

LEARNING FOR FARMING INITIATIVE

**LONGTITUDINAL STUDY TRACING
THE
LIFELONG LEARNING FOR FARMERS ACTIVITIES
IN
TAMIL NADU, INDIA
2011**

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EXECUTIVE SUMMARY

This report traces the progress and issues of the Lifelong Learning for Farmers (L3F) activities in a group of villages in Tamil Nadu, India. The study makes an attempt to address two questions:

1. Has L3F made a difference in strengthening the livelihood of the marginalised women participating in the activity?
2. Has L3F influenced the process of empowerment among the participating women?

A longitudinal study covered the L3F initiative from 2008 to 2011. Surveys, Participatory Rural Appraisals (PRAs) and anthropological approaches were the tools used in the study. Index statistics was used to develop indicators such as empowerment index and social capital index. Using Likert scales and factual data, the indices were constructed. In addition to averages, statistical techniques such as ANOVA, correlation and multiple regressions helped to understand the nature and the determinants of relationships between the variables.

The first chapter deals with the framework of L3F, concepts and methodologies. The second chapter identifies the status of the initiative during 2008. The interim developments during 2009-2010 are described in the third chapter. The outcomes of the L3F have been elaborated in chapter IV. The final chapter synthesises the experiences and discusses about the process of self-replication.

The following are significant results of the study

1. Learning in combination with social capital is able to influence the income of the participants.
2. Learning and social capital have significant influence on empowering women.

The study concludes with the challenges in the self-replication process and stresses the importance of alternate strategies for such replication.

CHAPTER I: PROLOGUE

1. The Questions

This report traces the progress and issues of the Lifelong Learning for Farmers (L3F) activities in a group of villages in Tamil Nadu, India. The study makes an attempt to address two questions:

3. Has L3F made a difference in strengthening the livelihood of the marginalised women participating in the activity?
4. Has L3F influenced the process of empowerment among the participating women?

The activity began in January 2009. However during the latter part of 2008, studies were conducted to understand the need and the response of the women in the villages. At that point of time, the term *empowerment* was only a mere academic perspective and the focus was mainly on enhancing the income of the women through L3F. In any process-oriented development project, experience is a good teacher and the effectiveness of the project is dependent on integrating the learning from the experiences into the project in a concurrent manner. Since 2010, the various stakeholders felt that empowerment needed to be focused, measured and monitored. The argument was that empowerment would enable the marginalized women group to sustain the L3F activities on their own without excessive dependence on external help and support.

Thus the activity evolved continuously with learning. It did not follow a linear project approach. Therefore the terms and definitions used in 2008 changed considerably during 2011. This has implication for the methodology of the longitudinal study.

2. Introduction: Lifelong Learning for Farmers: Strategy and Approach

2.1 Learning for Development

The Commonwealth of Learning (COL) firmly believes that Open and Distance Learning (ODL), with the support of modern Information and Communication Technologies (ICTs), can strengthen the strategies for reaching The Millennium Development Goals (MDGs). COL operates on the principle that a large scale expansion of learning is a requirement for addressing MDGs. However, learning needs are so massive that conventional face-to-face instruction cannot address the scale of the challenge. There are simply not enough teachers and agricultural extension workers to address the needs of the primary sector. COL believes that using technology is the way to expand learning. In particular it has been emphasising on the effective usage of open and distance learning for poverty reduction. The modern information and communication technology (ICT) has given a new dimension to open and distance learning and COL has perceived a framework for Technology Mediated Open and Distance Education and Learning. It firmly believes that modern ICTs can help in reaching the unreached in a spatial-temporal context and facilitate a self-directed learning among farmers, landless labourers and various marginalized sections of the rural and urban communities. It also believes that if such learning takes place in the context of the entire social and economic value chain of the rural society, the issues of unemployment and poverty could be effectively addressed.

2.2 Lifelong Learning for Farmers (L3F): A New Approach

COL has been facilitating the implementation of the Lifelong Learning (L3F) Farmers initiative, by which an attempt is being made to reach a large number of small farmers and marginalized sections of rural communities in South Asia, Africa the Small Islands of Caribbean and the Pacific. Using Open and Distance Learning (ODL) and ICTs, the project aims at building the capacity among farmers, landless labourers and extension officials which could help them in developing value-added farming, encourage more sustainable use of natural resources, strengthen their ability to face globalization, and ensure food and livelihood security. The concept envisages a global and local partnership between research institutions, extension agencies and farming communities.

L3F is visualized as a community based approach with emphasis on participatory development. COL does not perceive L3F as a mere project. It visualizes its role as a facilitator of a fresh concept for self-sustaining, self-replicating programmes in Commonwealth countries. Such a perspective necessitates the participation of various stakeholders with a framework of “win-win situation”. Thus its pilot initiatives should have the quality of being a reference point for larger programmes and policies.

In this context, the approach towards the L3F initiative is to define a new pathway in project and programme management. The vision of the initiative is to evolve a self-replicating and self-sustaining programme in Lifelong Long Learning among rural communities using modern ICTs. The initiative thus becomes a testing ground for an innovative idea, in which various stakeholders in order to meet their agenda, come together and participate in the initiative. One of the important partners in such an initiative is the banking sector. The banking sector in the developing world is looking for strengthening the rural credit. It is generally believed that the performance of rural credit is being hampered by high transaction costs and large non-performing assets (NPA). In recent times, in countries like India, Bangladesh and Sri Lanka, the Self-Help Groups (SHGs) and microfinance have attained importance in the banking sector and the experiences show that SHGs not only offer advantages of scale in terms of transaction costs but also have shown lowering NPA rates.

2.3 Goals, Objectives of L3F

Based on these issues, following are the goals and objectives that have been framed to promote lifelong learning among rural communities particularly among women and other sections of the rural poor. The goals:

- *To facilitate a process and system of “Life Long Learning” in rural communities leading to knowledge empowerment, particularly among women and other poor sections of the community.*
- *To facilitate the translation of such knowledge empowerment into livelihood security.*
- *To utilize the modern Information and Communication Technology (ICT) for facilitating such a process.*

2.4 Banks and Markets as Stakeholders

The important strategies in the initiative are the introduction of the following hypotheses:

1. *Unexploitative, mutually reinforcing contractual relationships between rural producers, formal public and private sector through schemes such as “buy-back” arrangement, contract farming etc., would promote rural entrepreneurs. The advantage of such relationships would promote formal public and private sector to support L3F among rural community in the future.*
2. *If rural credit is blended with appropriate capacity building, the performance of rural credit would be much better vis-à-vis productivity, returns and non-performing asset (NPA) levels.*
3. *Capacity building would also enlarge the market for bank credit among small and marginal farmers and among other marginalized sections of the rural poor, particularly women.*
4. *The modern information and communication technologies through structures such as rural internet kiosks, rural telecentres, mobile phones, community radio etc., can facilitate the capacity building processes in a spatial-temporal context which are financially viable, economically feasible and socially acceptable.*

The banks as well as the rural poor stand to gain, if this hypothesis is proven and the banks can use this strategy for enhancing their business. In addition to capacity building, the banks could also use the facilities of ICTs for reducing the transaction costs in lending. Institutions which are focusing on promoting agriculture and entrepreneurship in Commonwealth countries can play a major role in such initiatives. The integration of such strategies can help to build a framework for self-sustainability and self-replicability. The initiative is based on participatory approach in which everyone is a “learner” and interactive learning is the crucial aspect of the project. Unlike the conventional education system where a student is fit into a course, in L3F, a *course* is defined according to the needs of the community. Every *course* has a strong spatial-temporal context. Learning materials are continuously created, used, reused and can also become redundant.

2.5 Paradigm shift

The L3 approach is based on the following premises:

1. *Extension is a facilitation process through which a community is empowered to manage agricultural knowledge systems and agricultural information systems.*
2. *Extension takes place in the context of an already established social capital such as cooperatives, Self-help Groups, associations etc., which form a strong active utilizer constituency. Cognitive social capital is a precondition for lifelong learning.*
3. *The community is not a mere consumer of Information but partner in Knowledge Management.*
4. *Facilitating **Self-Directed Learning** among the active utilizer constituency is an important dimension of L3F.*
5. *L3F and Learning for Livelihoods are the processes of community understanding and internalizing Value Premise Analysis, Value Chain Analysis, Value System Analysis, and Value Coalition Process in the primary sector.*
6. *In L3F, an extension agent (or agency) is one who facilitates the community level knowledge management and transforms social capital into social learning capital.*

Thus the Paradigm shifts are as follows:

Paradigm-Shift in Pedagogy

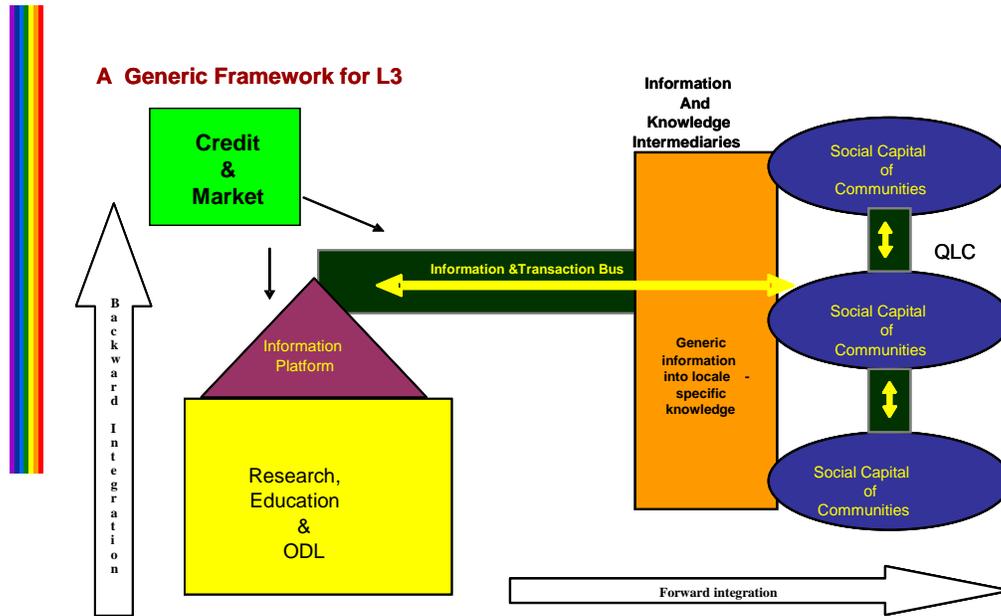
	Conventional Extension	L3F Approach
1	Face to Face Training Programme	Enhancing Self-Directed Learning
2	<i>I Know- You do not Know-I will Teach You Approach</i>	Interactive Learning
3.	Vertical Flow of Information	Horizontal and Vertical Flow of Information
4	One or Two Channels of Learning	Multi-Channel Interactive Learning using Modern ICTs
5	Supply-Driven Approach	Demand-driven in the Context of Value Chain
6	Teacher-Individual Student Approach	Community Based Learning with focus on Cognitive Social Capital Transforming into Social Learning Capital
7	Farmer is a Learner	Community is a Partner in Knowledge Management
8	Extension is Providing Sectoral Information	Community understanding and internalizing Value Premise Analysis, Value Chain Analysis, Value System Analysis, and Value Coalition Process in the primary sector
9	Providing Generic Information	Through Knowledge Infomediaries (NGOs, CBOs, etc) Community Converting Generic Information into Locale-specific Knowledge
10	Develop a course and expect farmers to join	Understand the location specific needs vis-à-vis the livelihood strategies and respond to the needs

