the group to reach consensus on what actions need to be taken. A facilitator is assigned to a FFS group for the full duration of the FFS learning cycle and will be present at the scheduled FFS meetings. They usually reside in the locality of the group and speak the local language. Researchers, subject matter specialists and

external expertise are occasionally invited to provide technical support to FFS groups as needed.

During FFS sessions the facilitators is expected to take a backseat role and let the farmers lead the learning activities, with the facilitator present more as a mentor and to guide the process. FFS facilitators are encouraged not to answer a technical question directly but to try to probe and pose counter questions in order to stimulate reflection and learning. In discussions on technical issues the FFS facilitator tries to moderate a discussion where the bulk of information comes from the group members. In order to facilitate participation by all, small-group discussions are commonly used where the participants first discuss among themselves in groups of 3-4 persons before discussing the issue in plenary.

FFS Facilitators are trained through formal FFS Training of Facilitators (TOF) courses developed and run by experienced FFS Master Trainers. The FFS TOF trainings aim to build the capacity among facilitators on the FFS approach as well as facilitation skills in general. These courses vary in length depending on the target group and need for inclusion of technical topics. In the FFS intervention that form the empirical base for this research facilitators were trained through an initial two week course followed up by a number of shorter technical trainings.

Figure 5. The role of the facilitator is to probe for questions, stimulate discussion and guide the learning session. (Photo by D. Duveskog)

Systematic learning process

All FFS follow the same systematic learning process where the cornerstone is to observe and analyse their field experimental activities. Farmers meet weekly (most annual crops and livestock), bi-weekly (some long-term crops) or monthly (most perennial crops) on regular schedules defined by the group members. Farming related topics are interwoven with group organisational aspects and group dynamics to form the learning sessions that usually are held on weekly basis and of a half-day duration.

Any laborious activities such as taking care of the field plots or animals, seeding, weeding, watering, feeding etc. take place either before or after the learning sessions or on especially scheduled working day sessions.

In-between FFS group formation and starting the regular learning cycles there is a period of group establishment usually referred to as *ground working*. This period entails forming and organising the group, problem identification, selection of learning enterprise and setting up the farm experiments, a process that usually takes between one to three months.

Special Topics of the day: Technical information to compliment the 'learning by doing' and field experimentation in FFS is usually brought in as a *special topic* of the day. This provide an opportunity for the facilitator, researcher or specialist to give technical inputs needed for a general understanding of the subject and to level knowledge among the participants. The topic of the day is normally a farming related topic but could be any subject of concern. Participants may have other problems and feel a need to discuss issues such as human nutrition, micro-finance, gender inequity etc. If the facilitator lacks the specific expertise, external specialists or other community members can be invited to lead the discussion. The role of the facilitator is to target a specific topic at the most relevant time for group participants.

A typical session with the above aspects included is outlined in Table 3.

Table 2. *Timetable of a typical FFS learning session*

Time	Activity	Description
8:00	Opening	(often with prayer) with attendance call
8.10	Briefing	of the day's activities and a short energizer
	AESA (Agro-Ecosystem Analysis)	
8:20	Field trial observations	field observation and data collection on experimental plots in sub-groups.
9:00	AESA processing	
9.45	AESA presentations & discussion	group processing and analysis of field observations
		Each subgroup presents results and discusses actions to take.
10:15	Energiser or group team building exercises	
10:30	Special topic of the day	Talk, guided discussion or discovery based exercises on a farming or cross-cutting topic of relevance, chosen by farmers. Possibly facilitated by guest specialist
11.45	Planning of next week's activities	
12:00	Closing	(often with prayer)

Agro-Eco System Analysis

The cornerstone of the FFS approach is the Agro-Ecological System Analysis (AESA), which is a field-based analysis of the interactions observed between crop/livestock and other biotic and abiotic factors co-existing in the crop/livestock field. The purpose of AESA is for farmers to learn to make regular field observations, analyze problems and opportunities encountered in the field and to improve decision-making skills regarding farm management. The analysis follows a cycle of observation, analysis and action. By carrying out AESA regularly in the FFS (usually weekly, fortnightly or monthly depending on study topic), farmers develop a mental checklist of indicators to be observed when monitoring their farm practices (Gallagher 2003).

The process is holistic and farmers work in sub-groups of four to five persons under the guidance of a trained facilitator as to enhance the participatory process. Usually this exercise takes about 2-3 hours and it is done throughout the season or learning cycle so that the problems and decisions being studied overlap with similar issues in participant's own fields, thereby increasing the motivation for learning (Sones and Duveskog 2003).

The four major steps in the AESA exercise are explained in more detail below in figure 6.

Figure 6. The steps of the AESA learning process, photos of Lubinu FFS, Kenya

Group Organization

FFS facilitates empowerment through collective action by ensuring well-organised groups, where participants get opportunity to practice various management and leadership aspects. To enforce discipline and structure, a detailed timetable is usually followed as well as learning norms and group rules. The groups develop their own vision statement and learning objectives.
Groups are further encouraged to register with the local authorities and open a bank account for sake of sustainability after the learning cycle when the group might endeavour into other activities. The group should have a leadership structure in place, with democratically elected officials and group by-laws and constitution. The ideal membership size is 20-30 farmers of mixed gender. To ensure participation by all an important component of FFS is the sub-grouping arrangements where smaller groups of 3-5 individuals are formed at the beginning of the FFS cycle. Each sub-group have their responsibilities, usually in rotation, such as hosting and leading the weekly meetings, thus the term "host-team". It is also in these sub-groups that field core activities like the AESA are undertaken, and often each group is responsible for one treatment option in the experimental field. By choosing their own names, slogans and mottos these sub-groups have their own identity and are enforced.

Group dynamic exercises

In FFS group dynamic exercises such as such as energisers, drama, song and dance are used to create a pleasant and informal learning environment. These exercises facilitate learning and create space to reflect and share. They also enhance capacity building in communication skills, problem solving and leadership skills. Further, group dynamics can be an effective way to deal with sensitive topics such as domestic violence, alcoholism as well as to memorise key technical messages in oral form. Each learning session includes a component of group dynamic usually facilitated by that day's host team or any group member.

5.3 Existing knowledge on FFS

Globally a wide range of unpublished literature, describes the successes and impacts of FFS. Aspects commonly pointed out include both increases in agricultural production and individual and collective agency. Published research indicates substantial impacts of FFS in terms of increases in farm productivity, reducing farmers' use of pesticides and improved farming knowledge (Rola et al. 2002; Praneetvatakul and Waibel 2003; Mwagi et al. 2003; Van den Berg 2004). A number of studies discuss the role of FFS as an

extension model, though with contradictory arguments. For example, Quizon et al. (2001) challenge the fiscal sustainability of the approach when implemented on a large scale due to the high costs per trained farmer. As a response, van den Berg and Jiggins (2007) have argued that FFS should not be considered as mainly an extension model but as a complementary educational instrument that provides intangible public goods that cannot be measured only in agricultural terms. Few studies have focused specifically on empowerment and FFS, but wider developmental benefits are reported in terms of poverty reduction and human and collective action (Mancini et al. 2006; Van den Berg and Jiggins 2007; Züger 2004). One of the key recommendations of the State of Food and Agriculture 2011 report for closing the gender gap in agriculture (FAO, 2011) is the scaling up of FFS "FFS have proven to be a participatory and effective way of empowering and transferring knowledge to women farmers" (p. 58).

Data from pilot phases using the approach in the East Africa region show great impacts both on productivity and empowerment aspects of the FAO model of FFS. Friis-Hansen's (2005) study of FFS and NAADS groups in Soroti Uganda showed that FFS served as a platform and catalyst for the success of demand-driven advisory services. In a recent IFAD study (Davis et. al. 2011) of one of the first larger FAO pilot regional FFS projects in East Africa (Tanzania, Kenya, Uganda) FFS participants showed significant differences in outcomes with respect to value of crops produced, livestock value gain, and agricultural household income as compared to the control group. The study concluded that FFS is particularly beneficial for female-headed and low educated households. At the regional (project) level, per capita agricultural crop and livestock income of among female-headed households doubled post FFS. While agricultural and economic impacts are fairly well documented there is very limited research done on empowerment and human transformation related impacts of FFS.

There are indications that the learning in FFS could be seen as transformative in many ways. Impacts of FFS have been shown to span far outside of the technical domain and often include human development (Züger 2004; Braun et al. 2005; Davies 2006). A study in Philippines (Palis 2006) concluded that FFS through its experiential and collective learning process enabled participants to overcome a number of cultural fears that restricted their uptake of improved technology by fostering new shared norms and corporate behaviours among participants. Through the learning that takes place in FFS farmers become prepared to deal with their challenges and obstacles, through critical thinking and collective action. This often results in farmers that increasingly are challenging authorities, such as information providers or market actors etc. Farmers are not couched into a predetermined pattern of

behaviour, but rather facilitated to challenge their habitual ways of thinking and acting. According to the definitions provided by Mezirow (2000) the education in FFS could thereby be seen as transformative learning. One of the few studies on FFS using transformative learning theory (Najjar et al. 2012) found a significant change among farmers in Kenya in terms of gendered learning and change in meaning perspectives among participants on gendered farming related habits and biases. Other transformative actions and change that have been demonstrated in the FFS are change of culturally restricted farming practices, improved capacity to make informed decisions both in relation to agriculture i.e. selection of seed or input and in relation to the relationship with other actors, such as improved negotiation skills towards traders and market actors, advocacy for policy changes and rights, and formation of networks and associations (Braun et al. 2005; Sones and Duveskog 2003; DANIDA 2004).

In countries across the world FFS alumni have been successful in taking greater control over their lives. In Kenya farmer networks and associations have emerged as a follow-up effect of FFS and these units have been successful in breaking manipulative relationships with trade middlemen and thereby gained access more lucrative markets for sale of their produce (Okoth, 2006; Global IMP Facility 2003). In Cambodia, alumni are being installed on local development councils, using FFS to train handicapped farmers and studying health issues related to insecticide to raise awareness of their pesticide hazards. In the Philippines, FFS alumni have held national and local congresses to try and solve their problems (Pontius, Dilts et al. 2002). In East Africa FFS have led to the emergence of community based extension systems with institutional innovations such as farmers associations with community self-funded extension activities (Sones and Duveskog 2003; DANIDA 2004).

6 Theoretical framework

A theoretical framework helps in bringing understanding of how the world is experienced. It provides a lens that frames and shapes what the researcher looks at and includes in a study and how the research is conducted (Mertz and Anfara 2006). This study builds on the theoretical perspectives of empowerment and adult learning, and in particular transformative learning theory.

6.1 Empowerment

While empowerment is not a theory as such the concept is significant for the study since it is often treated as a conceptional framework in development practice and since it does provide a usual framing, drawing on a number of theories, for analysis of individual and collective agency.

If power means control, then empowerments means the process of gaining control (Sen 1997). Empowerment is, first and foremost about power; changing power relations in favour of those who previously exercised little power over their own lives. This means that facilitating empowerment means supporting people in becoming *agents* in their own development. A multi-stakeholder "catalytic action" in Kenya, Uganda, and Tanzania described by Clive Lightfoot (2002), show that farmers cannot be empowered by order from above but that empowerment comes through self-realisation, self-organisation and collective action.

The earlier discussion on power and knowledge argued that power is not a zero-sum game but a process that occurs in relationships. This understanding gives us the possibility of empowerment. i.e. if power is created in relationships, then power and power relations can change (Page and Czuba 1999). Empowerment should not be seen as synonymous with decentralization, participation or "bottom-up" approaches. It is a more powerful process (Sen

1997) that relates to the outcome or the end product of the meanings of such terms. For FFS this concept is important since FFS groups include individuals of mixed gender who strive to gain more power over their own lives, it is thus interesting to explore to what extent gaining power might have implications on their peers.

Farmer empowerment is further seen to be important for developing demand-driven advisory services with farmers articulating their demands on the basis of improved knowledge and analysis of their situations. Linked to farmer group organisation this can secure better service provision and more efficient use of public resources. It can promote farmer groups and organisations to secure better service provision and to make more efficient use of public resources. Often the meaning of the term empowerment is assumed rather than explained or defined. It is often difficult to define in action as it takes different forms in different people and contexts (Page and Czuba 1999).

Some of the definitions of empowerment suggested in recent literature are:

> A multi-dimensional social process that helps people gain control over their own lives. It's a process that fosters power in people for use in their own lives, their community, and in their society by acting on issues that they define as important (Page and Czuba 1999, p. 4).
>
> A person's capacity to make effective choices; that is as the capacity to transform choices into desired actions and outcomes (Alsop and Heinsohn 2005, p. 5).

Some authors, as the ones below have tried to define the term in the context of small-holder farmers and agricultural extension:

> A process that increases the capabilities of smallholder farmers and farmer groups to make choices and to influence collective decisions towards desired actions and outcomes on the basis of those choices (DANIDA 2004, p 6).
>
> Farmer empowerment is when farmers assume the authority, resources and capabilities to hold accountable and influence the content of public and private agricultural services, such as extension, research, training, information, investment and marketing (Friis-Hansen 2004, p. 13).

By definition empowerment is a social process, since it occurs in relationships with others. It can happen at individual as well as group and community levels. Empowerment can be seen as an advanced form of participation. However the concepts are to some extent contradicting in the sense that participation means

people being *given* a greater role in *our* agenda, while empowerment is all about them *taking* control of their *own* agenda (Barlett 2005).

In the classic description of the various levels of participation developed by Pretty (1997) the highest level of participations mentioned is self mobilisation where people participate by taking initiatives independently of external institutions to change systems. They develop contacts with external institutions for resources and technical advice they need, but retain control over how resources are used. When participation goes to this level, a process of empowerment can be assumed to be underway. In reality though empowerment is often promoted under some kind of boundaries, in fact end up restricting the level of empowerment. To take an example from the FFS process, farmers are often given the responsibility to handle programme funds, however relatively strict guidelines for use of the funds restrict flexibility, they might also be taught to make their own decisions about crop management while at the same time being put under pressure to adopt or reject certain practices. This indicates that in development programmes supporting true agency is a big challenge since empowerment outcomes are highly unpredictable.

Development practitioners, aiming to facilitate and support empowerment must accept to engage in a process of transformation of themselves, since if we want farmers to gain power we must except to lose some ourselves. Programmes also have to be flexible and open-ended as to allow people to take control and exercise agency. This means that development partners cannot decide the precise outcomes of empowerment. Predetermined desired outcomes of extension activities such as adoption rates of specific practices etc. thereby contradicts empowerment since the opportunities for self-determination among stakeholders are limited from the outset (Bartlett 2005).

The components and possible indicators of empowerment are many and cut across a range of disciplines. For example Stringer (1999) mentions: 1) pride; peoples feeling of self-worth and dignity, feeling of autonomy, independence, competence, identity-affirmation of social identities (woman, farmer etc), 2) control; feeling of control over resources, decisions, actions, events, and activities, 3) responsibility; ability to be accountable for own action, unity-solidarity of group. The PELUM-Tz project uses farmers' participation levels in all aspects that touch their daily life as a measurement of empowerment in a farming community. In addition, the shift of relationships between farmers' organizations and other institutions also reflects elements of empowerment. Factors identified as source of power listed in (Bunch 1995) are self confidence, power of coercion, money, position, prestige, influence, knowledge, organisation.

The World Bank, IFAD, FAO tend to categorise empowerment in terms of; knowledge-, organisational- and institutional empowerment (DANIDA 2004). To be sustainable the empowerment process must alter both peoples self-perception and their control over extrinsic resources, but also greater autonomy and authority in decision making and assertiveness (Sen 1997). Empowerment on a large scale requires both top-down changes in institutional and organizational processes and bottom-up changes in poor people's organisations and networks and in their individual assets. Knowledge empowerment is seen as one of the core aspects of empowerment. It refers to:

> Availability and access to knowledge can enhance or limit a social actors capacity to exert a particular type of agency. In this sense, having access to relevant and valid information is by definition empowering (Leeuwis 2004, p.109).