Paradigm -Shift in Management

	Conventional Extension	L3F Approach
1	Government Driven- Donor Driven	Self-Sustainable
2	Altruistic-Philanthropy-Welfare Motivated	Welfare Motivation With Win-Win Framework for All Stakeholders

2.6 Generic Framework for L3F: Stakeholders' Relationship

The generic framework for L3F is as follows:



The above diagram illustrates the role of various stakeholders:

No	Stakeholders	Role	Type of Stakeholders
1.	Community Based Organizations, Self-Help Groups, Cooperatives, Women's Associations with a strong social capital framework	Enabling them to define and develop strategies for strengthening livelihood through learning	Primary Stakeholder
2.	Government and Private Extension Organizations, Non-Governmental Organisations	<i>Knowledge-Infomediary</i> helping the community to convert generic information into locale specific knowledge	Secondary Stakeholder
3.	Information and Communication Technology (ICT) organisations such as	<i>Information-Bus</i> - helping to carry information to the community	Secondary stakeholder

	organisations running telecentres, community and other forms of radios and televisions, mobile companies		
4	Universities, Research Institutions	<i>Information Organisation-</i> Generating information for development	Secondary Stakeholder
5	Financial, credit and market institutions	<i>Value Chain Organisations-</i> helping to strengthen the livelihood opportunities of the community	Secondary Stakeholder
6	Digital libraries, websites, portals and the related organisations	<i>Information platform</i> which helps to package the information for dissemination	Secondary Stakeholder

L3F gives major emphasis on horizontal transfer of knowledge in which the community enables its members to transfer their knowledge through dialogues and discourses. Such a horizontal transfer of knowledge takes place through what Baker (2006) calls Quality Learning Conversations (QLC). The involvement of various stakeholders in strengthening the learning process of the community in the context of social capital leads to social learning capital. Baker (2006) argues:

The concept of Social Learning Capital is created through interlinking social capital informal lifelong learning and the idea of quality learning conversations. Social Learning Capital is the meshing of social capital and lifelong learning that reaches its potential through quality learning conversations.

3. Case Study of VIDİYAL

COL has been involved with universities, research institutions and NGOs in initiating pilot initiatives on ICT based L3F in various Commonwealth countries. One such project was initiated during 2009 in southern part of India, with an NGO called VIDİYAL. VIDİYAL has been working with a women's federation of 239 women Self-Help Groups (SHGs) called VIDIVELLI since 1998, which evinced keen interest in L3F activities around the core area of goat and sheep enterprise. The federation identified this enterprise as a viable enterprise for the region. Nearly 300 women from the SHGs have become partners and they are undergoing ICT based training in various aspects of goat and sheep rearing. COL, VIDIVELLI and VIDİYAL believe that formal training and the resultant self-directed learning would enable them to run a viable enterprise and repay the credit without any Non-Performing Assets. Such an approach in the long run would encourage the banking sector to support L3F as a business strategy.

The SHG movement of VIDİYAL has been taking place for more than 10 years and the annual turnover of credits and savings among the 4000 women is nearly Rs. 50 million. The strong SHG movement indicates not only a structured social capital, but also a cognitive social capital. SHGs are graded by various governmental institutions. Such grading are based on regular meetings, decision making processes, cooperation, conflict resolution mechanisms etc., which reflect the cognitive social capital. Marks are awarded for the SHGs once in six months. Out of 239 SHGs, 234 SHGs have more than 75% marks indicating that they have been regular in managing their assets. These high marks indicate a strong collaborative mode which could emerge only through a strong cognitive capital. In addition, these SHGs

also run legal conciliation centres and take up local issues with various governmental and non-governmental agencies.

The initial discussions with the SHGs revealed that goat rearing would be a viable and feasible enterprise in the region since most of the women are from families with goat-rearing culture. The federation of the SHGs, VIDIVELLI helped to select 320 women who evinced interest in a goat rearing enterprise. Through a series of Participatory Rural Exercises (PRAs), VIDIYAL conducted a Learning Need Analysis among the participating women. The women initially wanted to understand the business skills in goat rearing. VIDIYAL trained 300 women in conducting a value-chain analysis and in developing a business proposal for goat-rearing enterprises. It contacted the bank and obtained the procedures for developing a credit and business proposal. VIDIYAL developed multimedia materials in local languages on conducting business feasibility studies, credit plans etc., and trained the women. The women were also trained in negotiating skills with various stakeholders. It took nearly a year for the women to conduct the market feasibility studies and to develop the business & credit proposals.

The women developed a business proposal whereby each member would obtain credit for buying nine female goats, one buck and one mobile phone. The purpose of the mobile phone is to enhance lifelong learning opportunities. The bank agreed to the proposal of the SHGs and sanctioned an amount of Rs. 12 million (nearly US\$ 270,000). The credit and the legal ownership of the assets are in the names of the participating women. The management and marketing decisions are taken jointly through the monthly SHG meetings. VIDIYAL then entered into an agreement with IKSL-AirTel group, one of the biggest mobile service providers for sending audio messages and voicemails to the three hundred women through mobile phones. In consultation with VIDIVELLI it created audio materials (each material with messages for 60 seconds) on buying goats, feed management, disease & health management and marketing management. Every day one message is passed on through the mobile phones.

VIDIYAL and VIDIVELLI developed these materials in consultation with the Tamil Nadu Veterinary and Animal Sciences University (TANUVAS). The materials and suggestions given by TANUVAS were integrated with indigenous knowledge and contextualised to suit the local culture and local dialects. The participating members were trained in developing multi-media materials using digital photography and PowerPoint presentations. The materials thus produced were evaluated by VIDIVELLI and then channelised through the mobile phones. The other video based multi-media materials are shown during monthly SHG meetings and are being telecasted through local satellite channels (which are being run by the SHGs).

VIDIYAL also encouraged the women to discuss the enterprise issues with one another using mobile phones. Once a week the members meet at the SHG meetings and share their experiences. The horizontal and vertical transfer of knowledge is expected to encourage self-directed learning among the members.

At present more than 5000 women are involved in the L3F.

4. Objectives of the Study

The objectives of the longitudinal study are as follows:

1. To understand the role of L3F activities in influencing the household income level of the participating women.
2. To define the process of empowerment among the participating women vis-à-vis L3F.
3. To delineate the theoretical issues for strengthening the self-replication process.

5. Concepts

The study has a focus on gender, livelihood and empowerment.

The definition of *gender* used by the World Bank is the “economic, social, political, and cultural attributes and opportunities associated with being man or woman”. *Gender equality*, which means equal access to the “opportunities that allow people to pursue a life of their own choosing and to avoid extreme deprivations in outcomes,” highlighting *gender equality in rights, resources, and voice*. For the FAO, *gender equality* is equal participation of women and men in decision-making, equal ability to exercise their human rights, equal access to and control of resources and the benefits of development, and equal opportunities in employment and in all other aspects of their livelihoods. For the global community, gender equality is also a commitment, embedded in international human rights agreements and in the United Nations Millennium Development Goals.

This study focuses exclusively **on women**. In the existing gender relationship, women are given a lower disempowered position in many developing countries like India. Such a status is not conducive for development. Hence any discourse on gender equality is bound to address the issues of women and their empowerment. The L3F initiative with VIDYAL emphasised on strengthening the role of women in ensuring livelihood security.

Livelihood security in this study is seen as the ability to enhance the income and assets of the individual and the household. From a sustainable livelihood point of view, livelihood security has a broader perspective covering household nutritional security, health etc. Due to the limited focus of the initiative and paucity of time and resources, the study emphasised on income and asset.

Empowerment is defined as follows:

Empowerment is the expansion of assets and capabilities of poor people to participate in, negotiate with, influence, control, and hold accountable institutions that affect their lives (Narayan, 2005:5).

According to Kabeer (1999), empowerment should reflect a process of change from disempowered position to empowered status i.e. the ability to make choices. She argues

My understanding of notion of empowerment is that it is inescapably bound up with the condition of disempowerment and refers to the processes by which those who have been denied the ability to make choices acquire such an ability..... People who exercise a great deal of choice in their lives may be powerful, but they are not empowered in the sense....they were never disempowered in the first place.

The women in Theni district are disempowered. The female infanticide was very high in late 90s and early 2000 indicating the status of women in the region. Limited access to property and employment opportunities, lower literacy level, and domestic violence aggravated the position of women. In particular, the women in the lower rungs of the society such as Scheduled Castes (SCs), Scheduled Tribes (STs) and Most Backward Classes have to face the social discrimination.

Hence an empowerment would mean the ability of the women to challenge their present status and acquire the ability to make choices. Empowerment is understood as the expansion of assets and capabilities of women and their ability to engage in progressive dialogue with institutions that shape their lives.

6. Methodology

The study uses both qualitative and quantitative methodologies.

Participatory Rural Appraisals (PRA) is a major instrument in planning and designing and reviewing the initiative. VIDYAL has a long experience in PRA. The monthly meetings of VIDIVELLI and the SHGs were used to review the initiative through PRA. A professional anthropologist became the consultant for the initiative and he used various social anthropological methodologies such as participatory observation, Focused group Discussions (FGDs) to study the social dimensions.

Quantitative studies through statistical surveys were conducted at different point of times:

1. General Survey in 2008 covering 355 randomly selected households
2. General Survey in 2011 covering 510 randomly selected households
3. Mobile Phone management survey in 2009-2010 covering 73 L3F participants
4. Goat rearing survey in 2009-2010 covering 30 respondents - 15 L3F and 15 non L3F respondents

The surveys of 2008 and 2011, covered a stratified sample based on participation in L3F in 25 villages in Theni district.

A stratified random sampling process identified three groups. The participants in the L3F are the Group I. The participants in SHGs but not in L3F are Group II. Respondents who are neither in SHG nor in L3F are Group III. Among the groups, II and III are the control groups. The study felt that a cross-sectional analysis among these three groups will reflect the role of L3F in outcomes such as income and empowerment. The inclusion of Group II is to isolate the role of social capital (such as SHG and community banking movement and assess the efficacy of L3F).

During 2008, a randomly selected 355 respondents covered the survey. The sample size tried to reflect the proportion of participation and non-participation in L3F, SHGs. During 2011, the number of participants in L3F increased substantially and hence 510 respondents were selected randomly across the three groups. Instead of focusing on the proportional sampling, the later survey selected an equal number of respondents across the three groups. This was done keeping in view the time and the resources available in the initiative. Also during 2011, the master list of all the households which is essential for proportional sampling was not available due the General Election in the region. However, both in 2008 and 2011, the study focused on the "Below Poverty Line" list which is used for the Public

Distribution System. Though there are inadequacies in the list, it offered a “population” on the basis of which samples could be selected.