Measurements of assets and institutions provide intermediary indicators of empowerment. According to Alsop and Heinsohn (2005) direct measurements of degree of empowerment can be made by assessing: the existence of choice, the use of choice, and the effectiveness of choice.

In the recent World bank publication 'Measuring Empowerment' by Deepa Narayan (2005) a conceptual framework of empowerment is presented including four building blocks: Opportunity structures-1) institutional climate, 2) social and political structures & agency of the poor- 3) individual assets and capabilities, 4) collective assets and capabilities. The following section draws heavily on this framework, and in the below figure an overview of the framework is illustrated.

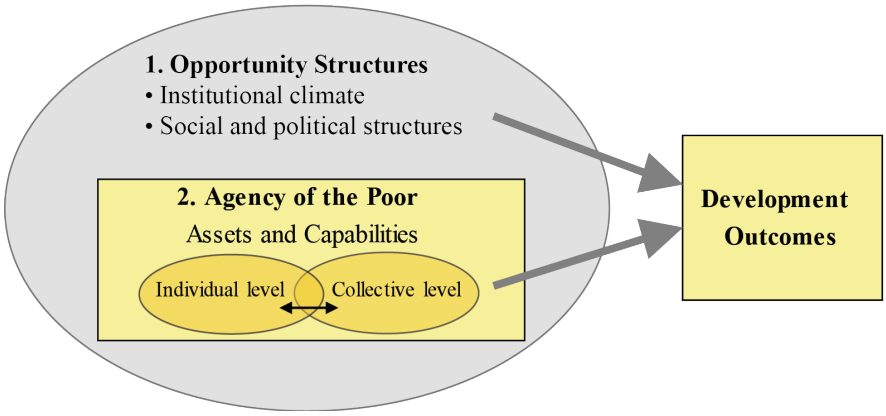

Figure 7. Conceptual framework of empowerment (adapted from Narayan 2005)

Agency

Agency is an actor's ability to envisage options and make meaningful choices based on reflection on the options available (Alsop and Heinsohn 2005). The concept of agency stems from the idea of the "human agent" according to Sen (1999) somebody who acts and brings about change, and whose achievements can be judged in terms of her own values and objectives. Rural people can become the agent of their own development, or they can remain objects of somebody else's development process (Barlett 2005). Agency involves a self-directed process, which includes the construction of a person and his/her word. Empowerment where people take greater control of their lives involves more than a few exceptional activities, instead it relates to a profound and lasting change in people's behaviours, and thus empowerment can be seen as *transformation*. Sen has been one of the clearest proponents of the notion of human agency, arguing that poor people often lack the capability to articulate and pursue their interests fully as they are "unfree".

A comprehensive definition for agency is given by (Kebeer 2003) in the Gender Mainstreaming and Poverty Eradications and MDG handbook which explains that agency is how choice is put into effect and hence central to the processes of empowerment. Agency encompasses both observable action in the exercise of choice – decision-making, protest, bargaining and negotiation – as well as the meaning, motivation and purpose that individuals bring to their actions, their sense of agency. Agency in relation to empowerment implies not only actively exercising choice, but also doing this in ways that challenge power relations.

Agency can be expressed at individual or collective level (Narayan 2005). Below follows a description of the two levels of agency.

Individual agency

At the individual level, empowerment has been defined in terms of factors that give greater control over one's life. Factors include an individual's knowledge base, resources, rights, and assets. Reference is also made to the sense of well-being in terms of status and self-esteem that are both facilitated and give further support to the capacity to control key aspects of one's life (DANIDA 2004). The capacity to aspire is crucial in the concept of agency and means the culturally formed capacity of poor groups to envision alternatives and aspire to different futures.

DANIDA (2004) defines a number of core areas in which farmer empowerment should generate improvements for the individual. These are:

- Productive assets: access to and control of land, water and labour
- Financial assets: access to financial services and ability to manage funds
- Human assets: skills, farming knowledge, technical knowledge
- Organisational assets: ability to articulate demands and interact with markets and other social actors
- Knowledge: analytical ability and tools to use information on markets, agricultural services, technologies, rights
- Self-esteem: self-respect, social esteem, relationship to authorities and other social actors.

Collective agency

Empowerment strategies do not only focus upon the individual. If empowerment is the process of increasing the capacity of individuals *or groups* to make choices that result in desired outcomes then central to this process is actions which both build individual and collective assets, and improve the efficiency and fairness of the organizational and institutional context which govern the use of these assets (DANIDA 2004). Collective capabilities and organisations are often critical in helping poor people break through constraints of powerlessness and voiceless-ness (Narayan 2005). Strengthening the group means almost automatically to improve their power positions with regards to others (Leeuwis 2000). Zimmerman (1990) suggest that participation in community organisations has a direct positive effect on psychological empowerment.

Central to collective agency and empowerment are farmer organisations. Farmer organisations provide a platform for joint action and have the potential to enhance the capabilities of their members to make choices, and to institute

changes. It also enlarges people's access to ideas, information and strengthens their capacities for planning, decision-making, collective action etc, and expands their ties to other networks and resources. Farmer actions through farmers' organisations can even sometimes influence and change opportunity structure. The role and potential of the farmer organisations in relation to farmer empowerment depend on the type of farmer organisation and factors such as activities undertaken, resources possessed and available, outcomes achieved and geographical diversity and coverage (DANIDA 2004).

Building social capital is a core element of an extension strategy aimed at poverty alleviation. Social capital is the ability to facilitate collective action for mutual benefit through the organization and participation of farmers and rural people. Heemskerk and Bertus (2004) differentiates social capital into three primary categories: bonding, bridging and linking social capital:

- *"Bonding"* is the process of creating a network of people who come together for a common purpose, for example, a self-help group or a farmer association. The focus is on group formation, building trust or a type of glue that holds a group of people together.
- *"Bridging"* social capital is the process of farmer groups linking up at meso- and national level into federations and networks and farmers organisations and creating linkages with other groups for a common purpose.
- *"Linking"* social capital is the process of scaling up farmer knowledge and innovation system into a wider agricultural private-public system, with linkages to research, policy development.

In this research, the concern is with both types of social capital, but with an emphasis on linking producer groups to external groups that can open up new market opportunities.

Opportunity structures

Opportunity structures is defined as the formal and informal context within which actors operate (Alsop and Heinsohn 2005) and in which farmers act and influence the development outcomes achieved (DANIDA 2004). These components include formal structures such as laws, policies, regulatory frameworks, information structures, market conditions and informal structures such as social solidarity, norms governing people's behaviours and practices found in social and economic institutions. The presence of these items determine whether individuals and groups have access to assets, and whether these people can use the assets to achieve desired outcomes (Alsop and Heinsohn 2005). Several of these factors are externalities over which the farmer and farmer groups have little direct influence in most political contexts.

Empowerment is achieved by the removal of formal and informal institutional barriers that prevent the poor from taking effective action to improve their well-being, individually or collectively, and that limit their choices (Narayan 2005).

Narayan (2005) divides opportunity structures in institutional climate and social and political structures. The institutional climate creates incentives for action and inaction. Four elements of empowerment that must underline institutional reform are mentioned:

- *Access to information:* The presences of two-way information flow between government and citizens with the aim of having informed citizens that can take advantage of opportunities, access to services, exercise their rights etc.
- *Inclusion and participation*: Authority and control over decisions should be devolved at the lowest appropriate level, to ensure that the use of public resources reflect local priorities, and to build accountability. Poor and other traditionally excluded groups should be included in decision making structures.
- *Accountability:* State officials, public servants, politicians and service providers should be held to account, and answerable for their policies and actions.
- *Local organizational capacity:* The ability of people to work together, organise themselves and mobilise resources. Governments should provide an institutional climate where communities can form organisations and gain voice and representation in policy dialogue that affect their well-being.

The social and political structures include aspects such as democratization, conflict resolution mechanisms and the degree of response among government structures to respond to people's demands and aspirations. Farmer empowerment outcomes in relation to opportunity structures could be (DANIDA 2004):

- Markets: rights, access, state regulations, price subsidies.
- Governments: the state of elected, administrative and judicial government institutions.
- Informal institutions: ethnicity, gender equality, social rules, practices that give rise to social exclusion etc.

This study, and particularly the research presented in paper III set out to determine farmers own perception of empowerment and the links between education, empowerment and enhanced well-being. Building on the concepts outlined above, as an initial frame of reference, actual indicators of how empowerment play out in the daily lives of small holder African farmers,

established through empirical work was established and measured. The concept of agency both at individual and collective levels served as a lens for understanding how power and empowerment play out in the FFS setting.

6.2 Adult learning

This study relies on a constructivist approach, appropriate in a study of this kind that includes analysis of the learners' constructions of reality and in which the empirical focus is on a learning approach (i.e. FFS) that emphasises experiential and problem based learning tools focusing on how to learn. The foundations of a constructivist approach, grounded in Piagetian (Piaget 1950 in Jarvis et al. 2003) thought, frame the theoretical framework of this study. Experiential learning theory and Kolb's (Kolb 1984) learning cycle have contributed to understanding the FFS learning process and the various phases of learning in FFS, and have been helpful in making sense out of empirical observations. The critical theory of Habermas (1971; 1984) has been central to understanding how learning is interconnected with the societal contexts of work, interactions with others and power. This is of particular importance in this study that focuses on learning taking place in a group setting and among a target group often considered relatively powerless. Transformative learning has been central to this study, as it explores how change among learners comes about, however Mezirow's (1991; 1997; 2000) work focuses mainly on individuals and does not explain how change comes about on collective levels. Therefore Freire's (1970; 1973) thoughts on transformation in the collective space and learning for societal change have formed a crucial complement to the theoretical framework of this study.

6.2.1 A constructivist approach to adult learning

The underlying perspective of this research study is that learning is best accomplished using hands-on techniques, where learners experiment rather than being told what will happen. Thereby they themselves are left to make inferences, discoveries and conclusions, where new knowledge is integrated with old experiences. This constitutes a *constructivist approach* to learning, a theoretical framework generally attributed to Jean Piaget, who articulated mechanisms by which knowledge is constructed by the learner (Piaget 1950 in Jarvis 2003). Today, constructivist theories are influential throughout much of the so-called non-formal learning sector.

A central assumption in the constructivist paradigm is its emphasis on the role of the individual's mental activity in her interaction with the environment

(Bourgeois 2002), thus in contradiction to behaviourism where individual's behaviours are attributed to external influences rather than mental mediation. Piagetian constructivism is characterised by 1) the emphasis of the role of the mental construction of reality by the individual and 2) the construction of the cognitive structures that are mobilised in that mental activity, i.e. the way in which existing structures may be transformed into a new structure as a result of individual's interaction with the environment (Bourgeois 2002).

Piaget suggests that through the two processes adaptation and equilibrium individuals construct new knowledge. Central to both processes is the way experiences are interpreted. Equilibrium refers to that existing rules for interpretation are balanced in relation to one another, whereas adaptation refers to a balancing of present experiences with the already existing rules for interpretation. Adaptation can take place through either assimilation or accommodation. Assimilation occurs when new experiences are aligned and integrated in individuals' already existing framework for interpreting the world, i.e. sense making of information. Accommodation on the other hand is the process of reframing ones interpretations of the experiences of external world to fit new experiences (Piaget 1950). For example this can happen in the context of failures; we act on the expectation that the world operates in one way, but then fail and have to reframe our understanding of how the world works. When information in this way does not fit with the interpretative schemata present, this causes a *cognitive conflict*. To solve this uncomfortable conflict individuals try to restore the equilibrium between activated interpretative schemata and discrepant information. If solving the conflict by transforming the original ways of interpreting this is where learning occurs and what Piaget terms accommodation. Piaget thereby means that both assimilation and cognitive conflict are needed for the individual's development of knowledge learning to occur.

Experiential learning, as a concept, is usually placed within the constructivist paradigm (Percy 2005). It first became popular in adult education to celebrate and legitimate peoples' own experiences in their knowledge development (Fenwick 2001). In his development of a theory of experiential learning Kolb built on the theories of Dewey, Lewin and Piaget, in order to develop a simplified and harmonised learning model. This model, commonly referred to as the Kolb's learning cycle, elaborates on the central role that experience plays in the learning process (Kolb 1984). The basic assumption is that learning is always rooted in prior experience and that any attempt to promote new learning must in some way take account of experience (Boud 1994), or as Kolb (1984) expressed it ''the process whereby knowledge is created through the transformation of experience (p. 38)''

To Kolb learning cycle is seen as linking theory and practice through a four-stage cycle; immediate concrete experience (1) is the basis for observation and reflection (2). These observations are assimilated into a theory (3) from which new implications for actions can be deduced (4) (Kolb 1984). This conceptualisation is highly relevant to understanding learning in FFS since all these stages are imbedded in the FFS learning methodology. Each cycle of learning, according to Kolb (1984), leads to new concrete experience that forms the start for a new cycle of learning, thereby increasing the level of complexity and forming a spiral cycle. The cycle represents two major dimensions of cognitive growth and learning; the concrete/abstract dimensions and the active/reflective dimensions.

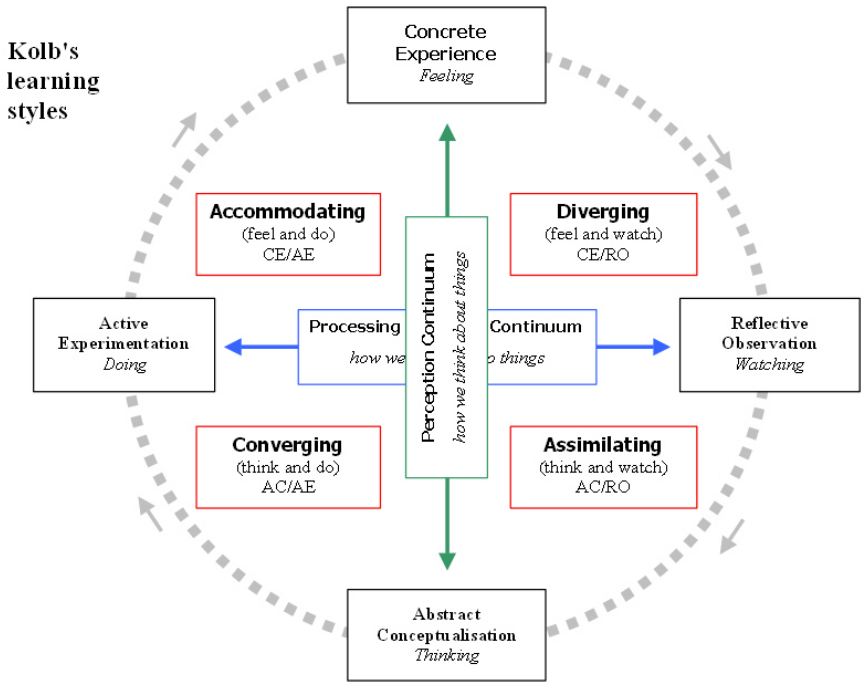

Figure 8. Kolb's learning cycle (adapted from Kolb, 1994)

The process of experiential learning is also seen as a process that links education, work and personal development (Kolb 1984) and can occur in group as well as in individual settings. Of particular importance for experiential learning is the emphasis on here-and-now experiences to validate and test abstract concepts (Kolb 1984). This kind of learning contradicts conventional practice of teaching, such as in the case of much agricultural extension, since

the emphasis is on the process of adaptation and learning rather than on a specific content or outcomes. Knowledge is considered a transformational process, being continuously created and recreated, not an independent entity to be acquired or transmitted. van Manen (1977) considers that there are four levels of reflection 1) thinking and acting on an everyday basis; 2) more specific reflection on incidents or events; 3) development of an understanding through interpretations; and 4) reflection on the way we reflect. While past lived experiences may seem true to the person they are in fact often incomplete, inadequate, or distorted and not sufficient for experiential learning to occur. A connection must be made between what one has experienced and what one comes to learn.