There are certain inherent weaknesses in the survey:

1. During 2008, there was no concept of empowerment. The focus was exclusively on understanding the goat rearing among the various groups.
2. The concept of income is always fluid in such surveys. In the absence of any formal transactions, income becomes a difficult task to assess accurately. Hence the focus of both the surveys were on the perceived income as recollected by respondents. There may be a tendency to understate the income, since the poor respondents may feel that higher income may not allow them to have access to Public Distribution Systems of grain and fuel for Below Poverty Line (BPL) households. Hence income should be seen as a broad trend rather than specific variables. However, efforts have been made to develop other proxy indicators such as total value of the assets of the household.
3. Substantial numbers of responses are based on the *recollection* ability of the respondents.
4. During 2008, the survey schedules were canvassed by the women members of the SHGs with limited experience in social surveys. Professionals from external institutions with long years of experiences conducted the survey during 2011.

7. Analysis

As earlier mentioned both qualitative and quantitative data were collected for the study. Attitudinal surveys were the major component of the surveys. The survey in 2008 did not offer scope much for statistical interpretation. During 2011, a 5-point based Likert scale was used in most cases. In addition factual data on education, occupation, income, assets, mobile phone transactions, credit, repayment etc were collected. This offered a scope for robust statistical analysis. Frequency analysis, averages, significance of association, correlation and multiple regressions were used to interpret and analyse the data.

An interesting aspect of the survey of 2011, was the inclusion of various types of index statistics including Empowerment Index. These index statistics were based on the attitudinal survey and the factual data. The questionnaire in Annex 4 attached in this report gives a picture of the type of data collected. Based on the Responses, scores were assigned and index statistics were constructed:

Table: Index Statistics

	Index	Analysis
1	Information and Communication Index	Using Likert scale, minimum of 10 statements were given score from 10 to 50
2	Political Empowerment	Using Likert scale, minimum of 10 statements were given score from 10 to 50
3	Learning and Training Index	Using Likert scale, minimum of 10 statements were given score from 10 to 50
4	Entrepreneurial Index	Using Likert scale, minimum of 10 statements were given score from 10 to 50

5	SHG index	Using Likert scale, minimum of 10 statements were given score from 10 to 50
6	Psychological Empowerment Index	Using Likert scale, minimum of 5 statements were given score from 5 to 25
7	Economic Index	Using Likert scale, minimum of 10 statements were given score from 10 to 50
8	Social Mobility Index	Using Likert scale, minimum of 4 statements were given score from 4 to 20
9	Trust & Solidarity Index	Using Likert scale, minimum of 10 statements were given score from 10 to 50
10	Collective Action & Cooperation Index	Using Likert scale, minimum of 10 statements were given score from 10 to 50
11	Social Cohesion Index	Using Likert scale, minimum of 10 statements were given score from 10 to 50
12	Sociability Index	Using Likert scale, minimum of 10 statements were given score from 10 to 50
13	Household Education Index	Based on the number of years of education of the respondent's household
14	Household Infrastructure Index	Based on the number of items owned by the household
15	Social Network Index	Membership in each organization with score 1, leadership with score 2 and no membership is 0
16	Social Capital Index	Based on the summation of social network index, social mobility index, trust 7 solidarity index, collective action and cooperation index, social cohesion index and sociability index
17	Empowerment index	Based on the summation of political empowerment index, economic index, entrepreneurial index and psychological empowerment index. Score from 30 to 150.

The qualitative analysis through PRAs, participatory observation and Focused Group Discussions provides an additional dimension to this data. The communities and the stakeholders interpret the data through these methods.

Thus with the multitude of approach, this study makes an attempt to answer the two questions raised in the section 1 of this chapter.

CHAPTER II: DURING 2008

1. What People said in PRAs

The initial discussion of COL and VIDIYAL took place with VIDIVELLI, the federation of women. During the discussion, it was pointed out that the federation would discuss with the sub-federation and SHG groups and then arrive at a roadmap for L3F. Through a series of PRAs, VIDIVELLI pointed out the present status in the villages and offered the following recommendations to VIDIYAL and COL.

- a. The initiative should start with a small number of women members particularly among the poorest and poor.
- b. VIDIVELLI had identified 330 women from 20 groups.
- c. Most of the members of these groups had hitherto obtained credit from SHGs and banks mainly for consumption purposes.
- d. Very few of them had taken credit with SHGs and banks for productive enterprises.
- e. These women were interested in initiating L3F through goat rearing.
- f. There is a strong traditional knowledge in goat and sheep rearing.
- g. However, the modern methods of goat rearing and sheep rearing are unknown to many of them. The present net weight gained in goats is less than what veterinary universities have achieved through their R&D efforts in areas such as stall-fed management, disease management etc. Villagers are interested in learning these techniques and improve the productivity and sustainability.
- h. The villagers were interested in learning goat rearing as an organized enterprise with concepts such as business planning, marketing management etc.
- i. The villagers were keen to know about concepts such as environment impact assessment and the relationship between plant and animal systems.
- j. Using the degraded fallow lands for appropriate grazing management system was another identified area for learning.
- k. Constant flow of information on supply and price levels in various local and regional markets could help in better management strategy.
- l. Quality standards, export market and organized slaughter houses were the other areas of interest.
- m. Large number of selected participants do not have any school education and some of them are illiterates. However, even among the participants who had been to primary school, illiteracy can be observed due to lesser interaction with reading and writing materials. This can be seen more among the older people.
- n. The SHGs have been formed on the basis of kinship and neighbourhood concept. A strong sense of belonging, joint liability and participatory decision making processes characterize the groups. VIDIVELLI proudly pointed out that the National Bank of Agriculture and Rural Development (NABARD) had given a high rating for most of the groups due to these factors. Most of the group members were scared to take higher credit for enterprises fearing that such risks would jeopardize the credit-rating and status of the groups. According to VIDIVELLI, this was the major reason for the lack of manifestation of latent entrepreneurial quality.

VIDIVELLI had adopted a unique method of identifying the poorest of the poor. Unlike the government programmes which focused on indicators such as income, VIDIVELLI used socio-cultural indicators for identifying the poor:

Table 2.1 Indicators for Poorest of the Poor

Poorest	Poor
1. Have to earn daily to get their food	1. Both husband and wife work as laborers
2. Only one breadwinner in the family	2. Able to save a little amount/could be a member of a Self Help group
3. No land based assets	3. Own one or two goat or sheep or rarely a cow
4. Do not have any cosmetic or fancy items	4. Could manage to get petty loans from others and generally able to repay and rarely fail
5. The family depends always on others for any unexpected expenses	5. The adults consume limited quantity of alcohol
6. Families with limited access to Public Distribution System	6. Show interest to send their children to school
7. The families depending on free cloth scheme of the government	
8. Do not own a house, live in other's place which also could be in bad shape	
9. Have many children (due to ignorance and lack of knowledge on family planning)	
10. Work as bonded laborers	
11. Suffer due to perpetual indebtedness	
12. Very rarely get support from others	
13. High level of alcohol consumptions particularly by males in the family	
14. Do not send their children to school	

Based on these indicators, 330 women members were selected. VIDIVELLI pointed out that SHG members are in a position to identify the poorest and the poor members based on the above indicators.

2. What the survey pointed out

Some of the interesting trends pointed out in the survey were as follows:

2.1. The mean annual family income of the selected participants of L3F (Group 1) was lower than that of Group II (SHG members). However Group III, who are not in any SHGs have much lower income compared to Group I and II (Table 2.1). However as pointed out in Chapter 1, the income data is difficult to measure in accurate terms and hence it should be taken only as broad indicator.

2.2. The education levels of the respondents indicate trends which are similar to that of income. Group III has more respondents without any education followed by Group I and Group II (Table 2.2).

2.3. In terms of occupation, Group I has a larger proportion of landless labourers compared to Group II and Group III. There are studies which indicate that the incidence of poverty is high among the landless labourers and land legislations such as land reforms have an impact in poverty reduction. According to the Planning Commission of India, *the landless face the greatest risks of poverty*. Group II and III also have substantial proportion women involved in home making and family labor (Table 2.3).

2.4. The credit situation among the three groups varies substantially. While Group I and Group II have been taking loans from SHGs and banks, the informal source of money lending dominates the Group III. The interest rate and the scope for exploitation are high in the informal credit market. Even among Group I and II there were around 30% of borrowing from informal sources. The discussions during PRAs revealed that many women, prior to becoming members in SHG had borrowed from the local money lenders. After becoming the members in SHGs, their dependency on local money lenders have reduced. However most of the loans taken from the SHGs were mainly meant for repaying the earlier loans taken from the money lenders. While the credit amount remains more or less the same among all the three groups, the high standard deviation values indicate that the pattern of credit is not uniform even within the groups (table 4.4).

3. What other stakeholders had to say

The other two important stakeholders were the banking sector and the mobile phone service companies. VIDYAL, due to its recognition by NABARD, has a strong relationship with commercial banks. However, hitherto the loans offered by the banks were mostly revolving funds. Under this loan a SHG can get a loan from a commercial bank under NABARD's guidance, equivalent to its total savings. Banks were hesitant to give enterprise loans due to the fear of non-repayment of the loans.

The Indian Overseas Bank, one of the major public sector banks of India agreed to support enterprise loans to the SHGs under the L3F initiative. The officers of the Bank pointed out that L3F has scope to reduce the workload of the banking staff, since SHGs themselves are developing the business plans and credit plans. In the normal circumstances, the bank officers have to prepare the plans and reports. However the bank pointed out that any expansion would depend on the performance of the first batch of 330 members.

Iffco Kisan Sanchar Ltd (IFFCO) is major mobile phone service company with an ideology of serving the farming communities through a business model. Its officers pointed out that L3F offers a business strategy and hence they were interested in joining the initiative.

4. Summary

The study during 2008 reflects the following:

1. The L3F has targeted the poorest of the poor. In spite of the challenges in assessing the income, the broad indication reflects that with domination of landless agricultural labourers, poverty level is bound to be high. The mean family annual income is far below the World Bank recommended US \$1.25 per day per person. At a conservative rate of Rs. 40 per US\$, an average family of 4 will require at least Rs. 73,000 per annum to rise above poverty.
2. Substantial portion of L3F participants did not have any school education. Due to illiteracy, L3F has to focus on audio and multi-media based learning.
3. While the SHG movement had helped to streamline the credit among the poor, it had not played a major role in developing the entrepreneurial qualities. Most of the credits have been borrowed for consumption purposes.
4. Stakeholders such as banks and mobile phone service companies showed interest in L3F since it offered a business framework.

CHAPTER III: DURING 2009-2010

1. Introduction

At the beginning of 2009, the bank offered loans to 320 women to the tune of Rs.112,00,000 (approximately CAD 280,000) to develop the goat enterprise. Using the credit and personnel resources, these women bought their own mobile phones. IKSL distributed free SIM cards and agreed to provide five audio messages daily free of cost. In addition, the phone calls among the participating women were also made free.