Experiential learning is relevant for agricultural extension and FFS, since it provides a means to work with groups to find their own solutions to problems through testing and experimentation of ideas and practices which are closely related to their own everyday farming activities. Referring to van Manen, Malinen (2000) explains that experiential learning, involves ‘‘modification of earlier constructions: re-organization, re-construction, re-defining, re-thinking, re-shaping, re-interpretation and re-formulation, aiming to establish renewed contact with something original’’. This is relevant for study of methods aiming to support farmers’ exploring and reflecting over their practices, since farmers’ knowledge is by nature experiential. Their cultivation has been shaped from generations of trial and error, testing and evaluation.

Based on constructivist thought Bourgeois (2002), points out three basic sets of conditions that characterise learning as a transitional space:

- Facilitating exploration of novel ways of thinking and acting by teaching methods based on discovery learning, informative feedback rather than control and learning from mistakes. All of this taking place in a social interaction situation.
- Facilitating the capacity to adopt alternative standpoints, i.e. thinking reversibility, on reality by expression of the learners’ own point of view, confrontation of these views with others and providing tools for the learner to benefit from these confrontations with alternative views.
- Facilitating critical and personal thinking beyond reversibility, i.e. create space for the learner to reflect upon the cognitive and affective aspects of the learning process and its implications.

Kolb’s theory on experiential learning and his learning cycle was a central concept upon which the FFS approach developed. However, both Piaget’s and Kolb’s work lacks the dimensions of taking into account the learners’ social relationship to the wider world. For this aspect Habermas work is of

importance and the FFS approach is generally considered to build mainly on the critical theoretical framework of Habermas (Pontius et al. 2002). In Habermas's book "Knowledge and Human Interest" (1971) three cognitive interests are presented that all humans share, and that forms the basis for human social existence and thereby also is the basis for human motivation for learning. These are work, interaction with others and power. The work domain relates to the need among humans to control physical and social environments, and to predict and control reality. The interaction domain is related to communicative action and interactions between humans based on norms and consensual agreements. The motive here is connectedness and inclusion and the interest in how knowledge furthers understanding of human actions. The domain of power relates to overcoming internal and environmental factors that inhibit control over ones lives, power and control. It is characterised by emancipation through self-reflective action and critical thinking and relates to consciousness about one self and ones surrounding. Habermas (1971) suggests that learning only in the technical domain (instrumental) may not cause the desired change unless the learner is also freed from constraining factors once assumed to be out of his control and without interactions and consensus with other humans. In his later work "Theory of Communicative Action" (1984) he argues that the three cognitive interests are inherent to communication. Thus a key to emancipation is to be found in communication, and in discourses between individuals in speech situations in which participants are afforded equal opportunities.

Building on Habermas's thoughts, Bartlett (2005) illustrates a constructivists approach to knowledge generation and development that foster agency and facilitates the process of empowerment (see figure 5). This approach to learning assumes that knowledge, behaviour and social relations cannot be transmitted from one party to another, but must be uniquely created by the human agent as a consequence of critical thinking, experimentation and communicative action, where the core feature is the ownership by the learner, not just of the outcomes, but also of the process (Bartlett 2005). These three domains are interrelated, for example agency can be stimulated through experiential learning in the interaction between knowledge and behaviours, critical analysis connects knowledge and social relationships while communicative action form the interaction between social relationships and behaviours. This means that in a learning approach such as FFS, activities relating to the three domains need to be saliently included in order to enhance the learning experience.

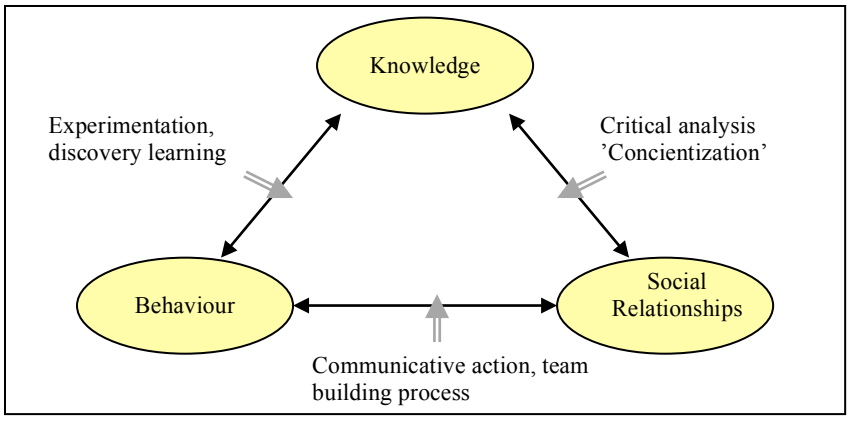

Figure 9. A constructivist approach to learning (adapted from Bartlett 2005)

The above discussion shows that experience alone does not teach, learning only happens when there is reflective thinking and processing of experiences by the learner. Reflection is usually seen as the mean by which experience is turned into learning and is an integral stage in Kolb's experiential learning cycle. It facilitates a way to make sense out of experiences, a link to previous experience and a means for evaluation (Fenwick 2001). It is this processing of experiences that is central in the learning in agricultural extension and FFS. The higher levels of reflection (i.e. critical) the more likely it is that transformation, autonomy, emancipation, or empowerment can occur (Percy 2005). This aspect of learning is developed in transformative learning (TL) theory.

6.2.2 Transformative learning theory

In seeking to understand the change in the daily lives of FFS participants, particularly how they make sense of their learning experience, TL theory provides a useful lens for analysis of findings in this thesis. The theory of TL was pioneered by Jack Mezirow, with influences from Paulo Freire and Habermas, is one of the most established theories for making sense of the adult learning process (Taylor 2007). While there are multiple dimensions of TL this study draws mainly on Mezirow's and Freire's thoughts.

Human beings naturally tend to make meaning of their daily lives and continuously change their perceptions based on new experiences. TL (Mezirow 1991, 1995, 1996, 1997: Cranton 1996) focuses on this process of change in individuals' interpretation of experience. A central concept in this theoretical

approach is *frame of reference;* i.e. the mental structures by which new experiences are filtered such as values, associations, feelings and conditioned responses. This frame of reference both limits and shapes individuals' perceptions, filtering the experiences they choose to give meaning to and how they construct that meaning. Individuals often tend to reject ideas that do not fit in the existing frame of reference labelling them as irrelevant or not making sense, within their worldview. A frame of reference is composed of two dimensions: *habits of mind* and a *point of view*. Habits of mind are habitual ways of thinking, feeling, and acting based on the cultural, social, educations, economic, political or psychological standpoints of the learner. Habits of mind become articulated in a specific point of view—the constellation of belief, value judgment, attitude, and feeling that shapes a particular interpretation (Mezirow 1997). The commonly observed gendered roles and responsibilities among FFS participants for example is an example of habit of mind, where a conditioned response is triggered based on deep held cultural beliefs linked to the societal group that the individual belongs to. While points of view are subject to continuing change accessible to awareness and to feedback from others, habits of mind are more durable, since they often are tacit and operate outside the awareness of the individual. They reflect collectively held, unintentionally or assimilated shared cultural values and beliefs.

According to Mezirow (1991) one of the most important areas of learning for adults is that which frees them from their habitual ways of thinking and acting and supports their becoming critically aware of their habitual way of viewing the world. Such learning thus reinforces and elaborates on existing frames of references to construct a new or revised interpretation of the meaning of one's experience in order to guide future action (Mezirow 1996). TL is about learning that leads to a frame of reference that is more inclusive, reflective, open to the perspectives of others, less defensive and more accepting of new ideas (Mezirow 1991). Robertson (1996) contrasts this to simple learning where the learner's existing paradigm and way of thinking and doing things is extended, but not fundamentally changed. Mezirow (2000, p.19) refers to this fundamental changed or shifted world view as a "perspective transformation*",* a transformation in the learner's way of viewing the world when taken-for-granted norms and practices are confronted and challenged, and consequently changed (Mezirow 1991). This results in individuals that become more responsive for their actions and more autonomous, and use clearer thinking when making decisions (Franz 2003). The major elements in TL are critical reflection, i.e. questioning of the habit of mind; rational discourse (dialogue) where reflective judgements and alternate solutions are validated; and practice real life experience (Baumgartner 2012). All these

elements are apparent in FFS. Through on farm experiments farmers are encouraged to try out new practices in a real life situation while conducting regular system analysis exercises that stimulate objective analysis, through dialogue with peers, rather than making habitually based preconceived assumptions about outcomes.

A perspective transformation, a change in frame of reference, often occurs either through a series of cumulative transformed meaning schemes or as a result of an acute personal or social crisis (Mezirow 1997). Mezirow (1978) suggests that when an adult encounters a *disorienting dilemma,* i.e. a problem for where there are no immediate apparent solutions suggested by past experience and knowledge, reflection is triggered. With a disorienting dilemma as starting point (catalyst for change), he outlines ten phases of perspective transformation: 1) a disorienting dilemma occurs, that; 2) triggers self-examination with feelings of fear, anger, guilt or shame, whereby; 3) a critical assessment of assumptions take place, following which; 4) the individual recognises that one's discontent and the process of transformation is connected, and thereby; 5) explores options for new roles, relationships and actions, followed by; 6) planning of a course of action and; 7) acquiring knowledge and skills for implementing one's plans, then; 8) provisionally trying of the new roles, and then; 9) builds competence and self-confidence in the new role and relationship. This is finally completed through 10) a reintegration into one's live on the basis of conditions dictated by one's new perspective.

TL according to Mezirow's interpretation is a metacognitive process of evidential (instrumental) and dialogical (communicative) reasoning processes for advancing and assessing held beliefs. Instrumental learning relates to learning how to manipulate or control the environment or other people to enhance efficacy in improving performance, and is usually task oriented. Communicative learning on the other hand is learning to understand the meaning of what is being communicated, thus based on reflection and involving at least two persons. This is generally furthered through conversations but it could also be though artwork, song or dance. In instrumental learning, the truth of an assertion may be established through empirical testing. However, communicative learning involves understanding purposes, values, beliefs, and feelings and is less amenable to empirical tests (Habermas 1981). For Habermas, discourse leading to a consensus can establish the validity of a belief. This means that conclusions are always tentative, since we may always encounter others with new evidence, arguments and perspectives. Thus diversity of experience and inclusion of other perspectives are essential to our understanding. This viewpoint brings a

collective perspective to transformative learning and is therefore particularly important when dealing with group learning such as FFS.

Subsequent research in the field has created alternative conceptions of transformative learning to Mezirow's dominant theory. Two broad groups of conceptions of how to frame TL feature: the psychological and the emancipatory view (Taylor 2008) inform this study. The focus of the psychological view is the individual and his or her learning experience in a more universal view of learning, the lifelong journey of the learner, developing a deeper self-knowledge, individualisation, and *epistemological chang*e and change in how we make meaning (as opposed to change only in behaviours of quantity of knowledge).

The emancipatory view of transformative learning is rooted in the work of Freire (1970, 1984) and is much more strongly imbedded into social, relational and political structures. He used the term 'conscientization' to describe the process by which one's false consciousness becomes transcended through education. Freire's (1973, 1984) thoughts on emancipation is of particular relevance when relating to resource poor communities, who lack voice and power to influence their own development agenda since a central concept in Freire's work is a transformation aimed at liberation of the oppressed, and transformation of the world so that it can be a more equitable place for all to live. Thinking as an autonomous and responsible agent is seen as essential for full and active citizenship, thus a politicizing concept. He talks of praxis which he defines as "reflection and action upon the world in order to transform it" and at the core of praxis is the process of *naming the world* which is an action in the sense that naming something transforms it, and reflective in the sense that our choice of words gives meaning to the world around us. He also talks about education in terms of "the practice of freedom", by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world. Traditional education teaches people, and in particular disadvantaged peoples, into a culture of silence while transformative learning is seen as a process of drawing people out of their unconscious pattern and coaxed out of their learned culture of silence (Fals Borda and Rahman 1991). Freire (1970) refers to education that is liberating rather than domesticating. Liberating education consists of acts of cognition, not transferral of information where people come to feel like masters of their own thinking. Epistemologically he distinguishes between this and the banking concept of education where, knowledge is considered a gift bestowed by those who consider themselves knowledgeable upon those whom they consider to know nothing. This view is contradicted by a view of education and knowledge as a process of inquiry. The "reason d'etre" of libertarian education lies in its

drive towards reconciliation. Education must begin with the solution of the teacher-student contradiction, by reconciling the poles of the contradiction so that both are simultaneously teachers *and* students. In the agricultural extension context transfer of technologies would be seen as domesticating education where farmers are pushed into preconceived behaviours and acts, as opposed to extension where the farmers and extension workers work together to find solutions to problems and to reflect on experiences, which could be seen as a form of liberation. Three teaching approaches central to fostering of emancipatory transformative learning (Freire and Macedo 1995) are encouraging critical reflection, promoting a liberating approach to teaching and engaging in a horizontal (student-centred) student-teacher relationships.

Since the early 1980s, the integrity of TL theory has been established by extensive research (Taylor 2007; Taylor and Cranton 2012). Only recently has research started to explore the application of this theory of transformation in non-western settings (Kollins and Hansman 2005; Merriam and Ntseane 2008; Ntseane 2012). Studies such as Percy's (2005) have noted this limitation in applying Mezirow's conception of TL to the understanding of change in non-western settings, thus questioning the cultural sensitivity of the theory. Most African communities view human existence in relation to the existence of others with a worldview that emphasizes belongingness, connectedness, community participation and people centeredness (Ntseane 2012). This is in contradiction to the western setting that emphasise rationality, individual autonomy with a lack of appreciation on relational and collective ways of knowing. Applications of TL therefore need to appreciate the importance of understanding human existence in relation to others (Avoseh 2001; Ntseane 2005; Ntseane 2012). The group based and experiential learning mode of FFS thus fits well in with the traditional African value system that value life experience and wisdom over formal knowledge and communality over autonomous learning. An Afrocentric conception of TL (Asante, 1998; Williams, 2003; Taylor, 2008) has recently emerged (Ntseane and Merriam 2008, Ntseane 2012) that directs attention to this context-dependent nature of significant personal change and the need for awareness of the African value system. This perspective deals with the question of African identity from the perspective of people who have been marginalized by colonialism and consequently party lost their cultural footing (Asante 1998) and the ultimate aim of Afrocentricity is here peoples liberation and generate knowledge that will free and empower people. TL here provides an unique opportunity for Africans to define themselves and their agenda according to the their realities while also taking into account the realities of others (Ntseane 2012), and thus

also fit right into the development agenda of community empowerment and people centred development.

While applying TL as a theoretical perspective of this study, it is important to keep in mind shortcomings of the theory and explore ways that this study can contribute to advancing the theoretical field. Even though transformative learning offers a suitable frame for analysis of FFS participants individual learning experience it does not provide an equally suitable lens for understanding the collective nature of FFS groups, this study therefore hope to generate knowledge around the collectiveness of transformation (Taylor and Cranton 2012) and thus respond to the social-individual tension in the field. Likewise the hope is to further the knowledge on cultural aspects of application of the theory in the African setting and in a poverty context, as well as explore how fostering practice of this concept play out in such a setting, areas that currently are considered as shortcoming of the theory.

6.2.3 Situated learning in a community of practice

Many anthropologists analyse learning from a social praxis perspective, where learning is considered a social phenomenon interwoven in everyday life rather than an individual cognitive process related to particular learning situations (Lave and Wenger, 1991). This perspective provides an interesting and relevant alternative to the theoretical framework on adult learning presented above. In situated learning, learning is understood as essentially situated and learning about something is embedded in the social practices it takes place in. Just as the theoretical framework developed above on adult learning, this implies a critique of classroom based learning that is separated from the world outside. Lave and Wenger (1991), explain that there is a big difference between learning and the intentional instructions of mainstream education that focus on transfer or transmission of messages. Situated learning thus emphasises the value of on-job training and apprenticeship. Moreover there is a critique on education that focuses on the individual rather than on the opportunities in the social context. When looking at learning in this manner it becomes evident why the transfer of technology model employed so widely historically in the field of agricultural education largely has failed to induce changes among rural farmers. FFS on the other hand with its focus on active participation in peer learning relationships and hand-on practical learning in an on-job manner emerge as an exemplification of situated learning. Especially in the still traditional cultures of Africa, where formal schooling is relatively new and the predominant way of learning has for centuries been through relational on-job societal coaching, FFS fits well in. While the literature on situated

learning involving a deepening process of participation in a communities of practice, have dwelt very little with rural farmers as learners, this research highlights the potential for increased attention to the value of this concept in agricultural development and rural advisory services. This study, however, concerns an educational intervention into the taken for granted praxis of everyday farming. The theoretical framework has been developed in relation to the FFS methods and educational philosophy, which are closely related to the developments within experiential and transformative learning perspectives.

7 Study area

7.1 Empirical frame

The empirical source for this research was a three-year IFAD funded project "Expansion of Farmer Field Schools Programme in Eastern and Southern Africa", which started in September 2005 in Kenya, Uganda and Tanzania. The project was implemented jointly between FAO and Government Ministries of Agriculture in the three countries. Key interventions included running of about 100 FFS in each country, development of self-financing mechanisms for FFS implementation, development of a broad-based market oriented learning curriculum, support to farmer organisations and networking and models for institutionalisation and up scaling. The project had a strong focus on exploring and testing ways of making farmer education more demand driven, cost effective and market oriented (Global IMP Facility 2003).

The project was a 2nd phase and a direct follow up to an earlier three year IFAD-financed programme between the years 1999 – 2002 for which the objective was to examine whether Farmer Field Schools could have an impact on rural poverty reduction in the specific conditions of East Africa. It was one of the first large scale FFS programmes in Africa.

A non-envisaged impact of this project was the establishment of local and district level "FFS networks" consisting of elected boards formed by FFS graduated groups and operated through a paying membership. These networks have been observed to increasingly starting to take on the role of assisting the groups to identify and access external service providers and skills. They have also proved to be effective units for input supplies, produce marketing and policy advocacy. They represent a significant development in terms of organisations owned and controlled by the poor. The motivations for selecting the IFAD programme as the empirical frame for this research were:

- This project was spearheading development of demand-driven services in the region and applied a range of innovative aspects such as broadened curriculum, demand-side financing, market orientation, participatory learning with evidence of collective action emerging etc.
- The project had a history since 1999; therefore it was possible to evaluate effects and impact that take time to emerge.
- The project implementation strategy and implementation modalities have been largely identical in the three countries, thereby making it possible to do a comparative analysis across the three countries.
- The project had a strong commitment for learning, and allowed the necessary flexibility in implementation modalities in order to ensure that the programme could evolve according to the demands of participants.

7.2 Research sites

The research was undertaken in the context of the IFAD FFS project in Kenya, Uganda and Tanzania and field sites defined accordingly to the two or three districts in each country that were part of the project. All sites were fairly high in agricultural potential, high-populated locations with rainfall in the range of 1000-2000 mm/year.

Western Kenya

The field sites in Kenya were located in the districts of Kakamega, Busia and Bungoma, which are fairly similar to each other in terms of agro-ecological and socio-economic situation. Agriculture is the main economic activity in these districts with maize, beans, groundnuts, vegetables and livestock, especially poultry, as predominate production enterprises. Cash crops such as coffee, tea and sugar are also grown. Much of western Kenya is considered to have good potential for agriculture, however the area is relatively highly populated and land holdings often small. The history of farming in the area, however, is characterized by low input – low output farming. The lack of land has led to overexploitation of land resources with highly nutrient poor soils as result. Much of the tree cover has been removed. Rainfall is seasonal, reliable and range between 1,000-2,400 mm per annum, which allows two cropping seasons. Topography is rolling hills with scarps, and with potential for irrigation. The economy is largely public sector and subsistence driven and the districts have limited infrastructure facilities in terms of roads, information resources, value addition plants etc. Population densities in the region are among the highest in rural Kenya at an average of 950/km2. There is an estimated 1.8 million people in the districts of Kakamega, Busia and Bungoma

(1999), and of the order of 75 % of people under the age of 30 years. Luhya is the most common ethnic group found in the districts. Poverty levels are high at an estimated 50 % in *absolute* poverty. A national study of poverty found Western Province to be one of the poorest in the country (Republic of Kenya 1997). It was estimated that 31.5% of households in western Kenya are among the hardcore poor, as opposed to 19.6% for all rural areas. Western Kenya is centrally located within the country and within East Africa, it is on the main trading routes between the coast/Nairobi and the hinterland of Uganda, Rwanda and the DR of the Congo, and adjacent to Kisumu – a main lake trading centre.

Eastern Uganda

In Uganda the field sites were located in Soroi, Kaberamaido, and Busia districts, where the two first are adjacent district in the north east, while Busia is located on the border to Kenya on the east. The situation in all district are fairly similar with Busia providing a higher potential context, and is also more favourable located in terms of trade etc. than the other two districts. Rainfall ranges between 1000-2000 mm/year with Soroti having the driest conditions. There are two rainy seasons per year between April-June and August-Novmber. Infrastructure in terms of roads is fairly well developed. Kaberamaido is one of the districts with fastest growing population in the country with a 99 people per Sq km of land and has many up-coming trading centres scattered all over the distinct. Soroti is much more sparsely populated with only half of the population density of Kaberamaido.

During the eighties agriculture was depressed by civil war, but following the peace in the 1990s the area has experienced extensive agricultural growth. Agriculture in the area is fairly high potential, despite often poor and shallow soils, with most of the population depending on farming for food and income. They use animal traction (oxen) to plough the land while hand hoe is the basic tool for cultivation. Crops grown in all districts include maize, potatoes, cassava, groundnuts and beans. In Soroti and Busia cotton and coffee are also important crops, and in Kaberamaido and Soroti; millet, rice and potatoes are grown. Soroti is one of the leading suppliers in the country for sweet potatoes. There is a high livestock population in all districts, in particular in Busia. In Soroti the cattle population was reduced to nearly zero following extensive cattle rustling during the war (Government of Uganda 2003), but is slowly increasing again.

Kagera region in Tanzania

The field sites in Tanzania include the districts of Bukoba rural, Muleba and Karagwe which all are located in the Kagera region. Kagera is the most remote region from the administrative centre of Dar es Salaam along with Kigoma. The isolation is further compounded by poor roads into the region and by being squeezed between the neighbouring countries of Uganda, Rwanda, Burundi and Lake Victoria in the east. The geographical isolation and the proximity to three foreign countries have made Kagera vulnerable to foreign influence and in particular influx of refugees. Kagera has thereby suffered severely from refugee damage, including severe deforestation, poaching of game reserves, and overload of infrastructure and service facilities. Education levels are high due to the history of early European missionaries

The region's climate is influenced by its proximity to Lake Victoria, with higher rainfall on the shore strips and the highlands close to the shores, The rains are bimodal; March-May and October to December, with an average annual rainfall of 800-2000 mm. The region is generally considered as the banana and plantain country and the land of coffee. Soils in the area have high iron and clay content, but low in nitrogen, phosphorus and are acidic. Soil erosion is a serious problem especially near the lake.

The farming system is divided in three distinct agro-ecological zones: *Lake shore and islands*, receive the highest rainfall, growing mainly bananas, cassava, beans, coffee and tea and where farm size range between 1-2 acres. *The Plateau area*; with moderate rainfall growing mainly bananas, beans, maize, cassava and coffee, and where farm sizes are 2-10 acres. *Lowlands*; flat plains with low rainfall and only one rainy season, with main crops being cassava, rice, sorghum, millet and maize and with cotton as the main cash crop, and farm sizes ranging between 3-5 acres. Kagera region has further a long history of the development of cooperatives, with over 222 agricultural marketing cooperatives in 2002 and 115 saving and credit cooperatives. The cooperatives in Kagera have not suffered the large collapse as compared to as for example Kenya, and continue to grow even though often faced with management problems (United Republic of Tanzania 2003).

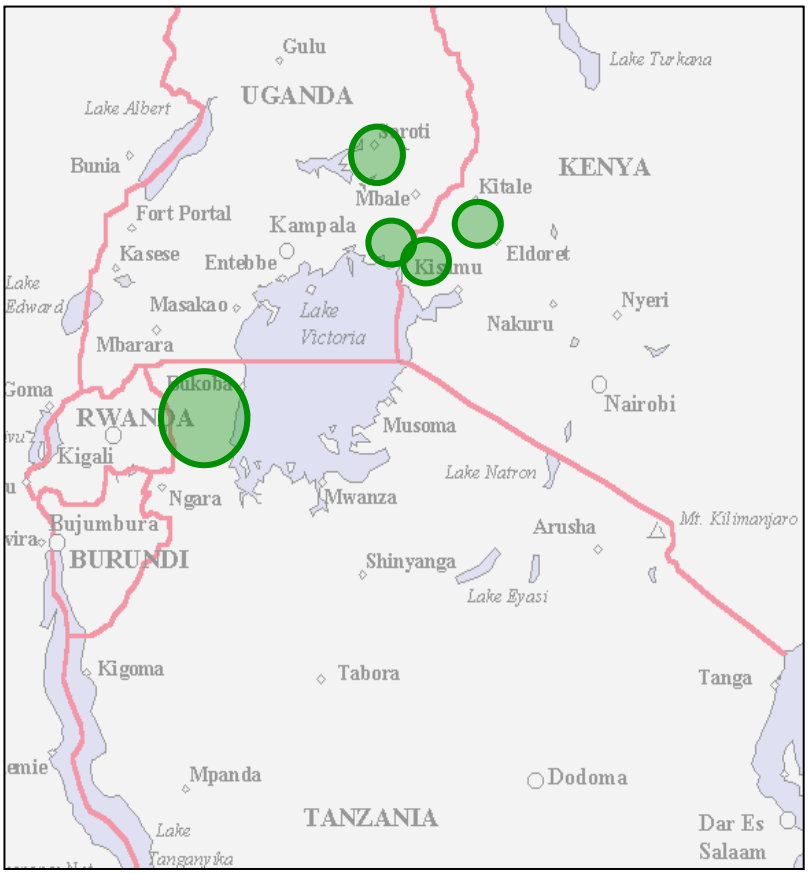

Figure 10. Location of research study sites in Kenya, Uganda and Tanzania

8 Methodology

8.1 A combined methods approach

After considering the broad scope of my research and the questions and issues that needed exploration I decided that no one single methodology would adequately capture all of the required information. I needed to apply a variety of methods and tools, and therefore chose to combine qualitative and quantitative measures in order to capture the depth of issues while at the same time achieve some degree of generalizability. Carvalho and White (1997) elaborate on qualitative and quantitative approaches in relation to poverty related analysis and concludes that quantitative approaches can be characterised as having *breadth*, while qualitative having *depth*. There is a growing recognition that to understand social phenomenon, a combination of data collection methods are necessary, despite that these differs substantially with respect to their epistemological foundations. Quantitative strategies relate more to positivism and objectivism, through deductive testing of theory approach while qualitative strategies relate to constructivism and interpretivism through an inductive generation of theory approach (Bryman 2004).

Despite applying a range of quantitative tools, I have considered my research predominately to lie within a constructivist and qualitative perspective. Theoretical understanding evolved during actual research, through continuous interplay between analysis and data collection as described by Strauss and Corbin (1994). Bateson (1979) explains there are fundamental differences between the world of non-living things and living processes, where order arises from the patterns of information flow rather than from physical relationships of cause and effect and where differences in quality and more profoundly important than differences in quantity.

The constructivist philosophy is generally inherent in community-based action research, where the researcher and the community work together to generate new knowledge. Similarly, this research seeks to engage “subjects” as

equal participants in the research process (Stringer 1999) and scientific objectivity is not the purpose of the research. Knowledge is thereby socially constructed and objective and value-free science is impossible (Bryman 2004).

Practically the research combined qualitative and quantitative approaches in a manner consistent with what Carvalho and White (1997) indicated brings out the best of both. Much of the study was conducted in this way drawing on participative methods of inquiry. Qualitative processes such as exploratory workshops and focus groups were used to help frame indicators of well-being or empowerment that then were applied through qualitative measures in household surveys. Qualitative processes were also used for enriching and confirming findings generated from quantitative tools. Yet, the quantitative aspects of the study have been important for the theoretical development as well. Quantitative data in form of household surveys were used to focus in on particular sub-groups or individuals for sub-sequent follow-up qualitative study. Finally combining findings of qualitative and quantitative measures helped in gaining a more holistic view and understanding. That transformative learning emerged as a fitting interpretative framework for the learning processes were not given, but an outcome of the analysis.

The table below illustrates the purpose of using both qualitative and quantitative approaches in my research:

Table 3. *Advantages of using qualitative versus quantitative approaches*

Qualitative	Quantitative
• Capture in depth data related to peoples' judgement, attitudes, preferences and perception on a subject • Ensure contextualisation, i.e. understand human behaviour within the local context. • Ensure relevance for people engaged in the research or the subjects of the inquiry. • Facilitate a process of change as people engage as co-researchers in the inquiry	• Makes it possible to test representativeness of qualitative findings, i.e. confirm or falsify emerging theories. • Makes standardised comparisons easier both cross-country and between various groups, i.e. FFS participants and non-participants.

8.2 Data collection tools and methods

Household surveys

The quantitative data source for this study comprise of a combination of face-to-face questionnaire surveys of a total 1203 households carried out in Kenya, Uganda and Tanzania during 2004-2007. The samples in the different countries included non-FFS members, FFS pre-members (enrolled for FFS but not yet

started) and FFS members (FFS/NAADS group members in Uganda). One major impact survey was carried out within the scope of the research while data from several additional surveys were used in the analysis. The face-to-face impact survey undertaken included about 300 graduated FFS members in Kenya and Tanzania and was carried out in 2007 with randomly sampled FFS participants from FFS groups started back in the years 1999-2002.This dataset was used to compare the post FFS situation to the pre-FFS scenario. The pre situation was defined by the following datasets:

In Kenya and Tanzania: Data in each country were collected in 2006 through a stratified random sampled survey with about 280 individuals signed up for FFS (but not yet having commenced participation in FFS, i.e. FFS pre-members) and 120 non-FFS households. A two-stage random sampling technique was applied to select FFS pre-members with 20 FFS groups per country randomly selected, divided proportionally per district. Thereafter household members were selected based on lists of households in the selected FFS groups. Non-FFS participants were randomly sampled in neighbouring villages (without FFS activities ongoing) to the selected FFS groups, by means of village and household name lists obtained from the local administration.

In Uganda (Soroti district): A survey questionnaire was implemented in 2007, managed by Danish Institute of International Studies (DIIS), with 403 respondents. Respondents were randomly selected in the district irrespective of FFS membership status. During data analysis, groups of FFS graduates and non-members were then separated for comparisons. In Uganda the NAADs program provides the dominant framework for collective activities among farmers, and most FFS groups that started in 1998-2001 had turned into NAADs groups. Therefore the sample of FFS members in practice included both FFS and NAADs participants, while the non-member groups included neither FFS nor NAADs members

All survey interviews were conducted with the help of a formally structured questionnaire under the supervision of the researchers. Trained enumerators, knowledgeable in the local language, carried out all surveys. The surveys were field-tested before being implemented in the countries. The questionnaire included a range of aspects such as poverty indicators, the adoption of agricultural technologies, economic and institutional issues, personal and collective agency, attitudes, perceptions of power etc. The content of the surveys in Kenya and Tanzania was largely identical, while there were a few variations in the Uganda survey format. Data analysis was carried out using SPSS software.