VIDIAL, VIDIVELLI and representatives of the 320 women identified the learning strategies and decided to go through the learning process based on the business cycle of the goats. TANUVAS provided the technical support in developing the contents. It was also agreed that the participating women will share their experiences with one another and with TANUVAS through mobile phones and weekly meetings. With the help of family members, each participant was asked to record their learning in a notebook and share with others.

An officer from a financial institution visited VIDIAL and “complained”, that the women from the initiative, have started arguing on issues such as interest rate, repayment terms etc. while visiting the banks. He quoted an incident that one illiterate woman challenged him regarding the difference between the prescribed interest rate of Reserve Bank of India and the prevalent rates in the local banks. He was surprised that an illiterate woman could talk such issues and humorously “warned” VIDIAL not to develop such questioning spirit among the poor women.

This incident triggered the debate on empowerment. Since the mobile phones were being purchased by the women, it was decided to look into the control of these mobile phones at the household level to assess the process of empowerment.

During mid-2010, VIDIVELLI wanted to know whether L3F was making a difference in terms of the quality of goats.

The above two issues were studied as a part of the longitudinal study.

2. Mobile Phones and Empowerment

2.1 Domestication of Technology

Silverstone, et al. (1992) proposed the Domestication of Technology Framework as one way of understanding of the technology-gender relationship. The framework comprises four elements: *Appropriation* relating to access, ownership and possession; *Objectification*, with emphasis on the object and its usage in the household economy; *Incorporation*, the manner in which the objects are used in a temporal context thereby foregrounding the issues of power; and *Conversion*, “referring to the ways in which the object is employed as currency for indicating memberships in relations with the outside” (Omari and Ribak, 2008). Silverstone et al (1992) argue that the domestication framework within the

purview of the moral economy of the household would help to understand power relations and existing inequalities.

Appropriation has attracted most attention in relating gender to ICT. An understanding of other elements such as objectification, incorporation and conversion could help in a broader understanding of gender-technology relationship.

In West Bengal, India, Tenhunen (2008) has made the following interesting observation regarding gender issues in the use of mobile phone:

Men have purchased all the mobile phones in the village, and all the shops with public phones belong to men. However, in many houses women are in charge of delivering news and operating the phone, because their husbands need to be on the road to purchase stocks or sell products. The phones are used collectively by the entire family and even the neighbourhood (Tenhunen, 2008:525-526).

Tenhunen's observation indicates that while appropriation is still in men's hands, women have started playing major roles in objectification and intensification, even though their role may be more of supporting men's occupations.

Communication, networking and information-sharing are seen as the essential functions of mobile phones and the gender dimensions has been perceived vis-à-vis these functions. Limited attempts have been made to conceptualize the mobile phone as an educational (or learning) technology. In this study, the role of mobile phone as a learning technology and its gender relationships are analysed vis-à-vis the analytical framework of the domestication of technology outlined above.

Most studies on how learning takes place are based on men's experiences in academic institutions. There are very few studies available on how and if women learn differently and whether learning takes place differently in non-formal environments. Belenky et al (1986) have identified five categories of women's perspectives of knowing. These are:

1. Silence, when women see themselves as both mindless and voiceless and rely on external authority for knowledge.
2. Received knowledge when women believe they are capable of receiving knowledge from external authorities
3. Subjective knowledge, a perspective from which women conceive knowledge intuitively and subjectively
4. Procedural knowledge in which women invest in learning and follow objective procedures for obtaining knowledge
5. Constructed knowledge under which women view themselves as creators of knowledge using both subjective and objective strategies. (Belenky et al, 1986, p.15)

While these are neither exhaustive nor sequential categories, they help to establish a theoretical frame within which women, overcome silence and come to voice.

2.2 Purpose of the Study

This study focuses on a group of illiterate and semi-literate women in Southern India who are challenging (latently as well as manifestly) the existing social relations through mobilization and

learning. It attempts to understand the relationship between social context and the use of mobile phones as a tool for lifelong learning vis-à-vis the gender dimension. The study was based on the premise that the digital divide in terms of gender should be perceived beyond the issues of simple access to Information and Communication Technology (ICT).

The objective of the present study has been to delineate the gender dimension in the use of mobile phone as learning tool among the women involved in the goat rearing enterprise.

2.3 Methodology

The study adopted a two-pronged approach — quantitative analysis using a structured survey, and qualitative analysis using social-anthropological tools.

A questionnaire was designed in consultation with VIDIVELLI. After pilot testing and refinement of the questionnaire, the questionnaire was administered to the sample by the staff of VIDIAL. The data were analysed with simple statistical tools.

For qualitative analysis, the study used anthropological tools and Participatory Rural Appraisal techniques such as Focused Group Discussions, Participatory Observation and structured interviews.

These approaches helped to transit the women from a mere respondents of a statistical survey to participants in evolving a development theme. The theme and the conclusion of the studies were shared with the participating women.

The survey covered a sample 73 randomly selected women out of 320 women.

2.4 Results

Socio-economic background of respondents:

Table 3.1 shows, the social demographic characteristics of the respondents. These are similar to what one would find in many South Asian countries. A substantial proportion of respondents were young adults, and half were below the age of 40. Most of the respondents were from families with 4 to 6 members. The majority did not have school education. A large number were agricultural labourers.

Thus, the participants are generally from similar class backgrounds. However, there are variations in terms of caste, age, educational status of the participant and the educational status of the participant's family. Table 3.2 reinforces the picture emerging from Table 3.1. More than 97% of the Lifelong Learners have been declared as households below the 'poverty line' by the government. Around 38% of the respondents do not have any family member with middle or above middle school education while around 37% of the respondent's family have few adult members with middle school education. It is also interesting to note that, among respondents with formal education, around 30% of them do not know how to read or write.

In spite of the poverty of the households, the strong presence of ICT is evident from the fact that more than 97% of the households have television and around 80% of the households have television with satellite cable connections (Table 4). This phenomenon is generally seen in southern India, where

private and government channels, have a strong presence. On the other hand, use of radio and landline telephones is minimal.

Appropriation

In Silverstone, et al's (1992) Domestication of Technology Framework, *appropriation* refers to access, ownership and possession of technology.

Initially multimedia materials were preferred for learning. One of the SHGs, which runs a satellite cable television channel in a village, telecast the multimedia learning materials on its satellite cable channel. Most of the women, as poor labourers, felt that attending classes or watching multimedia materials restricted their movement for employment, occupation and household chores. They asked VIDIYAL and COL to use the mobile phone as a learning tool.

The mobile phone would not only help in the learning process but would also support the goat rearing enterprise in terms of animal management and marketing management. However, VIDIYAL cautioned the SHGs that mobile phones could be usurped by other family members, since women have limited control over ownership. However, VIDIVELLI and the SHGs argued that since the mobile phones would be purchased by them from the credit from the bank, they would maintain their control and ownership over the instrument.

According to the survey, around 59% of the respondents did not have any prior experience in using a land-line phone. Similarly around 36% of the respondents had not previously used a mobile phone (Table 3.5).

VIDIYAL and VIDIVELLI conducted a training programme on the mobile phone. The mobile phone dealers and the mobile service companies were invited to the meetings during which the SHGs members negotiated the terms, prices and service mechanisms. The final decisions of choosing the mobile phone instrument and the mobile service company were made by VIDIVELLI. Through formal functions, these mobile phones were distributed to the women, since VIDIVELLI felt that such functions would help to reinforce the ownership of the instrument at the household level.

The transition of the instrument from the shop to the household is an important aspect of appropriation. The survey shows that a substantial number of women involved in L3, kept the phone in their custody (Table 3.6). In a few cases, the gendered hierarchy encourages the men to take control of the mobile, particularly when the males do not own their own mobile phones. During the monthly meetings of the SHGs, the possession of mobile phones is discussed and strategies are laid out to reinforce the ownership. The spouses are also the major users of the phone (Table 3.7). Yadulamma gleefully announced in one of the SHG meetings that her husband and other male members in her house seek her permission before using the phones. Most of the women in the initiative have opted for pre-paid mobile services and these services have been registered in their names.

Objectification

In Silverstone et al's (1992), Domestication of Technology Framework, *objectification* refers to the object and its use in the household economy.

All the women who participated in the survey declared that they regularly took the goats for grazing and most of them (90.4%) carried their mobile phones with them. (See Table 3.8).

In the domestic context most of the respondents' families supported the learning objective of the woman. If other family members hear the voice mail or audio messages, they immediately share the information with the woman and help to learn the content. Likewise, the woman shares the content on goat rearing with her husband and with other members of the family. This process benefits the entire family to learn new things and expand the knowledge base on goat rearing.

According to Peria Jakkamal, "Whether I am in the kitchen or managing the grazing goats in the pasture land, I am able to listen to the messages which are very useful." In many parts of rural and urban India, women involved in agriculture, trade, etc. carry a small drawstring purse or pouch which is called as *surukku pai*, in Tamil. Women carry coins, betel leaves etc., in the purse and it is generally tucked in the waist of the traditional attire sari. *Surukku pai* is generally associated with women. In this context it is a gendered object. Periaq Jakkamal carries her mobile phone in her *surukku pai*. The study found that large numbers of the learners carry their mobile phones in their *surukku pai*, along with coins and betel leaves. A strong symbolic meaning is displayed through *surukku pai*, reinforcing possession of the new object vis-à-vis the spatial arrangement of the household. While a few women have bought modern leather pouches, most of the participating women believe that *surukku pai* gives a better identity of their ownership over the phones.

Incorporation

In the Silverstone et al. (1992), Domestication of Technology Framework, *incorporation* refers to the way in which objects are used in a temporal context.

Learning materials were prepared within the broad principles of ODL vis-à-vis learning needs of the group. No examinations or certificates are required to participate in the learning course, though VIDIVELLI reviews the learning processes. The content in the form of audio messages or voice mails are sent to the participating women regularly. Three to five messages are sent every day. VIDIYAL and VIDIVELLI also conduct face-to-face training programmes on using the mobile phones. Since most of the women are illiterate or semi-literate, they were given practice in operating the phone. They were further advised to seek the help of others within their family. Spouses seem to be the primary source of help. Daughters (most of them are children or teens) are the next primary source while VIDIYAL & VIDIVELLI are considered as secondary sources of help. (Table 3. 9).

The women preferred to get the messages in the mornings while going to work or doing household chores. They go up to five kilometres away from the village to graze their animals and receive the voice mails while tending the goats. Whatever stays in their minds (*nejil neirpathai eluthuvom seivom*) is recorded in their diaries. The literates and semi-literates seek the help of spouses and children to write the notes. These notes are discussed during the monthly SHG meetings. VIDIYAL and VIDIVELLI initiated this practice since it was felt that recalling, recording and discussing would help to internalize the learning process.

All respondents fully agreed with the view that the mobile phone based training is useful and easier (Table 3.10). When they were asked to respond to the statement that mobile phone based training is better than face-to-face training, some women did not agree. However, nearly 82% of the respondents fully agreed that mobile based training is better than conventional training. During the interviews,

women pointed out that attending training programme, classes, etc., involves substantial financial, economic and social opportunity costs for them. Some lose their labour wages. They have to seek the support of other family members or neighbours in managing the household chores. In contrast they are able to receive regular lessons through mobile phones whether they are in the kitchen or in the field managing the animals. Periathha, one of the leaders of the SHGs, said that as most of them did not attend schools in their youth, the concept of the classroom is intimidating. They are not in a position to stay in a same place, physically and mentally, listening to lectures and discussions. She said that fear of the teacher still lurks in the corner of their minds.

Most of the respondents had listened to more than six audio messages and voice mails one week prior to the survey (Table 3.11). Most of the respondents felt that they were able to use the salient points of the messages in managing the goats. According to VIDIYAL, this was due to the participatory learning need analysis which helped to identify the relevant themes.

Incorporation is a matter of integrating the new technology into routines of daily living and characterized by struggles over and negotiations with the technology (Christensen 2002). Yadulamma narrated the following incident:

*I do not allow my husband to touch the mobile phone. One day while going for grazing, I found that the phone was not working. Since I was going for grazing I requested my husband to take the mobile phone to VIDIYAL's office where an engineer comes every Monday to attend the complaints about the handsets from SHG members. The engineer repaired my phone and gave it to my husband. When my husband brought it back, I found the phone was still not working. I opened the phone and found that the **tongue is** missing. I shouted at my husband for missing the tongue and rushed back to VIDIYAL's office. With the staff of the VIDIYAL, I searched and found the **tongue**. Later I told my husband that I would never depend on him for repairing the mobile phone.*

In speaking of the “tongue”, Yadulamma was referring to the SIM Card. When VIDIYAL staff told her that it is called a “SIM Card”, she said that it is like a *tongue* to the mobile phone, without which the phone cannot speak.

While phones are shared amongst members of the family, there is a constant task of constructing and sustaining an identity within the home, not only in terms of appropriation, but also in terms of objectifying and incorporating the instrument as a learning tool rather than as a mere communication tool.

Conversion

In Silverstone et al's (1992), Domestication of Technology Framework, conversion refers to the way in which the object is used as currency.

Sudha, a middle school dropout, said

In my family and neighbourhood, some men do not know how to use a mobile phone. They see me using the phone, listening to voicemails and talking to other SHG members. They exclaim saying that these women who used to sit in the corner of the house and gossip, are now behaving like government officers, talking on mobile phones. While some are

sarcastic, there are others who appreciate our transition. Mobile phones have become a symbolic representation of our transition from dependency on males to self-dependency.

According to VIDIVELLI, mobile phones have produced a breakthrough in linking women to information sources. Mobile phones are enhancing the communication flow, especially to contact relatives and friends in other villages. Some of the women have learned to send cost-free SMSs through mobiles to convey messages. With the help of the family members, they have fixed specific ringtones for specific callers.

Mobile phones help to share the information with the members of SHGs in other villages about the availability of goats for marketing. They contact the local middlemen in the same or other villages who could facilitate goat marketing and the merchants who buy goats. They also contact the butchers and agents of weekly markets in the nearby towns. They share the information about the market for goats. The agents bring the vehicle to the village and transport the goats to the weekly market. This helps them to identify the better options in the market and sell for the best prices. The use of the phone has resulted in the reduction of transportation and other opportunity costs.

The women felt that effective and crisp conversation ability is required since they have to pay for the call depending on the time taken for conversation.

A substantial number of the respondents had been using the phones to call others and discuss goat rearing (Table 3.12). They frequently called (primary calls) SHG members in the village and family members (Table 3.13). These calls were made to discuss and ascertain the validity of the lessons and information passed through the audio and voicemail messages. In contrast, the number of respondents receiving calls from others on goat rearing is limited. Only around 38% of the respondents have been receiving calls (Table 3.14).

There is a general agreement that their social network has become more intensive with the arrival of the mobile phone. In addition to goat rearing, they have been receiving lessons in governance and fundamental legal rights. When any of the villagers are taken to the police station, the family members have started approaching the SHG members to discuss about their legal rights. According to VIDIVELLI, the enhanced ability to negotiate with various stakeholders has added a new dimension to the personality of the participating women.

Discussion about voicemail and audio messages is a regular agenda item in the monthly SHG meetings. The mobile owners share the information received with the non-mobile owners. These meetings provide the women an opportunity to discuss the messages received, clarify their doubts, fix the information in the existing knowledge system etc. According to VIDIVALL such a process of enquiry and introspection is essential for providing the confidence to the learners to convert the messages into actions for better goat rearing. The diaries in which the women record the voicemail and audio messages received are brought to the monthly meetings for discussions. Sometimes women learners are unable to comprehend the message heard. The facilitation of horizontal learning in the SHG meetings help to clarify their doubts and get clarity and understanding.

Mobile phones are used for other purposes such as discussing *non-business* and *non-learning* matters. During one of the interviews, discussions centred around *gossiping* through phones. Immediately the women challenged that men also spend time gossiping about politics, recreation etc. Sudha said, "We

are not rich people to spend hours in talking through the phone. Every minute of conversation is a cost to us. While conversations among the 330 participants is subsidized by the mobile company, we have to pay full charges for conversing with others. Also, our telephone bills are discussed in the monthly SHG meetings and assessments are made on Quality Learning Conversations. Hence we are always careful in using the phone."

At the beginning of the initiative, the male staff of VIDİYAL recorded the audio and voicemail messages in their voices. During VIDIVELLI's meeting the women participants argued that the voices of the participating women should be used in the messages. Some of the participating women were trained and their messages are being recorded in their voice. Similarly, women felt that there should be quizzes and feedback system for reviewing and evaluating their performances. Based on their suggestions, COL and the University of British Columbia had developed a Learning Management System using audio messages and voicemails. The mobile service company is providing VIDİYAL and VIDIVELLI a master SIM card through which they would be able to upload the messages directly to their system.

2.5 Overview

Two aspects are evident from the above analysis: self-directed learning and gender dimensions.

Knowles defines self-directed learning as "...a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies and evaluating learning outcomes". (Knowles, et al 2005).

The community came together, defined the learning goals based on individual needs, identified the resources and strategies for learning and are in the process of evaluating the outcomes. The blending of vertical and horizontal transfer of knowledge helps individual learners to learn in their own time and at their own pace.

As articulated by Freire, problem-posing education enables the marginalised to "develop their power to perceive critically the way they exist in the world with which and in which they find themselves; they come to see the world not as a static reality but as a reality in process, in transformation.....it bases itself on creativity and stimulates true reflection and action upon reality....." (Freire 1970). The latent as well as the manifest challenges to the gender stereotypes posed by the women's group while domesticating the mobile phones reflect the critical perception evolving among the women group.

There is nothing inherent in the technology that requires women and men to use it differently. It is gender ideology, operating within a particular political and economic context, that leads to women and men living different lives and using technology differently (Rakow and Navarro 1993: 155). The SHG movement of VIDIVELLI facilitated by VIDİYAL operates beyond the conventional framework of microfinance. Livelihoods through microenterprise, institutional structures for emphasising legal rights, enhancing the ability to negotiate with various stakeholders are some of the important agendas of the SHGs. Thus, there are latent as well as manifest challenges to the existing social relations.

The study shows that the SHG movement, microenterprises and lifelong learning represent challenges for the existing social relationships. Management decisions of the assets and resources are discussed in the SHG meetings and thereby the realm of the decision-making in the household economy is moving beyond the household. Clearly this empowerment results from women's participation in learning and

ownership of assets. It is clear that given the appropriate opportunities, even the most marginalised women can learn effectively, but they learn differently.

The women of VIDIVELLI are in the stages of procedural knowledge and constructed knowledge. But the transition from silence to constructed knowledge has been influenced due to the strong cognitive social capital developed through the learning and sharing process. ODL has helped with the procedural knowledge and led to a stage where constructed knowledge is becoming possible. It would be important to point out, that all the stages of learning above cannot be achieved without access to some basic resources, such as mobile phones in this case.

Mobile phones have been introduced as both a learning tool and a tool for business. The domestication of technology with elements such as appropriation, objectification, incorporation and conversion has taken place in the context of cognitive social capital and social learning capital. The appropriation of the mobile phone in the context of bank credit and lifelong learning has helped to create an identity for the phone as a learning and business tool. Using mobile phones while managing the animals, listening to audio messages and voicemails and recording them for discussions and peer-review, sharing the messages in the neighbourhood, workplaces and SGH meetings, discussing through mobile phones about the various aspects of goat rearing etc., have strengthened the objectification, intensification and conversion process. Their constant interaction with the mobile company has helped to introduce new technologies such as uploading the messages through master SIM cards. Their feedback has encouraged the Commonwealth of Learning and the University of British Columbia to develop a Learning Management System for mobile phones. Thus they have not only been influenced by technology, but are also playing a role in shaping the technology.

Through a systematic horizontal transfer of knowledge, the initiative has focused on evolving a social learning capital. VIDIVELLI women represent a cognitive social capital which emerges from trust and norms generated from cognitive and interactive processes. It is further reinforced by reciprocity, collective-identity, shared beliefs and recognitions that contribute mutually beneficial collective action. Continuous interactions, dialogues and debates characterize this process. Thus it acts as a collective agency in addressing common issues. As Bruegel (2005:5) points out:

.....social capital develops from collective experience and on that basis can be transformative, realising forms of collective agency. Just as physical capital is transformed and financial capital is accumulated as it is utilised, so social capital can be characterised as a process in which alternative values and goals may be developed and the power to effect change may be accumulated, depending on the wider context and circumstances.

Lifelong learning was integrated as a component of this social capital and the domestication of mobile technology as an instrument of learning and information-sharing took place within the framework of this collective agency. While clearly the mobile phone was *given shape and meaning by being grafted onto existing rules and expectations about the structure of social relations* (Omari and Ribak, 2008; Marvin, 1988), it was instrumental in building cognitive social capital. The absence of such collective agencies could be one reason for the digital and gender divides in the use of educational technology in formal education.

This study demonstrates that the transition from silence to voice, from powerlessness to empowerment is possible in non-formal learning contexts, just as it is in formal contexts, and that technology offers a means to accelerate this process.

3. Goats and L3F

3.1 Objective and Approach

The objective of the study is to assess the impact of the Open Distance Learning (ODL), for the goat farmers under the L3 Farmers activity compared to Non L3F goat farmers who do not have access to ODL methods.

The hypothesis of the study is as follows: Open Distance Learning (ODL) methods used by COL Canada using Information, Communication Technologies (ICTs) including audio messages, has a positive impact on the health of goats reared by L3 farmers, leading to enhanced income generation, compared to non L3 farmers who do not have access to ODL methods.

15 goat farmers from the L3F activity and 15 goat farmers from non the L3F activity were selected based on random sample method. A statistical questionnaire was devised and tested in the field. With a few modifications suggested by COL, these were incorporated and the final questionnaire was prepared and put to use.

Two surveyors with veterinary experiences were hired, sensitized and the study was conducted from 24, May, 2010 to 31, May, 2010 at Rasingapuram and nearby villages of Theni District, Tamilnadu, India. The geographical distribution of the sample material ranges from 5 to 10 kms from Rasingapuram village covering both categories of farmers.