Well-being ranking methodology

One part of the survey related to capturing the overall well-being of the households. This part builds on innovative experience in East Africa with developing well-being indicators identified by farmers (Ravnborg et al. 2004; Friis-Hansen 2005), initially tested on large scale in Uganda and later verified in Tanzania. Multidimensional and participatory poverty well-being indicators were identified by farmers through small groups of community members, through household ranking and description, statistical testing of the indicators and finally translation into 13 categories of farmers perception of well-being. Based on these indicators a household poverty index was computed.

Explorative participatory seminars

Larger stakeholder group events, such as participatory and interactive seminars were used particularly in the design stage of more in-depth study for framing of indicators for quantitative tools or for framing of checklists for focus group discussions or key informant interviews.

Survey indicators for the impact questionnaires were defined through stakeholder workshops carried out in each country in 2004/05. The workshops were 3-days and included about 20 persons; FFS member farmers, farmers from FFS networks- producer organisations, field extension staff, and project coordinators. During the workshops participants, through interactive facilitation, developed indicators for expected outcomes of FFS education, based on the local perspective. Indicators related both to short term aspects such as access to services, agency, organisational skills etc. and more long-term outcomes such as improved livelihoods and well–being. Even though there were some variations of indicators in the three countries, the outcome of the events were surprisingly similar, supporting the idea of the possibility for standardising survey content across the three countries. The process applied in these seminar events built on principles of co-operative inquiry used to enable groups of people to gain better understanding of their everyday experiences and develop new and creative ways of making changes (Heron 1971; Heron 1996: Reason and Bradbury 2001).

Individual in-depth interviews

For more in-depth understanding of how empowerment and transformation played out in individuals' lives (Merriam, 2002), individual interviews were carried out with sample FFS members and graduates. The specific aims of the interviews were to understand (a) respondents' perceptions of their experiences of FFS in terms of both instrumental and personal gains, and (b) changes induced at the personal level (skills and world views) and in respect of

relationships at the household/community level following FFS participation. Individuals in Kakamega district, Kenya, were purposely sampled, with assistance from local FFS network leaders, to (a) represent typical FFS graduates, (b) be informative examples of personal changes resulting from involvement in FFS, and (c) to ensure gender balance among respondents. Twenty individuals were interviewed, half of which were graduates of FFS from about year 2000, while the other half were made up of current FFS members or more recent graduates. The in-depth interviews followed an interview guide developed to ensure that certain questions were covered. In association with the in-depth interviews ten key informant interviews with FFS facilitators and FFS network officials were also carried out with. The approach permitted flexibility to explore and probe topics of interest to each respondent (Patton 1990). Translators were used during the interviews that were audio-recorded for transcription supplemented by handwritten notes. Interviews transcripts were analysed, using a constant comparative approach, party using NVIVO-QSR (version 8) in order to identify its essential elements and for coding.

Figure 11. One of the respondents for the individual interviews with his wife and outside their home. (Photo by D. Duveskog)

Focus group discussions

Focus group discussions among people from similar background or experiences, brought together to discuss a specific topic was used to gain more in-depth understanding of certain issues. The structure of these focus group

discussions was kept to a minimum, allow feelings and characterizations to emerge from the participants themselves (Dawson et al. 1993). Focus group discussion were used to generate data in terms of background information, opinions, ideas, perceptions, and beliefs and experiences on aspects and factors that influence opinions, behaviours and motivation among farmers. Focus groups were also used at the design stage of the household survey and other quantitative tools to frame indicators and questions, and used to shed light on quantitative data collected. Focus groups were used mainly among groups of FFS farmers, FFS networks and among village/ward committees and other local institutions. Data was recorded either by written notes or recorded and transcribed.

Figure 12. A group interview undertaken in Kakamega, Kenya. (Photo by D. Duveskog)

Participatory visualisation tools

Various visual and interactive facilitation tools, building on PRA practice (Chambers 1994) were used where appropriate and in particular in connection with focus group discussions and explorative workshops. A range of tools was used during the preparation phase of the research, such as; mapping, evaluation wheel, flow diagrams, network diagrams, change tool etc. Such tools help stakeholders improved practice in programme and intervention context (Chambers 1993; Guijt and Braden 1999) and were thereby a valuable means to induce change and action among respondent participants and contribute to a spirit of action research.

Key informant Interviews

Key informant interviews were used to capture data related to institutional and policy issues and opportunity structures and to understanding local contexts and situations. Semi-structured or fully open-ended interviews (Patton 1990)

were held with selected key informants such as local and national extension managers, extension workers, government officials and village leaders. Most of these interviews were recorded and transcribed. During field visits, meetings and training events, consultative meetings and project visits informal talks also occurred, and were documented through field notes.

Secondary data sources

Secondary data were also reviewed and analysed, including policy documents, extension management guidelines and procedures at the local and national levels. The aim was to gain an understanding of how institutional issues influence service provision to farmers and constraints and facilitating factors in responding to farmers' demands by the government and other extension actors. Further, background materials about the bio-physical, socio-economic and cultural contexts in the various study sites were analysed so as to gain a better understanding of the local situation.

Personal diary

In the context of viewing my research as an action research inquiry within my workspace I kept a diary for descriptive accounts of my everyday research and work experiences. Observations and reflections in everyday events such as visits to farmer groups, discussions and meetings with extension staff, participation in national policy processes and meeting etc. was recorded and reflected on as part of the research process.

Direct observations

Direct observations played an important role throughout the research period in contextualising findings and understanding contexts (Patton 1990) as well as to understand relationships and interactions among individuals and sub-groups. Observations were made during regular FFS group meetings attended, villages visited, stakeholder and community events attended. In particular, observations were useful in understanding gender dynamics by observing the interactions between men and women during FFS group sessions and events.

Action research within the workspace

This research was party carried out as an action research process within my regular workspace. For much of the study period I was acting as researcher while at same time program advisor for the development intervention under study. In a way I was researching my own practice and studying aspects and phenomenon that my actions and me were an important component of. While these dual roles provided challenges in terms ensuring true objectivity of the

research it also provided a range of opportunities for ensuring direct impact of the research in informing practice. My aim was to generate concrete and practical knowledge to enable those responsible for making policy, managing programs and delivering services to make more informed judgements about their activities, thereby make services more appropriate and effective for the people they serve. This perspective is fully consistent with the motives and objectives of participatory action research (Stringer 1999; Reason 1994) where apart from producing knowledge and action useful to the community, it also empower people to construct and use their own knowledge. This implies less emphasis on uncover generalizable truths and more focus on the emphasis on the realities of individuals/groups in local contexts (Stringer 1999). This action research perspective allowed me to be a researcher while at the same time act as a change agent and assume benefits related to my role as 'insider'. Research that operates at a distance from the everyday lives of practitioners, and largely fails to penetrate the experienced reality of their day-to-day work (Stringer 1999). Reason (1994) points out the fact that we can only understand our world as whole if we are part of it, as soon as we stand outside we divide and separate. In action research there is no functional distinction between the researcher and the researched. They are all defined as participants, and have equal footing in determining which questions to be asked, information to be analysed, and conclusions to be made (Stringer 1999). To undermine the possible drawbacks of problems in objectivity I deliberately teamed up with research colleagues that did not have an involvement with the FFS program under study for data analysis and this provided a continuous check on my research findings and conclusions, to ensure that my own biases did not undermine the research. Reason (1994) argues that true objectivity does not exist and that the observer is always inseparable from that which is observed. Instead he refers to the term 'critical subjectivity', arguing that the validity of our encounters with experience rests on the high quality, critical, self-aware, discriminating and informed joint judgments of the research actors and subjects.

The below table gives an overview of the use of the various methods explained above in the different papers.

Table 4. *Overview of the research tools applied in the various papers*

Research Methods	Paper 1	Paper 2	Paper 3	Paper 4
Household surveys			√	
Well-being ranking methodology			√	
Explorative participatory seminars			√	
Individual in-depth interviews	√	√		√
Focus group discussions	√	√	√	√
Participatory visualisation tools	√	√		√
Key informant Interviews	√	√	√	√
Secondary data sources	√	√	√	√
Direct observations	√	√	√	√
Personal diary	√	√	√	√
Action research within the workspace	√	√	√	√

8.3 Data analysis

8.3.1 Analysis of interviews

Interview data was analysed in an inductive manner, where themes were generated based on emerging similarities of expression in the data material. A constant comparative approach where the various groups of respondents were treated the same. All individual interviews and most group interviews were recorded and, by a third party, transcribed and translated into English where needed. The software NVIVO-QSR (version 8) was used to separate data from the transcript and identify essential elements. Many of these segments later provided quotations in the write up of research findings, where pseudonyms were used in order to protect the anonymity of the respondents. Each transcript was systematically reviewed and responses coded (Miles and Huberman 1994) based on which common themes were identified and sub grouped thematically. Analysis continued until there was a consensus on interpretation and each category was '*saturated*', that is, further analysis appeared to yield no new information (Lincoln and Guba 1985). Many of the sub-headings in the findings section of this summary as well as in the published papers represent themes that emerged through this analysis process.

8.3.2 Statistical analysis of survey data

A variety of survey tools were applied for this research and data was accordingly analysed in a variety of ways with statistics computed by use of the SPSS software. Questionnaire sections relating to the expressions of well-

being among respondents were analysed according to the established well-being ranking methodology where a poverty index is based on a field tested set of poverty indicators that form the basis for a household poverty index computed (Ravnborg et al. 2004; and Friis-Hansen 2005). For analysis empowerment-related variables were separated into two groups: 1) self-perceptions and attitudes among farmers towards their power and agency in life, such as the power to influence their lives and community, trust and gender relations; and 2) actual expressions of agency in their daily lives, such as productive assets, knowhow, access to services and the ability to plan. The questions in the survey relating to self-perceptions and attitudes were captured by a three-point summative scale (Likert 1932): 1 = agree, 2 = neither agree nor disagree, 3 = disagree. An example of the attitudinal statements used was, 'I feel I can make this village a better place to live in!'. Questions related to expressions of agency in everyday life were mainly included in the questionnaire as binary items (yes/no questions) such as 'Are you a member of a savings or credit organization?'

All statistical analysis was carried out using SPSS software. A factor analysis was carried out in order to aggregate empowerment factors. The eleven questionnaire items with a summative scale on perceptions and attitudes were subjected to principal component analysis (for each country data set) to segment the variables into fewer factors of self-perception of agency. Correlations between the input variables were first checked and all variables were shown to correlate with at least a few others. Spearman and Pearson correlations were checked to confirm that the limited three-point ordinal data set was applicable for factor analysis. Models for four, five, six and seven factors were computed (factor rotation method Equimax with Kaiser Normalization). Correlations and factor-loading coefficients were used to understand the nature and structure of the four factors. Finally the factors were labelled and saved as individual variables subjected to the cross-tabulation in the same way as the binary dataset items.

Levels of significance were tested on both the emerged factors and categorical variable items by cross-tabulation and Pearson Chi-square tests. The binary data items, generated from the qualitative interview work, and emerging factors were analyzed through cross-tabulation to identify dependences between various variables, such as between the empowerment variables and poverty level categories. In comparing the categorical variables and testing of significant differences between groups, the Pearson chi-squared (χ^2) test was used.

Participants whose responses were incomplete were excluded automatically by SPSS in the data analysis. More detailed description of the survey data analysis is presented in the published papers.

8.3.3 Analysis of secondary data

Secondary data generated from interviews with key informants (FFS facilitators, FFS network officials, project managers, government officials) and FFS groups or individuals where no tape recording was done and through direct observation was documented through handwritten notes. The stakeholder workshops undertaken in each country where variables for measurements of empowerment were developed was documented through workshop reports.

Secondary data reviewed and analyzed in the form of policy documents, extension management guidelines and procedures at the local and national levels as well as background materials about the bio-physical, socio-economic and cultural contexts in the various study sites were also analyzed through handwritten notes. These written notes provided a valuable source of additional information for triangulation of data generated by other means during the research.

9 Main findings

The findings of this thesis are presented in detail in the four published papers I, II, III and IV attached to this thesis. What follows below is a summary of key content of the findings. It is important to note however that this summary does not replace the papers and readers are encouraged to read the full papers for a much more in-depth description of the research findings including valuable quotations from qualitative data and statistical presentation of quantitative data. In the below summary the findings have been categorized in four thematic areas, relating to the overall research questions and to the papers; 1) change in everyday life among participants; 2) Changing traditions, gender roles, and community relationships; 3) relationship between FFS, empowerment and well-being and 4) the fostering of transformative learning. Finally suggestions for areas of further research are outlined.

9.1 Change in everyday life among participants

The qualitative research carried out in Kakamega, Kenya, revealed significant impacts demonstrated in aspects such as personal transformation, changes in gender roles and relations, customs and traditions, and community relations, and an increase in household economic development, presented in paper I. What follows below is a brief summary of these findings with particular emphasis on changes at individual level among participants.

Several interviewees shared the information that they had experienced significant improvements in their well-being as a consequence of joining FFS. To appreciate this change and the nature of the transformation, it was important to establish how they made sense of their lives prior to FFS. Well-being prior to FFS was described in terms of quality of life, the ability to sustain a livelihood and overall self-worth. Many interviewees were food-insecure

before joining FFS and unable to nourish and protect their families adequately, and felt that they lacked the power to rectify their situations. Some were trapped in a cycle of having to work for other people's farms as to earn immediate cash, thereby neglecting their own farm. Farmers' inability to improve their quality of life was inextricably linked to their own self-perceptions and most significant here was the lack of confidence found among participants, which was associated with an avowed sense of fatalism and a verbal lack of active engagement with the work of living productively. Frustration over their livelihoods and aspirations for a better life ultimately became the key motivators for joining FFS.

Participants clearly stated that they had acquired benefits from participation in FFS in terms of instrumental learning and skills such as adopting more effective agricultural techniques and the application of new skills on their farms. Participants explained that a shift had taken place in mentality from subsistence farming and providing for the day to a more planned and market-oriented agriculture. This included a shift away from haphazard unplanned behaviour, recognising that effective farming requires short- and long-term planning, record keeping, staying abreast of effective farming practices and the importance of sustained and regular farm management. Daniel, one of the study respondents, explained: "Previously we were just farming carelessly, but now we are farming for business'. While previously some participants seemed to rely more on tradition for enterprise selection, after FFS they were able to identify enterprises that had an economic value, this was often attributed to the learning of record keeping in FFS.

Individual transformation (e.g. significant individual change) found among FFS participants was reflected in an increase in confidence, greater individual agency, a stronger work ethic and commitment to farming, an improved outlook on life, and a greater emphasis on planning and analysis in farming. The farming skills gained increased not only the confidence in farming practices but created a feeling of confidence in the role of being a farmer. Shyness was also often overcome, for instance, the secretary of an FFS group and a 32-year-old farmer trying to make a living for his family of a wife and three children on his 1.5-acre plot, stated: 'I have gained personality, I have input to the group and my family at large, I can stand and express myself.' Directly linked to the increase in confidence among participants was a greater sense of individual agency that was reflected in several ways, involving taking the initiative and being prepared, for example in terms of planting early to catch the first rains, acquire seeds well in advance etc. Individual agency also emerged in terms of confidence in the questioning of authority. An additional indicator of the transformations wrought by FFS members was a stronger work

ethic and a greater commitment to farming and to their work. This was reflected in some of the FFS participants' change from idleness to individual agency and the development of a greater work ethic. This change in work ethic experienced by FFS members was mentioned as compatible with the ideals preached by the church. For example, FFS encourages hard workers, just as God does. Several participants interviewed stated that they had experienced greater acceptance by the church after joining FFS, giving them a feeling of being closer to God.

Participants, especially among men, expressed a stronger work ethic, as well as a commitment to farming and their work. In a number of cases, men or their wives mentioned reduced drinking and loitering by men following re-engagement in farming activities, and increase motivation in developing their farm enterprises. For example, Stephen, a 50-year-old man with no schooling and eight children, stated; 'Through the FFS I learned that pleasure and leisure are a waste of time, so I've cut all those and concentrate on my farming activities because that has economic value'. Along with a significant increase in their work ethic, participants also reported an improved outlook on life as a result of participating in FFS, manifested in a sense of greater optimism about farming and happiness and pride in their agricultural achievements.

Through the interviews, it became apparent that a general belief among men is that women are not capable of thinking and reasoning in the same way as men. This belief had started to change through the relationships developed among men and women in FFS. It seemed it was not only the men who started seeing women as more equal; women also shared the feeling of overlooking or giving little attention to the differences across gender.

The study showed that, despite the recent move towards the modernization of lifestyles, farming practices in Kakamega are still very closely connected to traditional beliefs and taboos, many of which are gender-based. Among traditional beliefs mentioned by participants were that men should not grow vegetables, women cannot plant trees or bananas, sweet potato should be planted by women only, and women should not eat eggs or chicken meat. The breaking of some of these taboos was connected with a high level of fear that kept people from challenging these practices.' By being able to experiment with 'forbidden' practices in the safe space that the FFS provides, participants' beliefs were found to be changing when realizing the cause-effect impact of farm management actions and that there were no consequences of carrying out taboo tasks. Sarah mentioned, "I saw so and so do it and nothing happened, so you say now let me do it also."

The above findings indicate that the participants in FFS experienced a change in perspective as a result of their participation in the group, reflected by a significant shift in how they made sense of farming practices and of their lives in general. This shift did seem of a profound nature and similar to what in transformative learning theory is referred to as perspective transformation (Mezirow 2000). The shift was established in what Kegan (2000) refers to as an epistemological shift, a shift in their way of knowing reflected in greater reliance on planning and analysis in their farming and daily activities. Further affirming this shift is the questioning by participants of previously held assumptions in terms of taboos and cultural beliefs for explaining farming successes and failures and their replacement by greater reliance on empiricism in informing farming practices. This questioning of assumptions is also indicative of critical reflection, a core element in transformative learning (Mezirow, 2000). Participants also demonstrated a shift in ways of knowing indicative of what Lange refers to as an ontological shift in world view, the transformation of "an ontological process where participants experience a change in their being in the world including their forms of relatedness" (Lange 2004, p. 137). This relates to individuals' purposefulness, a sense of having greater meaning and direction in life. Considering the profound changes demonstrated the study concludes that FFS does appear to be a learning experience of transformative nature for a large number of its participants.

9.2 Changing traditions, gender roles, and community relationships

The initial study and paper of changes in everyday life among FFS participants generated such large amount of data related to gender relations that this became scope for a result area and paper on its own, originally not envisaged. This demonstrates the importance of gender in the FFS experience where approximately 60% of participants are women and 40% men (in the study areas), of varying ages, but with a majority of members between 25 and 45 years of age. The qualitative research carried out in Kakamega Kenya revealed seven definitive categories about how men and women related to one another in FFS, how their views were impacted by the collective experience, and the impact this had on the household and their daily lives. Each category is discussed inclusive of rich and descriptive data from interviews and observations in paper II. Participatory observations over the course of the research period revealed a changing dynamic during the FFS group period where over time men and women felt more at ease to interact with each other in a manner more relaxed than normally the case among adult individuals of

the opposite sex. This was enforced by the FFS structure that mandates rotation and equal sharing of all roles during sessions independent of sex, with the exception of leadership positions, which were democratically elected and tended to me held by men apart from the post of treasurer, often held by a woman.

Gendered roles and habits, based on perceptions of who should be doing what kinds of duties in the community or household, were gradually starting to change according to members, and FFS seemed to have contributed to this. Many of these changes relate to household or farming chores or workload and sometimes involved individuals stepping over strong cultural barriers such as men helping out in the kitchen or fetching firewood. Many respondents reported an increase in women being breadwinners in the household and contributing economically to the upkeep of the family, something coming as a surprise to some men such as Titus mentioning 'It was assumed that women do not have any mind to organize themselves along economic lines'. Titus wife explained how she now thought of herself playing the role of a man as well as a woman, instead of just waiting. This increased responsibility for the household economy taken up by many women seemed not to be taken as a threat by men but rather seen as a relief. In fact many men stated it was a burden that was often too heavy to carry, being the one that the family depends on for its survival, this being a reason why many men turned to alcohol for stress relief.

The study results also showed a trend towards increased acceptance of friendships across gender lines, where married men and women could interact more freely with fellow farmers regardless of which gender they were, something earlier not accepted due to restrictions in talking to wife's of other men. This had made it easier to exchange advice among neighbouring farmers.

FFS members refer to how the collaborative learning in FFS has induced relationship changes in the spousal unit in terms of increased collaboration and joint decision-making between husband and wife. This was especially the case in relation to farming practices applied but also transferred to other areas of the family unit. This is also often referred to as something new and a change from a culture in which the man takes the most decisions. Jafeth, a 53-year-old man with two wives and seven children stated "FFS brings men and women together to share our ideas, and once we reach a solution we now implement it as our own, now we own it together." The group discussion in FFS was referred to as a place where participants learn how to engage in more discussion at the household level. Participants refer to how 'noise' (arguments and quarrels between man and wife) in the household has declined following FFS participation, and how there now is more peace in the home. Many

members say there is less stress and noise at home due to the increase in incomes, but also because of the more equal balance of power that is created when both partners contribute to the upkeep of the family. Much of the noise mentioned seems to be consequence of financial stress and of conflicting priorities in the household. By both parties contributing to the household economy, there is less criticism from women that their husbands are not living up to their responsibilities and not carrying their weight in the household.

All farmers interviewed agreed that their relationship with and status in the community had dramatically changed as a result of their involvement in FFS. Several participants talked about a shift from providing casual labour for other farmers, which is often associated with low community status, to becoming a respected resource person and a leader within the community. For example Priscilla explaining how she had gained respect in the community:

> The relationship with community is different now because they want to tap the knowledge I have. For example, the people in the house want me to teach them what I have learnt. This has brought the community closer to me.

Many participants also acquire leadership skills that they practice within either the FFS group or the wider community. Ordinary FFS group members, who had no official leadership positions, often became informal leaders and served as community role models. Furthermore, several members explained how FFS had contributed to social inclusion, trust and a sense of togetherness among people in the community. Jotham, mentioned:

> Life has changed, totally changed… When you are socializing with people, people can trust you, but when you are isolated people cannot trust you because they do not know you. Before FFS, people did not know me.

The findings related to the change that men and women who participated in FFS experienced in how they view and relate to each other could partly be theoretically explained. Epistemologically, there is a shift by men and women in their way of knowing and their view of what knowledge is in the world. For women, with ever-greater confidence, they were beginning to recognize themselves as a viable source of knowledge, particularly for issues outside the maintenance of the household (e.g., farming). This is most likely to have occurred through a growing self-awareness by learning new farming practices and contributing to the learning of others in collaboration with both men and women. Men demonstrate a similar shift, such that they too were recognizing women as a viable source of knowledge. This was occurring by learning

alongside women and observing their competence within FFS (e.g., listening to them presenting). The shift is further demonstrated by the increased engagement in shared decision-making by men and women within the household. Ontologically men were learning to relate to women differently (e.g., shared spousal decision-making; possible friendship with other females) while women who participate in FFS seemed increasingly to come to view men as collaborators and partners.

9.3 Relationships between FFS, empowerment and well-being

Empirical relationships between FFS participation and increased well-being, as well as between FFS participation and empowerment; and finally between empowerment and enhanced well-being was studied mainly though the use of survey data. Well-being was established according to well-being ranking methodology (Ravnborg et al. 2004; Friis-Hansen 2005); Analysis from about two thousand household questionnaires showed a relationship between these aspects, despite contextual differences in the three countries studied. The results of this research are presented in more detail in paper III, while a summary follows below.

Development of indicators for measurement of empowerment

A starting point for this research was the elaboration of variables for measurements of empowerment, defined through a combination of theoretically informed expressions of empowerment and participatory development of indicators with community members. Resulting empowerment-related variables were separated into two groups: 1) self-perceptions and attitudes among farmers towards their power and agency in life, *i.e. what they thought*; and 2) actual physical expressions of agency in their daily lives, *i.e. what they did*. Factor analysis was carried out of indicators relating to self-perception and attitudes, measured though a three summative scale, in order to cluster indicators into groups. The resulting factors of empowerment produced were the following:

1. Household decision-making capacity; including aspects of feeling of power to make decisions on farming activities, education and health and household expenditures.
2. Gender equity and trust; including gender divisions in village leadership, decision making, household conflicts, solidarity and trust across neighbors.
3. Individual agency; including control of life, decision-making, solidarity and trust and participation in voting.

4. Trust in community and local authorities; including trust in government officials and politicians.

Issues of physical expressions of agency in everyday life, mainly included in the questionnaire as binary items (yes/no questions) formulated the following categories of indicators:

- *Innovation uptake;* i.e. uptake and adoption of new farming ideas such as new crop varieties, vaccination practices, soil management etc.
- *Access to services:* the sourcing of and access to agricultural extension, farmer-to-farmer information sharing, membership in savings/credit schemes, bank account etc.
- *Engagement with markets*: sale of produce, produce storage and value addition/processing.
- *Collective action and social relations*; collective marketing of produce, leadership positions held, participation in voting.

This framing of indicators for empowerment was an important component of the research considering the little existing knowledge available on measurement of empowerment in development contexts.

Who joins FFS?

Since FFS members join the groups on voluntary basis, and not randomised in the community the methodological problem of potential bias in self-selection had first to be overcome before analysing changes among FFS participants versus control groups. Therefore the characteristics of the participants of FFS groups, as compared to random samples of community members were established. While there were some variations, the result showed no significant difference in terms of poverty status among the average community members and individuals who enrol in FFS participation. No or only minor selection bias was therefore assumed which allowed for further comparison between FFS pre-members and FFS graduates.

The links between FFS membership and well-being status

In all countries the proportion of very poor was lower among FFS graduates than among FFS pre-members and the proportion of non-poor was higher among FFS graduates. This was evaluated through cross-tabulation, comparing the distribution of non-poor, poor and very poor among the two sample groups for each of the three countries. While the scenario varied slightly across the three countries, in all cases the differences between the two groups were significant. It was therefore assumed that FFS graduates in the study were

demonstrated to be less poor than FFS pre-members. Since the members and non-members were shown above not to be significantly different in terms of poverty before the FFS interventions, this change between pre- and post-FFS groups was assumed to be related to their participation in FFS. An example of Kenya for the pre and post comparison is show in the figure below.

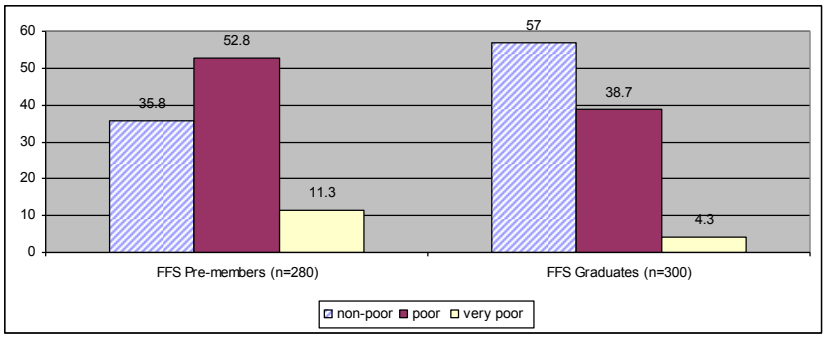

Figure 13. Kenya FFS pre and post comparison: % of sample within various poverty categories

Apart from the evaluating the resulting well-being category of farmers the process that bring them out of poverty was also looked at by further analysis of the thirteen well-being indicators of the well-being ranking methodology. Considerable differences between the three countries in the patterns of well-being, were identified a probable reflection of differences in socio-economic context. However, all three countries indicated significant change for poverty indicators that can change without the need for capital and/or a long period of time, e.g. stop working as casual labourer, hire of labour, quality of diet, household food security, family health and standard of family clothing and also asset based poverty indicators, including housing standards, children's education level and ownership of livestock.

The links between FFS membership and empowerment

The comparison of FFS members with the control group (non FFS members and FFS pre-members) in terms of empowerment was done through cross tabulation of the defined expressions of empowerment. The empowerment factors showed significant differences between FFS graduates and the control group in terms of higher levels among FFS graduates for the factors gender and trust, critical thinking and household decision making capacity. However power and influence beyond the individual or household such on community level did not show significant differences between the two groups. Trust in

community institutions and local authority was only tested in Uganda where significant difference was observed. FFS graduates showed higher levels of innovation uptake than the control group in most countries and aspects tested, but only at statistically significant levels in a few of the agricultural practices tested. For example in Uganda 46% of FFS graduates had started using improved crop varieties as compared to 17% of farmers in the control group. In relation to access to services FFS graduates showed higher levels than the control group on all items tested with strongly significant levels on most. Access to services such as bank account, savings/credit means and receipt of advice indicate negotiation skills and openness as well as determination and drive. For example in Kenya 77 % of FFS graduates had bank accounts as compared to 45% among the control group. In Kenya FFS graduates showed a significant higher level of commercialization than the control group on all aspects tested. However this picture was not confirmed in Tanzania and Uganda where differences were observed but not at statistically significant levels. An important aspect of personal empowerment is the level of involvement in collective action and societal involvement. This was in the study examined through involvement in collective marketing of produce, tenure of leadership positions and participation in voting. In Kenya FFS graduates showed significant higher levels than the control group on all tested items. In Tanzania and Uganda some differences were observed but not at significant levels.

Table 5. Summary of differences between FFS graduates and the control group in terms of selected empowerment aspects, for the full table see paper III.

	KENYA	**TANZANIA**	**UGANDA**
Empowerment indicators	**FFS (Control)**	**FFS (Control)**	**FFS/NAADS (Control)**
Innovation uptake			
Uptake of improved crop varieties	86% (71%)***	43% (38)	46% (17%)***
Access to Services			
Obtained advice from other farmers	49% (20%)***	53% (16)***	60% (64%)
Membership in savings/credit org. [1]	77% (45%)***	40% (27%)	43% (19%)***
Engaging with markets			
Sold farm produce in past two seasons	89% (78%)**	85% (89%)	81% (74%)
Collective action/social relations			
Involved in collective marketing	14% (5)**	30% (28%)	14% (12%)
Hold leadership position	63% (40%)***	58% (48%)	57% (43%)

Statistically significant levels: * $p < 0.01$; ** $p < .005$; *** $p < .001$

[1] *Uganda data from 2004 survey.*

The links between well-being status and empowerment

The empowerment factors did not demonstrate frequent significant correlation with poverty levels except in terms of household decision-making capacity in Kenya, critical thinking in Tanzania and trust in community institutions and local authority in Uganda. When cross-tabulating poverty levels with the empowerment items, more frequent relationships appeared. The links between the uptake of innovations and poverty levels appeared to be significant in all countries, with the non-poor showing a higher frequency of innovation uptake. For example, in Kenya only 32% of the very poor vaccinate their livestock as compared to 72% among the non-poor. The same situation was demonstrated in terms of access to services, which appeared to be linked to poverty levels, with the strongest correlations in Kenya and Tanzania. For example, in Tanzania 53% of very poor farmers had obtained agricultural advice in the last two years compared to 83% of the non-poor. Commercialization of agriculture and collective action items also appeared to be linked to poverty levels. For example, in Kenya 70% of non-poor farmers hold some kind of leadership position, while among the very poor the proportion was only 35%.

9.4 The fostering of transformative learning

The research revealed a number of aspects of relevance for informing the practice of non-formal education in general and FFS in particular about how transformative learning is fostered in the study setting. A number of factors contributed to the outcomes of the learning experience, aspects both related to the content of the learning as well as the process of learning as applied in FFS. These included an instrumental emphasis in the curriculum, presentation of knowledge, hands-on-activities, collaborative learning, and presentational knowing, creating opportunities for questioning cultural norms and building social capital, and the significance of the external facilitator.