As bank loans were sanctioned and disbursed in late 2008 and early 2009, this was taken as a base period both for L3F and non L3 farmers, and the data was collected up to May 2010. Flock size was kept at 10 goats (9 adult females + 1 adult male) as this was considered as the foundation stock of the flock, both for L3F and Non L3F goat farmers.

3.2 Category of farmers and breed

All the L3 farmers (100%) owned KANNI AADU Breed of goat which is a local recognized breed by the Government of India, while all the non L3 farmers (100%) owned non descriptive breeds, which includes crossbred animals (Table 3.14).

3.3 Health Parameters

Null Hypothesis: There is no significant difference between L3F and Non L3 farmers with regard to dimension of health parameters.

Since P value is less than 0.01, the null hypothesis is rejected at 1% level of significance. Hence there is significant difference between L3F and non L3 farmers with regard to dimensions of all health parameters (Table 3.15).

The adult goats purchased and maintained by L3F goat farmers were healthier in terms of weight, length, height and chest girth, compared to non L3F goat farmers. The Mean weight of male goats is 31.20 Kg in L3 farmers, whereas it is 25.80 Kg in Non L3 farmers; similarly the Mean weight of female

goats stands at 25.60 kg, compared with 22.20 kg in Non L3 farmers. The weight of goats is a major factor in determining the price of animals; moreover females with a better weight, strengthen the foundation stock, as they will be the future Dams that can produce healthy off spring. Similarly with regard to height, length and chest girth the mean parameters of L3F goats, outweigh Non L3F goats. This shows that ODL methods using ICT had a significant effect on these health parameters. The selection of “KANNI AADU”, a proven local breed of Tamil Nadu (India) has been a major contributing factor, coupled with the better upkeep and flock maintenance by L3 farmers. Better feed management and disease control are also significant factors that have contributed for better health of goats.

3.4 Production and Interval of Kids

Null Hypothesis: There is no significant difference between L3F and Non L3F goat farmers with regard to Kidding interval and total number of kids born.

Since P value is less than 0.01, the null hypothesis is rejected at 1% level of significance. Hence there is significant different between L3F and non L3 farmers with regard to kidding interval and total number of kids born (table 3.16).

The Mean kidding interval in L3F activity is 6.93, whereas it is 8.27 in non L3F activity. Similarly total number of kids born per block is 32.13, whereas it is 28.47 in non L3F activity, indicating the impact of learning among L3 farmers.

Ideal kidding interval of 7 -8 months indicates proper flock maintenance and the natural service facilitated through healthy and breedable adult male and females purchased by L3 farmers. Shorter kidding interval, facilitates increased no of kids available for farmers, which enhances their income. More number of kids born in a flock, facilitates the goat farmer to strengthen the foundation stock, by eliminating unhealthy/unproductive adults and substituting them with healthy females born in the flock.

3.5 Kidding Percentage

Null Hypothesis: There is no significant difference between L3F and Non L3F goat farmers with regard to Kidding percentage of singles, twins and triplets.

Since the P value is greater than 0.05 the null hypothesis is accepted at 5% level of significance. Hence there is no significant difference between L3F and non L3F goat farmers with regard to Kidding percentage of singles, twins, triplets of kidding (table 3.17).

In a healthy flock, Kidding percentage especially relating to twins and triplets should be minimum of 60% and 10% respectively. This enhances the flock strength and facilitates increased income to farmers. In a flock of goats, the twining and triplets percentage, carry lot of impact in increasing the flock number and income. While in the L3F activity, the Mean for twins is 57.13 vis-à-vis 62.17 for non L3F, the Mean for triplets is 17.22 for L3, whereas the Mean for non L3F is just 7.50. This reflects in the overall increased production of kids in L3F activity.

3.6 Frequency of Male And Female Ratio Distribution of Goats

The Male/Female ratio will be 1:1 in a proven local recognized breed or even in non-descriptive breeds. The similar pattern is reflected in our study sample also. This is based on genetical factors (table 3.18).

3.7 Mortality in Kids and Number of Kids Sold

Null Hypothesis: There is no significant difference between L3F and Non L3F goat farmers with regards to mortality in kids and number of goats sold.

Since P value is less than 0.01, the null hypothesis is rejected at 1% level of significance. Hence there is significant difference between L3F and Non L3F goat farmers, with regard to mortality of kids, number of goats sold and average weight of goats (3.19).

The Mean mortality in kids stands at 2.20 for L3F, whereas it stands at 7.67 for non L3F. This factor reflects in the Mean number of goats sold, which stands at 23.53, whereas it stands at 15.00 in non L3F. The Mean weight at the 5th month of age is 10.20 kg, in L3F activity, whereas the average weight of goat stands at 8.93 kg in non L3F. As the weight of animal is a deciding factor in getting a higher sale price, it enhances the income of L3 farmers.

The higher survival rate among kids, leads to increased number of saleable goats in a flock as well as income from milk/manure, which adds to the income of farmer. Moreover the goat farmer has few more animals to choose for replacing the ageing foundation stock. This helps her/him to cull the aged, unproductive females and substitute them with kids born in the same flock. However farmers are exchanging the adult males with other farmers in order to avoid IN-Breeding.

3.8 Total Income

Null Hypothesis: There is no significant difference between L3F and Non L3F goat farmers with regard to income from sale of goats.

Since the P value is less than 0.01, the null hypothesis is rejected at 1% level of significance. Hence there is a significant difference between L3F and non L3F goat farmers with regard to income from sale of goats, manure and total income (Table 3.20).

Income from sale of goats which includes animals sold from the 5th month onwards and adult culled animals (defective / non breedable) shows significant variation in T values and P values with regard to L3F and non L3 farmers. Similarly the manure output is based on the feeding standards.

During the last 20 months (activity period) the total income per flock is INR 44,407 for L3F goat farmers and INR 24,133 for non L3F goat farmers which again proves that the flock maintenance significantly exceeds that of the non L3 farmers. Factors such as shorter kidding interval, total number of kids born, number of goats sold, lower mortality rate, have contributed to higher income. The major contributing factor is ODL methods used by COL.

3.9 Feeding Concentrate

Null Hypothesis: There is no significant difference between L3F and Non L3F goat farmers with regard to feeding concentrate in Kg.

Since P value is less than 0.01, the null hypothesis is rejected at 1% level, with regard to feeding concentrate (kg). Hence there is significant difference between L3F and non L3F goat farmers in feeding concentrate (Table 3.21).

For Water, the Mean values are same for both L3F and non L3F with standard deviation of 0. Hence there is no difference between L3F and non L3F goat farmers, with regard to pond water.

For a flock of 10 adult goats, along with growers, the average concentrate feed intake should be around 4 kg/day. Among the L3F goats, the average feed intake is 3.48 kg which indicates adult animals are not given enough concentrates. This is even less in non L3F goats, where the average intake is 1.68 kg. There is a uniform grazing time of 8 hours per day for both L3F and non L3 farmers.

Slight underfeeding of concentrates is noticed in L3F goats, which is more pronounced in non L3F goats. The mixture of concentrate feed also is not complete as our study reveals. This can be related to lower health parameters observed in non L3F goats (see earlier tables). Grazing time of 8 hours is adequate considering the nature of pasture lands and carrying capacity of the system in the study area. Drinking water is available from pond water during grazing and bore water is provided to goats at house/pen.

3.10 Deworming

Null Hypothesis I : There is no relationship between category of farmer and deworming of goats.

Since P value is less than 0.05, the null hypothesis is rejected at 5% level of significance. Hence there is relationship between category of farmers and deworming (Table 3.22).

Null Hypothesis II : There is significant difference between L3F and non L3F goat farmers with regard to frequency/cost of deworming.

Since P value is less than 0.01, the null hypothesis is rejected at 1% level of significance. Hence there is significant difference between L3F and non L3F goat farmers with regard to frequency/cost of deworming (Table 3.23).

All the L3Ffarmers carryout deworming (removal of worms from the stomach/intestines by administering oral medicines), whereas in non L3F only 42.3% of the respondents carry out deworming. Deworming is an essential part of flock health maintenance. If not done, the animals get debilitated, lose weight and sometimes lead to death, causing economic loss for farmers. The deworming cost of INR.4/goat per deworming is cheap and economical, whereas it is INR.4.91/goat in non L3 farmers, as access to veterinary services are rather difficult to obtain for the latter category of farmers.

3.11 Insurance

Null Hypothesis: There is no relationship between category of farmer and insurance for adult goats. Since P value is less than 0.01, the null hypothesis is rejected at 1% level of significance. Hence there is relationship between category of farmers and insurance of adult goats (Table 3.24).

All the L3 farmers have insured the adult goats (100%), whereas none of the non L3 farmers have taken insurance cover (0%). The insurance cover of adult goats gives economic security to goat owners. Moreover bank loans are sanctioned with a rider that all adult goats should be compulsory insured. Regarding “Life cover” for goat owners, there is no coverage for both L3F and Non L3 farmers which puts the farmers and their family at grave risk as there is no financial security to goat owners and their dependent family members.

3.12 Vaccination for Foot and Mouth Disease (FMD)

Null Hypothesis: There is no relationship between Category of farmers and FMD vaccination.

Since P value is less than 0.05, the null hypothesis is rejected at 5% level of significance. Hence there is relationship between category of farmer and FMD vaccination (Table 3.25).

In L3F, all the farmers carry out the FMD vaccination, whereas in non L3F only 66.7% carry out the vaccination. FMD causes low mortality but high morbidity (weakening of animals) in goats, leading to income loss to farmers. As it is viral disease, there is no curative treatment; by doing vaccination at the approximate time this disease can be prevented.

3.13 Vaccination for Goat Pox

Null Hypothesis: There is no relationship between L3F and Non L3 goat farmers with regard to category of farmer and Goat pox vaccination.

Since P value is less than 0.01, the null hypothesis is rejected at 1% level of significance. Hence there is relationship between category of farmers and GP vaccination (Table 3.26).

In L3F, only 85.7% carry out the vaccination for GP, whereas in non L3F only 14.3% carry out the vaccination. Goat pox is debilitating disease leading to weight loss and lowers reproduction efficiency. Even in L3F, there is a small portion of farmers who do not carry out GP vaccination, whereas it is highly pronounced non L3 category.

3.14 Vaccination for Blue Tongue

Null Hypothesis: There is no relationship between category of farmer and Blue tongue (BT) vaccination.

Since P value is less than 0.05, the null hypothesis is rejected at 5% level of significance. Hence there is relationship between category of farmers and BT vaccination (Table 3.27).

In L3F only 13.3% carry out the BT vaccination and in non L3F, none of the farmers carry out the vaccination. There is no clear voice mail content regarding sensitizing the L3 farmers about BT disease and its vaccination. BT is prevalent in this part of the country and vaccination should be advocated; where vaccination is not done, mortality is expected to go up.

3.15 Vaccination for Enterotoxemia (ET)

Null Hypothesis: There is no relationship between category of farmer and Enterotoxemia (ET) Vaccination.

Since P value is less than 0.01, the null hypothesis is rejected at 5% level of significance. Hence there is relationship between category of farmers and ET vaccination (Table 3.28). In L3F, 80% carry out the vaccination and in non L3F, none of the farmers carry out the vaccination

3.16 Audio Message Frequency among L3F Participants

Audio Messages are available only to L3F goat farmers as not only the cost of mobile is included in the bank loan, but also infrastructure facilities have been placed in position by COL, VIDİYAL and IKSL. 93.3% of the sample farmers listen to audio messages all the 5 times a day and only 6.7% listen to 4 times a day. This shows an excellent response to the push messages through mobile phones. Acceptability and adaptability factors are very high (Table 3.29).

The significant feedback from non L3 farmers is that they can also be provided with audio messages through mobile phones.

Audio message content quality was weighed on a 5 point scale. Here again 93.3% rated the audio message content, at 5 on a scale of 5. The remaining 6.7% people rated the content at 4 on a scale of 5. As it is a subjective evaluation, there is a possibility of margin of error in grading the quality. Notwithstanding the error margin, the audio content has a multidimensional effect on the socio-economic aspects of L3 farmers. There is scope for enrichment of content (Table 3.30).

3.17 Overview of Goats in L3F

- a. The adult goats purchased and maintained by L3F goat farmers were healthier in terms of weight, length, height and chest girth, compared to non L3F goat farmers. This shows that ODL methods using ICT had a significant effect on these health parameters.
- b. The parameters such as kidding interval and the total number of kids born are ideal and better among goats maintained by L3 farmers vis-à-vis goats maintained by non L3 farmers, indicating the positive impact of ODL technologies used by COL.
- c. The Kidding percentage such as twins, triplets have a significant economic impact, in the lives of goat farmers while the birth of twins is more in non L3F goats. Tthe birth of triplets is high among L3F goats. This factor not only compensates for lesser number of goats in twins, for the L3 farmers but also increases their overall flock strength as more kids are available in the form of triplets.
- d. Mortality of kids is less in L3F goats. The average weight of goats at the 5th month age and higher number of goats are significantly noticed in L3F goats compared to Non L3F goats.
- e. The total income is much higher in L3F goat farmers compared to Non L3F goat farmers. This is due to ODL methods adopted by COL, which has given the farmers access to knowledge and skill in goat farming.

- f. Feeding of concentrates is low both among L3F and Non L3F goat farmers. Less feeding is more pronounced among non L3 farmers.
- g. All the L3 farmers carryout deworming (removal of worms from the stomach/intestines by administering oral medicines) whereas in non L3F, only 42.3% carry out deworming. Deworming is an essential part of flock health maintenance.
- h. All the L3 farmers have insured the adult goats (100%), whereas none of the non L3 farmers have taken insurance cover (0%). The insurance coverage of adult goats gives economic security to goat owners and such financial security is not available with non L3 farmers. However there is no life insurance coverage made available both to L3F and non L3F goat farmers.
- i. While FMD vaccination is carried by all the L3 farmers, a sizeable percentage does not carry out other vaccinations. Among non L3F goat farmers, most of the farmers do not undertake vaccination programmes as they do not have access to voice mail.
- j. Voice mail frequency has been rated at 5, on a scale of 5 by 93.3% of L3 farmers, only 6.7% farmers rated it at 4. Similarly the content of quality has been rated 5, on a scale of 5, by 93.30%, while only 6.70% have rated at 4 on a scale of 5. This is considered as excellent, as it has a tremendous impact on the socio-economic lives of goat farmers.

4. Summary

The above two studies identified the following two trends:

1. A process of empowerment among the women participants was clearly visible. Reinforcing the asset ownership at the household level, domesticating the technology and gaining strengths to negotiate with other stakeholders were some of the traits which were observed during the study.
2. The quality and the health of the goats of L3F were definitely different from that of the rest. This also resulted in a significant difference in terms of income among L3F and others.

However, it would be premature to come to a conclusion that learning played a major role in determining the above trends. The study on mobile phone and empowerment focused exclusively on L3F participants and hence it did not offer scope for comparison with non-L3F population. It could also be argued that any SHG movement with strong cognitive social capital could achieve similar results without the inputs of L3F.

CHAPTER IV: DURING 2011

1. Introduction

During 2010-2011, certain important events took place in L3F of VIDİYAL.

1. The total amount of credit to L3F participants increased to Rs. 4,30,00,000 (approximately CAD\$ 1 Million).
2. The total amount of turnover among the SHGs through savings and lending increased to Rs. 7,00,00,000 (approximately CAD\$ 1.62 Million)
3. The total turnover of the enterprises during the 2009-2011 reached Rs. 13,50,61,600 (approximately CAD\$ 3.14 Million)
4. Around 5000 women came under the purview of mobile phone based learning.
5. More than six “courses”, including dairy, goat rearing, horticulture, financial inclusion, business and credit management and law and human rights were delivered through a blended learning approach. Mobile phones, multi-media through computers and local televisions, and face-to-face trainings were used to deliver these courses.
6. Indian Overseas Bank appointed two women from the L3F initiative as its “Business Correspondent” for transacting the banking operations at the village level.
7. IKSL started paying the salary of one staff of VIDİYAL for uploading the audio contents.
8. Around 6000 women (and some men) came together and presented a memorandum signed by 25,000 people to the representatives of financial institutions and government stressing the need for investments from the banking sector on credit-specific capacity building through ODL.
9. NABARD suggested that the L3F model should be proved at a district level for a national level policy consideration. It has agreed to coordinate the initiative in two districts with the L3F partners.
10. The first batch of 320 women had repaid 90% of the five year- credit, with interest, within three years, while they were expected to repay only 75% of the amount in the three years.

With this background, a survey was conducted during June-July 2011 to assess the role of L3F in the development process. Similar to the survey of 2008, the focus was on a cross-sectional study comparing three groups: Women who are involved in L3F (Group I), Women who are involved in SHGs but not in L3F (Group II) and women who are neither in L3F nor in SHG (Group III). The last two groups can be considered as control groups.

Unlike the 2008 survey, professionals with knowledge and experience in social research and statistics were involved in conducting the study. However, the experts had a series of discussions with VIDİYAL and VIDIVELLI before finalizing the strategy for the survey. The survey focused on the role of learning in various development outcomes. As pointed out in Chapter I, index statistics based on attitudinal survey was used in understanding the development outcomes (refer the questionnaire in the annex 4). Using subjective and objective measures, the survey assessed the following: resources, capabilities, processes (where resources are converted through capabilities into results) and contexts. The decision-making abilities at the economic, political and personal contexts were included in this assessments.

2. What the Survey Pointed out

2.1 Socio-economic Background

Large number of respondents in all the three groups is between the age of 20 to 45 (Table 4.1). Substantial number of Group I and Group III had never been to school compared Group II (Table 4.2). Majority of the respondents are married in all the three groups (Table 4.3). An interesting picture emerges while analysing the occupation structure. The landless agricultural labourers are more in Group II and Group III (Table 4.4). Compared to 2008 (Table 2.3), there are more number of farmers and farmers cum agricultural labourers in Group I. Does it mean the many landless labourers among L3F participants in 2008 have acquired lands by 2011? The comparison may not be statistically valid, since, the survey conducted during 2008 had a different sampling structure and different definitions of the variables. However, the PRAs and focused group discussions indicated that sizeable number of L3F participants have converted their earnings from livestock into land assets. Most of them have purchased a small piece of land of less than one acre and have become marginal farmers. Ms. Valarmathy, one of the participants emphasised that the lands were purchased using the profits from livestock. She claimed that she bought land in her own name and built a small house. In a patriarchal society like India, land titling is always oriented towards male. According to Ms. Valarmathy, the L3F courses gave her information about her rights in owning the assets. Also her husband had developed a healthy respect for her involvement with SHG and did not interfere with the transactions and assets unless asked for. However initially she faced opposition from her father-in-law, who according to her is a “changed person” now.

The annual family income and the value of land indicate certain interesting trends reflecting Ms. Valarmathy's views. As pointed out in Chapter I, the data on income is difficult to compute due to various factors. During the survey, attempts were not made to deeply probe the income data due to the sensitivity of the issue. Below Poverty Line (BPL) listing by the government and the political situation such as the election prevented the survey to get a deeper insight into these issues. Even with these limitations, Group I and Group III reflect higher income and assets (Table 4.5 and 4.6). The higher standard deviations however indicate that the distribution of income and assets are not uniform within the groups.

The other indicator is the household infrastructure (Table 4.7). Televisions, CD/DVD players, mobile phones, bicycles, two-wheelers such as scooters and mopeds, and gas stoves are some of the infrastructure seen in all the three groups. The government had played a major role in providing free televisions, gas stoves, etc., to households who are under BPL. Televisions and mobile phones are available with most of the families. In the case of Group I, the participants of L3F did not own mobile phones during 2008. Using the credits from banks and SHGs as well complimenting their own resources, 96.5 % of the L3F participants own mobile phones. Two of the women SHGs run satellite channel services as an enterprise. Multi-media learning materials are tele-casted during a fixed time to the household of L3F participants. During the weekly SHG meetings CD/DVD players are used to study and assess the learning materials. The prevalence of a gas stove has enabled to reduce the drudgery of women in collecting fuel wood. Ms. Sudha, one of the active participants argued that gas stoves have enabled women to spend more time in managing the enterprises. Thus the strong household infrastructure has played a major role in L3F.

2.2 Learning

The focus of L3F is to promote self-directed learning through the facilitation of horizontal and vertical flow of knowledge. The survey developed an information and communication index ranging from 10 to 50 to assess the respondents' access to various information and communication technologies for learning (Table 4.8). The Group has a higher index than Group II and Group III indicating that the L3F participants are accessing various types of medias and ICTs such as television, radio, newspaper, magazines etc., to learn the various subjects and current events. The lower standard deviation reflects that there is uniformity within the groups in accessing information and communication technologies. Thus in spite of limited education, there is a trend to reach media.

The mobile phone learning Index (Table 4.9) focused on attitudes and practices regarding the usage of mobile phones and their relevance in strengthening livelihood. The results were the same as that of information and communication index in terms of mean values and standard deviations. L3F participants have been receiving five separate audio messages everyday on the basis of a structured learning programme. Each message is of one minute duration.

The purpose of the learning and training index (Table 4.10) is to understand the learning behaviour and practices vis-à-vis agriculture and livestock. A significant difference could be seen in the learning behaviour between the three groups. The learning behaviour among the L3F participants is much stronger when compared to the other two groups. They have also undergone more face-to-face training and consultations with experts and extension officials. (Table 4.11).

A positive correlation between the membership in L3F (i.e. total months of involvement in L3F) and learning is evident from table 4.12. The learning here includes the women respondents seeking training and advices from government extension agencies indicating a self-directed learning behaviour. Positive correlations are also seen vis-à-vis mobile learning and learning and training index.

2.3 Social Capital

The experiences of the first phase of L3F during 2004-2006 revealed the need for a strong social capital, particularly the cognitive social capital as a basic premise for lifelong learning. Such a capital offers scope for scale advantage in transactions between primary stakeholders and secondary stakeholders and facilitates a strong horizontal transfer of knowledge. In fact, VIDİYAL was identified as a facilitator for L3F, since it had been focusing on building women groups with strong sense of identity. Hence a strategy was developed to strengthen the cognitive social capital, through strong mobilization and organization. The participants of L3F were encouraged to meet regularly, share the experiences and define the strategies for strengthening L3F. The representatives of VIDİYAL, VIDIVELLI and other secondary stakeholders such as banks were organized into a Project Management Group (PMG) which monitored and reviewed the progress of the initiative. PMG also became the forum for codifying the knowledge emerging from research institutions as well as from communities. Group meetings, community lunches, social functions were regularly organized to strengthen the social capital. Such a mobilization also helped in developing informal network for tacit knowledge.