The fact that the entry point for FFS is agriculture, the main source of livelihood among poor in the rural African setting seemed to play a significant role in participants' motivation to join and stay in the groups. Small improvements in farming techniques had a quick and direct impact on household well-being through improved food-security or incomes and when participants started to notice these changes they were highly motivated to actively participate in the sessions. This focus on farming skills and practices meant that there was an *instrumental emphasis* in the content of FFS learning. This was emphasized by the hands-on activities and practical activities where famers learned by doing in the field. Group exercises and experimental field plots helped the group make use of real life farming situations and problems, as

opposed to simulated experiences. Significant to the participants and their learning was this emphasis in FFS for hands-on activities *In Situ* (in the original setting). In this practical mode of learning the key role of the facilitator was apparent to help participants to reflect on this experience through problem-solving exercises that stimulate questioning and inquiry.

The ASEA exercise, a core pedagogical tool of FFS, practiced in the field at every learning session was found to be highly valued by participants and significant in building analytical and observational skills. AESA was also critical in giving participants opportunity to give didactic presentations to the subgroups or the plenary, this presentation of knowledge was found significant with a much broader value than the obvious objective of sharing of information. The frequent opportunities to stand up in front of the larger group to explain or present something was core for fostering self-confidence among participants. These didactic presentations were particularly significant for women participants, giving them an opportunity to take a leadership role, something few get to experience in such a deeply patriarchal community, see Paper II.

Pedagogically, what facilitates the merging of instrumental and communicative learning is the fact that learning takes place in cooperative learning groups where participants learn from each other through frequent discussions about observational data collected from the field plots. Significant to the learning was the fact that the groups were mixed, providing an opportunity to reflect and share across gender groups in a way not commonly done in everyday life. This sharing contributed to a diversity of perspectives surfacing in discussions and the nurturing of trust and respect for other people's opinions, an aspect particularly important for the gradual shift observed in participants way of viewing the opposite gender. Activities in FFS groups not only allowed interaction between men and women, but systematically encouraged it. This allowed for friendships to grown across genders, something normally restricted within a society where the spheres of women and men are largely separate. This collaboration in the FFS groups seemed also to translate to change in household collaboration among spouses.

Interestingly the instrumental learning through technical skill-based activities, where farmers regularly collect data in the field on different crop varieties, growth rates, and insect damage seemed to create opportunities for members to question cultural norms and deeply held superstitious beliefs and foster a gradual shift from habitual practice to a stronger focus on empiricism. The opportunity to question norms seemed particularly important for women participants, possibly since many norms reinforce traditional gender roles.

Within this context the implicit norms of the FFS programme seemed to encourage a safe space for testing of new practices and behaviours, in relationship to farming and between members of the community. Most groups had experimental plots in place where different agricultural practices were tested and compared to each other in a structured manner. Participants were in particular encouraged to compare technical solutions recommended by experts with local indigenous practices, and evaluate pros and cons of each. This was appreciated by participants since it gave space for trying out new practices on group level without having to deal with the risk of failure, something often discouraging the trying of new ideas. In FFS this safe space nurtured group cohesion and trust that develops among members involved in practical learning activities over an extended period of time. The continuous rotation in FFS of roles and responsibilities contributed to the breakdown of hierarchy between wealth and gender groups nurturing solidarity. Meeting in the field rather than in the classroom further stimulated an informal atmosphere where participants feelt at ease with one another.

A significant component of the learning experience was what participants referred to as 'group dynamics,' pedagogically usually referred to *presentational knowing* manifested through "movement, sound, colour, shape line" (Heron 1992, p.165). In FFS this entailed both spontaneous and scheduled local expressions of knowing through stories, song, dance etc., this aspect was particularly important for the marginally literate group members but also a means for entertainment and promoting relaxation. For example, it was often observed that FFS group members would dance and sing as they walk from their gathering place out into the experimental fields or sing and dance in the learning session about their successes in farming. During a group interview of Wameteti FFS, Grace explained how 'group dynamics' influences her learning. She stated: "during the dancing exercise the feelings and stresses elapses and I remain very comfortable during the sessions." since group members rotate in leading the various group dynamics it also contributed to individuals expression of confidence and leadership.

A final crucial element of the learning experience in FFS was the external facilitation. FFS learning sessions are guided by a trained facilitator that take participants through the learning schedule and guides and mentors activities, without teaching or dictating the content. The facilitator was seen as significance to the overall experience among participants and of importance were the efforts by facilitators to engage with participants on equal basis in a non-hierarchical manner. Many participants referred to the facilitator as a parent or guardian who over time was seen as part of their FFS family.

10 Concluding discussion

This section has multiple purposes. It provides a summary of key conclusions of the study as well as provides more in-depth analysis of some of the findings. Further it highlights some new perspectives and ideas emerging from the results of the study as well as some limitations. The discussion around findings are structured according to the initial research questions. The first sub section discusses how the FFS learning experience was found to play out in the daily lives of participants. The second sub-section elaborates on the role that FFS play in assisting participants to take control over their own development and well-being. Thirdly the extent that the FFS learning process can be explained through transformative learning theory is discussed. Finally limitations to the study and research gaps are pointed out.

10.1 How the FFS learning experience play out in the daily lives of participants

This study indicates that men and women who participated in FFS experienced a change in how they view and relate to each other. Among some of the most significant findings of this study are the changes observed in terms of the household division of labour. Backed by many qualitative statements, it seems that female FFS members have increasingly taken on a stronger role in contributing to the household income, an aspect earlier dominated by their husbands. Through this change, women have become more engaged in the commercialization of agriculture and in relating to market actors outside the household. Overall, there seems to have been a shift in the balance of power between men and women within the household, with more overlapping roles and responsibilities as consequence, allowing women to step more into the

commercial domain. As a response to the immediate need for improved food security, this has in practical terms led to a diversification of household sources of income and a generally improved stability of family economy and level of well-being. Related to the fact that women are taking on new roles in life and especially agriculture is the shift observed in terms of belief in taboos and gendered cultural restrictions. FFS appear to have led both sexes to question local traditions that dictate what men and women can and cannot do. The direct implications seem most profound for women, as many taboos were restricting women from engaging in commercial agriculture. In general the study found these kinds of gendered restrictions to be much more limiting for agricultural activity in this setting than what is normally assumed, as well as being connected to a high level of superstition and fear. The study thus brings significant new knowledge to the understanding of education processes that are holistic in nature. However it is important to keep in mind that this study did not look at possible secondary negative effects of changes in gender relations and sociocultural norms.

Analysis from the quantitative survey data showed a general relationship between FFS participation, empowerment and enhanced well-being among participants, despite contextual differences in the three countries studied. It is thereby argued that support for empowerment can act as a pathway towards increased well-being. The link between FFS participation and empowerment in terms of both perceptions and expressions of power in everyday life was very apparent in Kenya and to certain extent in Uganda and Tanzania as well. All countries showed linkages between innovation uptake and increased access to services and FFS membership. Kenya, however, was the only country that also showed significant differences between the two groups in the aspects of engagement with markets, collective action and social relations. At the individual level, FFS showed significant impacts across the countries on changes in gender, trust, critical thinking and household decision-making capacity, which is in line with a more qualitative study of FFS in Kenya. However, it should be noted that power and influence beyond the individual or household domain on the community level did not demonstrate a strong relationship with FFS, apart from an increase in leadership positions among FFS graduates, particularly in Kenya.

This study also demonstrates a relationship between the FFS learning process and poverty levels. In all three countries, FFS graduates proved less poor than their fellow community members. It was also shown that typical FFS members were not significantly different from the average community member in terms of the well-being indicators studied here. This strengthens the conclusion of interrelation between FFS participation and increased well-being.

The links between empowerment and poverty are however less clear than the relationships described above. Possibly this indicate that the relationship is a complex one with many additional factors influencing the dependency between the two aspects looked at in this study.

This study provides evidence for a range of positive outcomes induced by FFS. However, while not established by this study it cannot be ruled out that the FFS learning process and its outcomes might also have negative direct or indirect effect among participants or in the community at large in the current time or in a longer-term perspective. For example change in gender relations and social customs might contribute to further breakdown of traditional cultural systems, a trend already underway in African societies with the current modernisation and westernisation, with possible future unknown consequences. Further while the collectiveness in FFS is empowering and provide individuals with the necessary peer support to take on new roles and responsibilities, it could possibly be limiting as well for individuals who are not in agreement with the group and would wish to go against the collective decisions but due to group pressure and fear of group exclusion do not.

10.2 The role of FFS in assisting participants to take control over their own development and well-being

The study shows that learning in FFS relates strongly both to instrumental learning about how to manage the physical environment, as well as learning about one self, others and providing a platform for personal development and changes in relationships with others. These findings are in line with Habermas (1971) differentiated three generic domains of human interests and knowledge. FFS participants demonstrated an increased capacity to control and manipulate their environment through improved farming practices (instrumental domain), while also enhancing social relationships, interactions and communication (practical domain). Further, participants developed their self-knowledge and self-reflection and relational autonomy (emancipatory domain).

Both the instrumental learning and personal development observed among participation are aspects closely interwoven in the FFS pedagogy and it appear that it is this complex mixture of learning domains that makes the FFS experience successful. The instrumental emphasis ensures motivation among participants since learning directly contributes to food security and ability for livelihood improvements. Frequent participant led presentations and discussions helps members to internalize and process what they have learned as well as to build self-confidence. Hands-on exercises and field experimentation

on the other hand triggers aha-experiences, understanding of processes and questioning of held believes. The fact that FFS resembles the formal school in some aspects (structure, graduation etc.), more so than what is typical for non-formal education is of particular relevance in the development context where illiterate participants often aspire schooling and where education equal status. On the other hand the learning methodology include expression of knowledge through oral modes such as dialogue, storytelling, songs closer to the traditional African education system. This combination might provide an ideal means to bridge the two knowledge worlds, the colonial heritage of formal education with the traditional African system.

Knowledge is power

Knowledge empowerment is seen as one of the core aspects of empowerment (Leeuwis 2004) and in gaining voice (Narayan 2005). The study confirms this close interrelations where power produces knowledge and knowledge produces power (Flyvbjerg 2001; Gaventa and Cornwall 2001; Leeuwis 2004). The increased farming knowledge among FFS participants was found to raise their status and power in the community in a variety of ways. As Ingram (1987) pointed out, we learn so that we have more control over our world and learning frees us from dependence on others. The collective capabilities nurtured by the group in FFS appeared as help for participants to break through constraints of powerlessness and this had direct positive effect on their psychological empowerment, a relationship confirmed also by Zimmerman (1990). Freire (1970) talks about each individual winning back the right to say his or her own word, "to name the world" (p. 15). The capacity to aspire is crucial in the concept of agency and means the culturally formed capacity of poor groups to envision alternatives and aspire to different futures, an aspect expressed by respondents in the study through a greater positivism and brighter outlook on life. The sense of freedom connected to greater optimism, outlook and satisfaction in life has an instrumental role in development seen from the point of view of capability, the theoretical basis of United Nations Development Programme's (UNDP) perspective on poverty where wellbeing is achieved through a process of expanding the real freedoms that people can enjoy (Sen 1999).

Gender equity and relations have gained an increased focus lately through the growing recognition that processes involved in alleviating poverty are more complex than simply develop ways for women to have control over productive resources. The increased power and new opportunities for women in particular, shown as leading to an increase in household wellbeing and income, provides valuable input into the global debate on poverty reduction and the role of

women in development (The World Bank 2008). The results of this study also strongly support the notion that women should not be targeted in isolation, which is often the case in support to women groups only, but that real change in gender dynamics can only come about when men and women change together. FFS seem to generate gender impacts not only because they empower women, but also because they provide opportunities for the men to change as well.

A particularly interesting finding, in relation to power, of this study is that men did not seem to feel threatened by the shift in gendered roles and responsibilities which often led to increased power and status of women and women's increased economic contribution to the household. Instead men welcomed it and saw it as a relief on their burden as breadwinner. This supports the notion of 'power to transform capacity' rather than 'power as domination' (Giddens 1976). An increase of power among women to make changes in their lives does not necessarily imply a zero-sum relationship where men automatically lose. On the contrary, power in this sense might even have synergistic elements, where action by some enables more action among others (Gaventa and Cornwall 2001).

Collaborative learning

This research exposed a stronger focus on collaborative learning and collectiveness of the change experiences than normally considered in the fields of both agricultural extension and transformative learning theories, where normally much focus is on the individual and his/her learning experience. The findings of this research indicate that it is primarily the collaborative features of the learning in FFS that contribute to the impact on the action arena. Collaborative learning was particularly found to be a new aspect for men, who do not traditionally engage collectively in their daily activities to the same extent as women do. Men were found to begin appreciate and engage in collaborative learning processes, also outside of the FFS context, after exposure to this manner of working in FFS. This is new to most men, for whom individual learning is traditionally the norm. Collaborative learning, however, is not new to the sphere of women, since they traditionally engage collectively in most of their daily activities.

Safe space

The protected space provided by the FFS group further enables participants to test out new behaviours and to question traditional norms that previously were restricting behaviours and actions. According to (Mezirow 2000) a safe environment for the learner to practice critical reflection is a pre-requisite in

educational settings for fostering transformative learning. FFS allows participants a non-patriarchal and non-hierarchical space where they can test and act out new roles without fear of repercussions from the wider community. The importance of a safe space for transformative learning to take place is seldom given much attention in development practice. The collectiveness of the change, that is, the fact that changes are taking place among group members simultaneously, seems give support to participants to live out their new behaviours in their daily lives. This is possibly a particularly important aspect in the rural African context where norms and culture strongly dictates the space individuals have to act out new ways of doing or being. FFS as a collective unit, usually considered a high-status organization in the community, was found to assist in sanctioning individuals to express new forms of behaviour. In some cases, members explained that if some of these new behaviours were expressed by individuals without the collective support structure that FFS provide, they could face discrimination and be reprimanded by village and clan leaders, as well as family members. This brings to light the importance in African settings of collective processes of change and puts in question the mainstream, individualistic perception of human empowerment as well as agricultural extension based on work with individual farmers.

FFS as platform for wider social change?

The learning in FFS groups seemed to produce a gradual shift in formal and informal rules that shape human interaction (North 1990), especially in terms of gendered norms and rules. This shift induced changes in the community-regulated patterns of social interaction. The FFS process implied what Woodhill (2008), in his description of institutions, terms *association changes* while changes in rules and norm especially related to gender roles and cultural taboos implied what he terms *control changes*. The change in practices and behaviours, both farming related and non-farming, further implied changes in the *action arena.* Development in this context is a process of change of patterns, of setting new, transformed rules, standards of behaviours and cooperation and interaction between individuals in FFS groups and among the group and other structures. Current development trends, towards demand driven services, market access, good governance, right-based approaches recognise the complexity of the human ecosystem and calls for institutional innovation with very different dynamic in relations within society. Soft capacities like communication trust building, networking and leadership are required (Woodhill 2010). FFS with its combination of impact on the individual level as well as social structures thereby seem well placed to serve as a platform for wider social change alongside the technological innovations

induced. Its participatory and bottom-up planning focus has a comparative advantage in inducing changes that by nature cannot be neatly planned in a top-down manner, such as gender and culture related changes for example. An emerging area of thought based on findings of this study is whether FFS groups, and the interphase between FFS groups and the wider community, could possibly be seen as emerging institutions if considering institutions as rules and norms for social interaction (Woodhill 2010).

Figure 14. Members of the Bungoma FFS network, Kenya, in their office where they among other services provide access to agricultural inputs for their members. (Photo by D. Duveskog)

10.3 The FFS learning process explained though transformative learning theory

The study showed that the FFS learning process can be explained through transformative learning theory, however only partly. The study revealed a complex picture of Non-Formal Education (NFE) and fostering of TL that begin to call into question some long-held assumptions about both. In terms of contributing to the theoretical fields of learning FFS introduces some new characteristics that are not typically associated with NFE, such as its highly structured program and complementary teaching tools, mixing transmission based models of teaching with highly participatory and student led processes,

thereby creating a complex blend of learning models with quite different philosophical backgrounds. This blend of learning modes seems particularly appropriate for the rural poor context of Africa with its high level of illiteracy and deep-rooted traditional ways of learning. It seems apparent that several of the core elements identified by participants of FFS as central to their transformation are consistent with what is known about fostering transformative learning particularly within a development setting (Easton et al. 2009; Kollins and Hansman 2005). However gaps in the TL field of theory have become apparent in terms of understanding TL from an Afrocentric standpoint. For example what is known about reflection in western situations appear to express itself differently in the African setting with stronger emphasis on other ways of knowing such as affective, relational and visual rather than more analytical reflections. The findings further indicate a significant role of instrumental learning i.e. learning to control and manipulate the environment (Mezirow 1991, p.73) in fostering TL among rural poor. Instrumental learning has been given a short stick in its relationship to fostering TL and is seldom discussed. Among the studied participants instrumental learning seemed closely interconnected with TL. Possibly this indicate that transformation of mindsets among poor need to go hand in hand with improved well-being (physical and economic) since poverty possibly indirectly affects peoples worldviews and feeling of life satisfaction so much that TL cannot take place without simultaneous poverty alleviation. Further, the widespread focus on the individual in TL theories appeared limiting considering the importance and relevance of the group and collective learning in fostering TL.

While the findings confirm existing research in many areas and imply that there may be universal constructs of transformative learning that transcend cultural context, at the same time, the findings begin to reveal indicators of transformative learning that are unique to the cultural context of Africa. Framed within an Afro-centric perspective of transformative learning, the epistemological shift seems unique to this setting (a shift to empiricism), and not something that has been revealed in any of the Western studies about perspective transformation (Taylor 2007). This is also similar to the ontological shift revealed in this study, a change in 'forms of relatedness' with others, where participants experienced a change in their status in the community (e.g., leadership) and a greater appreciation of more equitable relationships in their family.

In addition to the possibly transformative nature of FFS, the findings also reveal other insights about transformative learning. Assuming the participants experienced a transformation in perspective, this seems to have had a

secondary, ripple effect at both the household and community levels. In other words, this study sheds light on the impact of transformative learning beyond the initial educational experience (FFS), including on the participants' everyday lives. For example, changes in gender relations and family roles emerged as a significant result of this transformation in perspective, expressed in terms of a more equal balance of power among men and women in the household setting and in terms of beliefs about men's and women's respective roles in the practice of farming. In particular, this seems to have had a liberating effect on women, as they acquired greater opportunities to engage in decision-making and economic activity. Also, methodologically, this qualitative study provides a more explicit perspective on earlier findings of more quantitative nature about the impact of FFS on participants, particularly women (Davis et al., 2005).

10.4 Further research

A number of methodological limitations to this study as well as concerns about emerging findings open up the scope for further research in the field. Firstly, a major part of the research was qualitative in nature, therefore the generalizability of some of the findings may be questioned, this aspect is enhanced by the fact that a successful FFS program was sampled purposefully. Secondly, in-depth perspectives were obtained predominately from the perspective of FFS participants, and not those that interact with them, and were based on retrospective recall, not longitudinal in nature.

In terms of concerns about the findings, firstly the links between empowerment and poverty did not come out as clear as the link between FFS and empowerment and between FFS and poverty in the quantitative research component. Possibly this indicate that the relationship is a complex one with many additional factors influencing the dependency between the two aspects looked at in this study, thus subject for further research. With some exceptions, the perceptions of and attitudes to power do not show a significant link to poverty level: that is, the less poor did not perceive themselves to have more power than the very poor. However, when looking at actual expressions of empowerment in terms of innovation uptake, access to services, engagement with markets and involvement in collective action etc., a clear link between poverty level and these empowerment indicators was observed. The reason for this discrepancy would benefit from more in-depth inquiry. Further research, that take into account a greater number of external factors in the institutional, social and political context is needed to un-pack the complexity and inter-connectedness between empowerment and wellbeing. Also for this link to be

better explored measurements of poverty need to include more subjectively based measurements such as feelings of power in everyday life.

While the study does provide some insight in terms of understanding the impact of FFS on the daily lives of participants and their relationships, it does generate additional research questions in terms of how the various pedagogical aspects of the learning processes within FFS create a transformation perspective. Particularly the role of tools used to bring out experiences among participants in what Heron (1996) terms *presentational knowledge*, i.e. experiential knowledge expressed through imagery such as sound, colour, drama, story etc. which thereby serves as a bridge between experiences and knowledge expressed in statements or theory. While such tools is generally applied in FFS as ice-breakers and energizers, this research indicate that such tools potentially could play a much greater role in fostering learning and reflection as well.

While transformation of mindsets were observed among FFS participants, which normally assumes, according to TL theory, that some level of reflection has taken place it was not clear in this research *how* this critical reflection took place among participants. The difficulties among participants in describing their reflective process that laid the ground for their transformation might have been attributed to the challenges faced by respondents in recalling from memory reflective moments of their FFS experience, that sometimes took place several years in the past. Another explanation is that critical reflection is possibly an inherent by-product of collaborative learning and presentational knowing. In other words in can occur naturally within those settings if the opportunity allows for it, and does not require specific attention by an educator. This study does indicate that transformative learning sometimes happened in momentary event, through aha-experiences among participants, often in connection to visual/oral expressions, such as stories, theatre etc., rather than through a deep thinking process. This indicates that possibly reflection manifests itself differently in a non-western setting with stronger oral traditions. It might also indicate that in this setting learners are more inclined to learn through that Kolb (1984) refers to as *accommodative* learning, entailing interactive practical and trial and error based learning as opposed to *assimilative* learning that including more abstract conceptualisation. Further research is needed in this area, with a more explicit exploration into the shape of critical reflection in non-western settings or the possible role of non-reflective learning in TL, especially in terms of developing new habits of relating to the world on a subconscious level.

While the fairly rigid and structured learning process in FFS makes it possible to build an education system that can be scaled up in a variety of

settings and that, as established in this study, serves as a platform for transformative learning it could be questioned to what extent this rigidity possible prevents or limits stronger or more profound changes to occur.

The collective nature of learning in the FFS and collective change as result of the learning process needs additional research. Such research could take TL to test and challenge Mezirow's framework for TL, which almost exclusively deal with the individual only. Research on the collective nature of learning in FFS and the individual-social interface could also aim to define practical ways of bringing Freire's thoughts to a more practical level.

Transformation of mindsets was observed among FFS participants, and the important role of the facilitator in this process was also established by the study. However to what extent the qualities in terms of skills, attitude and knowledge of the facilitator influence the learning outcomes among participants was not confirmed by this study. Indications hinted at a relationship here where quality of facilitation have direct impact on outcomes of FFS, however more research is needed to confirm this. Enhanced knowledge on these aspects would thus help in defining the dynamics involved in bringing transformative learning through FFS to scale. Another interesting question is to what extent the FFS facilitators also undergo their own transformative learning journey alongside the participants that they serve and to what extent their transformation in terms of change in worldviews, perspectives and attitude impact on participants.

11 Implications for development practice

The study generates a number of implications for policy and development practice, articulated below.

Empowerment in the poverty debate

As a result of the FFS experience, the participants developed more meaning and purpose in their lives, as reflected in their greater optimism, outlook and satisfaction in life. This sense of freedom has an instrumental role in development seen from the point of view of capability, the theoretical basis of UNDP's perspective on poverty (UNDP 2005), where well-being is achieved through a process of expanding the real freedoms that people can enjoy (Sen 1999). The inter-connectedness between the empowering learning process and enhanced well-being that this study demonstrates indicates that enhancing human resources among poor farmers is a crucial element in allowing them to access services and to benefit from development investments. The study thus indirectly questions the current widespread faith in technological solutions to poverty problems, as is for example the case in current attempts to re-launch a green revolution promoted by the Gates Foundation and other major development donors, and it calls for increased attention for empowerment of the poor. Furthermore, the increased power and new opportunities for women, which are shown as leading to an increase in household well-being and income, provides valuable input into the global debate on poverty reduction and the role of women in development (World Bank 2008). Also, it gives support to the notion that 'empowerment requires structural change and an enabling environment.

While the concept of empowerment has generated considerable policy interest lately and formed a component in many development programs, it has proved difficult to achieve in practice. One contributing factor to this is

probably the complexity in measurement of empowerment and the difficulty to find generic indicators that fit into mainstream program logframes. This study contributes to the methodological field of the measurement of empowerment in terms of its attempt to produce definitions through a combination of qualitative and quantitative process indicators and expressions of empowerment in the rural smallholder farming context. This is an important contribution given the global lack of practical tools and processes for measuring the social impact of capacity-building efforts.

It's the combination of social and technical development that produces change

This study indicates that it is the combination of instrumental knowledge (e.g. practices and innovations) and enhanced individual and collective agency acquired through the learning process in FFS that enables poor farmers to improve their farming as well as well-being and agency. The study further indicates a relationship between confidence and economic status in that, while individual transformation provides the basis for economic development among FFS graduates, such economic development further reinforces the individual's self confidence and status in the community thus triggers a spiral of increased well-being. This calls for further recognition of the close inter-linkages between material and psychological aspects when addressing poverty concerns. In this light there is a need to find a balance between technical and social innovations and recognition for the complex inter-connectedness between the two. Lessons can be drawn from FFS programs for how to support informal education or community learning for empowerment outcomes. Implications of this for development practice is that agricultural development programs should focus more attention on processes of empowering farmers as opposed to purely technical solutions that characterize and dominate most capacity building programs, in order to create an appropriate mix of technological and social advancement for a development process that is sustainable in nature.

The fact that FFS is a non-formal education process does not imply that what students learn is of less importance than formal education, such as primary and secondary school. With regard to empowerment, on the contrary, the non-formal setting gives FFS an advantage over formal education because of its propensity for immediate action, providing learning opportunities that have direct application, and it is often close in proximity and accessibility for those that need it (Brembeck 1973).

Need for investment in human capacity

The inter-connectedness between an empowering learning process and enhanced well-being that this study demonstrates indicates that enhancing

human resources among poor farmers is an important element in broader rural development. This significant impact of FFS observed in terms of building the capacity of farmers to make choices and decisions that ultimately lead to increased uptake of agricultural innovations, access to services and markets as well as collective action. While most programs include smaller components that support institutional support, support to farmer empowerment in the sense of the production of knowledge for a framework of action, as is the case in FFS, is seldom given adequate attention by donor agencies nor national governments in their support for agricultural development. While the concept of empowerment has generated considerable policy interest, it has proven difficult to achieve in practice. Facilitating community empowerment through means of external support for is not easy and is a delicate undertaking. However experiences with the IFAD/FAO supported FFS program in East Africa show that it is possible.

The study particularly offers policy implications for the effectiveness of support for demand-driven services. Demand-driven agricultural advisory programs, such as NAADS in Uganda, ASDP in Tanzania and NALEP in Kenya, as well as many other participatory rural development programs, require farmers who are able to articulate informed demands if they are to benefit fully from services offered by these program. The cost-effectiveness of agricultural programs could therefore probably be enhanced with a stronger focus on investment in human resources, through informal education that builds human and collective capacities. The fact that FFS appears to encourage active and committed farmers basing their activities on empiricism rather than cultural beliefs may provide opportunities for improving the impact of demand-driven service provision and as well as mechanisms to genuine participation of citizens in development interventions more generally.

Attention to the quality of facilitation in FFS

Lessons from FFS indicate that stimulating empowerment requires a comprehensive approach combined with high-quality training and facilitation. Loss of quality, linked to the facilitation, when scaling up empowerment processes is well recognized in the critical participation literature (Cooke and Kothari 2001). FFS as a rather complex learning process that depends highly on personal attributes and commitments of individual facilitators and program managers is thus easily subject to loss in quality with resulting limitation in levels and types of impacts observed. This calls for increased attention for measures to support continuous on-the job program mentoring of training activities and facilitators, a concept not well recognized in mainstream capacity building where the Training of Trainers (TOT) model often is seen as a

standalone activity. Further, if aiming for empowerment of the poor, targeted training for transformation of mindsets among service providers is possibly a crucial element to consider as a baseline activity of such interventions.

Men and women need to change together

The results of this study strongly support the notion that women should not be targeted in isolation, and that real change in gender dynamics can only come about when both men and women change together. FFS seem to generate gender impacts not only because they empower women, but also because they also provide opportunities for the men, the agents of oppression in this case, to change as well. Targeting women separately may be valuable in certain scenarios such as in relation to land tenure, asset endowment etc. However, when talking about the well-being and household economic development of the rural poor, men and women need to move ahead as a team, and targeting women in isolation may possibly reinforce oppressive barriers in the society.

Farmer groups as entry point for rural social change

The secondary or ripple effects in the community observed following FFS participation such as increased leadership roles, work ethic, more equitable gender relations, serving as role models for colleagues etc. suggests that FFS can potentially provide an important entry point for rural social change by introducing new ideas, practices and behaviours beyond the technical measures that are often associated with development interventions and beyond the target group level. The more equitable spousal units (female empowerment, a stronger work ethic by men) could be economically more productive and offer an explanation for the increase in well-being and household income found among FFS participants.

The broader societal role of FFS highlighted in this research as a community of practice for situated learning and platform for institutional change hints that the FFS approach might be mal-placed when considered mainly within the field of agricultural extension and advisory services, which currently is the case. This might also be the reason for frequent problems experienced in evaluating impact of FFS and when trying to compare it to other extension approaches. Previous research on FFS has focused almost exclusively on its effectiveness as an approach to promoting the adoption of agricultural innovations, not paying adequate attention to all the unanticipated effects on participants in other areas of their lives. This study argues that FFS, while including a component of technology development and dissemination really is not an agricultural extension approach as such but more of a community development approach more broadly. Therefore, maybe it is time

to free FFS out of the “extension” box and give the approach another home in order to fully take advantage of the potential for FFS to support wider capacity building and act as entry point in rural societies for transformative livelihood changes.

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13 Acknowledgements

This eight-year research journey has been a long one and the work is a result of many people's support, acts and efforts along the way. I am deeply appreciative and thankful to them all.

I am sincerely grateful to Swedish University of Agricultural Sciences for providing me with this amazing learning opportunity and for allowing enough flexibility for me to conduct this study within my workspace at my own pace. Thanks to my department supervisors, initially Kjell Havnevik and later Lennart Salomonsson and Cecilia Waldenström for guiding me so well along the way. I also wish to acknowledge the Swedish International Development Cooperation Agency for financially supporting the research, without which this would not have happened. The thesis is truly a shared team effort with my research colleagues and intellectual mentors Esbern Friis-Hansen and Ed Taylor, and I cannot enough express my appreciation for having had the opportunity to work so closely with you.

None of this would have been possible without the Food and Agriculture Organization of the United Nations (FAO) providing me with an unique platform for inquiry into the topic. It is the discussions and interactions with farmers over the years as well as colleagues within FAO programs that gave birth to this inquiry and that continually have inspired me to learn more, understand better, and achieve further. I am especially thankful for all the farmers who allowed me to step into their world and gain insight into their lives, for these interactions have been truly transformative for me.

The early years of my career within the PFI-FFS and IFAD TAG programs have a special place in my heart and formed and shaped me to what and who I am today. I cannot enough express my appreciation for all the dedicated, talented and wonderful national colleagues that I have had the pleasure to work with over the years, and a special thanks to Titus, Dorothy, Mweri, Godrick,

James and Julianus who introduced me to the Field School world and mentored me while I was a novice in the field.

Finally I wish to express my deep appreciation for the patience and support of my family and friends and apologies for all those moments when I was in front of the computer rather than present with you.