During the survey the social capital was measured with variables such as SHG involvement, social network, trust and solidarity, collective action and cooperation, social cohesion and sociability. Separate indices were developed for each them and then were consolidated into a social capital index. The table 4.13 indicates the significant difference between L3F and other groups in terms of collective action and

cooperation. The ability of the participants to come together and respond to issues is one of the important indicators for social capital. The social capital of the L3F group is stronger than the other groups (Table 4.14). It should be pointed that traditional and primordial linkages such as kinship, caste and ethnicity also contribute to the social capital and hence even among the Group III (No L3F- No SHG) traits of social capital are seen. However, the Group I and Group II have strong SHG movement which had contributed to a higher scale of social capital among them (Table 4.15). The intensity of the social network among the L3F participants is also higher (Fig 4.3). The social network indicates the membership and leadership in various types of social, political, religious and development institutions.

The positive correlation between social capital and learning (Table 4.16) justifies the focus on strengthening social capital in the L3F initiative. The attitude, perceptions and practices regarding learning is influenced by the social capital.

2.3 Empowerment

A report by OECD (Nzioki, 2007) argues:

The feminisation of poverty has recently become a significant problem as a short-term consequence of the process of political, social and economic transformation as women get poorer than men. Women's poverty is directly related to the absence of economic opportunities and autonomy, lack of access to economic resources, including credit, land ownership and inheritance, lack of access to support services, their minimal participation in decision-making processes, unsafe environment; and social discrimination and exclusion. Even in agriculture where women tend to predominate, credit and land ownership has historically been directed to the male head of the household, to the detriment of women, and indeed, to the detriment of agricultural development....

L3F seems to have addressed some of the issues raised in the above argument. Credit is one of the important issue around which L3F in VIDİYAL was conceived. As the Table 4.17 indicates, the L3F participants have managed to access high level of credit compared to the other groups. However, the high standard deviations indicate that the credit flow from the various sources is not uniform in all the three groups. In fact the L3F participants have borrowed from various resources. Ms. Kanmani of VIDIVELLI pointed some of the L3F participants are still repaying the credit which they had taken from money lenders prior to joining SHGs and L3F. In terms of quantum of loans, the L3F participants have managed to get substantial amount for credit (Fig 4.5). Also as the bank records indicate their repayment rates are much more than what the banks had originally planned.

The case study of Ms. Valarmathy quoted in section 2.1 of this chapter reflects the nature of empowerment taking place in L3F. She was able to acquire credit, learn, manage an enterprise, make profit and build assets in her own name. The economic upliftment index probes this aspect on the basis of subjective and objective responses. This index assesses the control over the resources and participation in the decision-making processes over a scale of 5 to 25. The table 4.18 reflects the substantial significant difference between L3F and other groups. Around 93% of L3F participants have high scores compared to 36.5% of SHG and 13.5% of Non L3F-Non SHG participants. Such evidences show that women are able to take part in economic and financial decision-making and asserting their role in the context of learning and social capital. In comparison, the groups which have not gone through a learning process seem to be at a lower level in terms of asserting their financial role.

The empowerment in this study looked into the political, psychological, economic and entrepreneurial indicators and developed a composite index. These indicators reflect the role of women at the household, enterprise and community level. As the table 4.19 shows, there is a significant difference in the political and psychological empowerment level between the three groups. Nearly 95% of the women in L3F have high empowerment score compared to 78.2 % of SHGs and 52.9% of No L3F No SHG groups. The overall empowerment scores of L3F is higher than that of the other two groups (Table 4.20)

A multiple regression analysis was done in order identify the determinant factors for the empowerment index (table 4.21). After looking into the various independent variables (for avoiding multi-collinearity) five were variables that were selected: age, education, total value of assets such as lands, learning and training index and social capital index. The analysis shows a statistically significant result. These five variables are able to explain 67% of the variations in the empowerment index with the higher “r” value of .720. Among these five variables, learning training index and social capital index are positively associated with high significance in explaining the variations in empowerment index. The beta coefficient of .469 for Learning and training index and .421 for social capital index show that these two variables are crucial for defining the empowerment index. Other variables such as age and total value of assets are not in a position to explain the empowerment. Interestingly, there is a significant negative relationship between education and empowerment level. This particular issue needs to be studied further before arriving at the interpretation.

2.4 Summary

The survey during 2011 gives a broad picture of the directions of L3F.

1. The L3F participants have significantly higher value of assets, income and household infrastructure compared to SHG and Non L3F- Non SHG groups.
2. The learning behaviour of L3F participants is significantly different from SHG and Non L3F- Non SHG groups.
3. The L3F participants have strong cognitive social capital in comparisons to SHG and Non L3F- Non SHG groups. There is a strong correlation between social capital and learning behaviour.
4. The level of empowerment is higher among the L3F participants.
5. The focus on learning and social capital initiated by L3F has been able to influence the empowerment process.

CHAPTER V: EPILOGUE

The study began with the following two questions:

1. Has L3F made a difference in strengthening the livelihood of the marginalised women participating in the activity?
2. Has L3F influenced the process of empowerment among the participating women?

The evidences show that L3F has made differences in strengthening livelihood of the marginalized women and it has influenced a process of empowerment among them.

But L3F in VIDİYAL cannot be termed as success at this stage. It has shown evidences that through a deliberate strategy of social capital, learning and networking, the income and the empowerment of marginalized groups such as women could be enhanced. However, if this is not capable of being self-replicable, then the experiences of VIDİYAL will remain only as an *island of success*. Hence there is a need for strong policy advocacy strategies to facilitate a self-propelling, self-generative process.

With limited intervention in the policy advocacy, VIDİYAL and COL made efforts to spread the messages. This resulted in some interesting developments:

1. Ugunja Community Resource Centre and the SOCO cooperative Bank in Kenya have adopted the community banking principles.
2. The Equity Bank and K Rep Bank have started developing commercial bank SHG linkages in Kenya.
3. The Makerere University in Uganda has started emphasising on building social capital of farming communities through the creation of farmer's innovation platforms.
4. The Government of Mauritius has recognized strengthening of learning among women through ODL.
5. NABARD has initiated plan for district level operation of L3F in India.

However there is one important challenge for the large scale replication. The framework of L3F expects that banks and ICT companies through the win-win strategy will play major role in replicating L3F to a larger scale. However, these organizations have limited experiences in mobilizing communities and they are hesitant in making investments in this area. On the other hand, a country like India has taken positive steps in this regard. Through the NABARD-Commercial Bank SHG linkage, the Government of India has promoted a strong community bank policy. The commercial banks are associated with the civil society in mobilizing the communities. This has helped to a great extent in the L3F model of VIDİYAL. Such conditions do not exist in other countries in Africa and Caribbean. Hence, COL should focus on identifying alternative strategies in these countries for empowerment and development through L3F.

ANNEX 1: TABLES

CHAPTER II

Table 2.1 The Mean Family Annual Income 2008

Groups	Mean	Standard deviation	N
Group I	33940	25742	63
Group II	40987	38526	101
Group III	28410	24097	191

Table 2.2 The Education Level of the Respondents (% of the Respondents)

No	Education Level	Group I	Group II	Group III
1	No Education	58.7	52.5	69.1
2.	Primary School Education	17.5	22.8	10.5
3	Middle School Education	20.6	16.8	10.5
4	Secondary School Education	3.2	7.9	5.2
	Total	100	100	100
	N	63	101	191

Table 2.3 Primary Occupation of the Respondents

No	Primary Occupation	Group I	Group II	Group III
1	Landless agricultural Labourers	52.4	27.4	21.9
2.	Salaried	3.2	1.5	2.6
3	Farming	22.2	36.4	38.9
4	Home Making and Family Labor	22.2	34.7	36.6
	Total	100	100	100
	N	63	101	191

Table 4.4 Credit Outstanding of the Respondents

No	Groups	Mean (Rs)	Standard Deviation	% of credit from Informal source
1	Group I	34100	35959	30.9
2	Group II	34555	36189	33.0
3	Group III	40198	42927	51.2

CHAPTER III

Table 3.1 Socio-demographic status of respondents

	Percent
Education	
No school education	58.9
Primary School	21.9
Middle School	15.1
Secondary school	4.1
Age (years)	
<20	1.4
21-30	34.2
31-40	50.7
41-50	9.6
Occupation	
Agricultural labourer	89.0
Marginal labourer	8.2
Medium farmers	1.4
Others	1.4
Family size	
<3	16.4
4-6	65.8
7-10	17.8

Table 3.2 Socio-demographic status of respondents' households

Relation to poverty line	
Below	97.3
Above	2.7
Type of house	
Kutcha	6.9
Semi-pucca	63.0
Pucca	30.1
Adult members above middle school level	
None	38.5
< 25%	36.9
> 25%	24.6

Table 3.3 Goats in the Household

Number of goats	%
1-10	6.8
11 to 15	63.0
16 to 20	19.2
More than 20	11.0

Table 3.4 Communication Infrastructure in the Household

Technology	%
Landline Telephones	4.1
Radio/transistor	9.6
Television	97.3
Satellite Cable Connections	80.8

Table 3.5 Respondents' prior Experience in Using Phones

Type of Phone	%
Landline phones	58.9
Mobile phones	35.6

Table 3.6 Possession of Mobile Phone

Who Keeps the Phone most of the time	% of Respondents
Self	75.4
Husband	16.4
Son	6.8
No Answer	1.4
Total	100.00
N	73

Table 3.7 Major user of the Mobile Phone

Who is the next major user of the phone in the house	% of Respondents
Husband	78.1
Son	6.8
Others	4.1
Nobody else	11.0
Total	100.00

Table 3.8 Mobility of the Mobile Phone

Do you Carry mobile phone while grazing the goat	% of Respondents
Yes	90.4
No	8.2
No Answer	1.4
Total	100.00
N	73

Table 3.9 Support in Interacting with Mobile Phones

Who helps in using mobile phones	Primary Helper	Secondary Helper
Husband	42.6	0
Sons	6.8	1.4
Daughters	27.4	15.1
Other members in the Family	6.8	9.6
NGOs	8.2	31.5
Nobody	6.8	41.0
No Answer	1.4	1.4
	100.00	100.00
N	73	73

Table 3.10 Opinion about Usefulness of Mobile Phones as Learning Tool

	Mobile Phone Based learning is useful	Mobile Phone Based learning is easier	Mobile Phone Based learning is better than face-to-face training
Fully Agree	100.00	100.00	82.2
Somewhat Agree	0	0	1.4
No Response	0	0	0
Do Not Agree	0	0	16.4
Completely Disagree	0	0	0
	100.00	100.00	100.00
	73	73	73

Table 3.11 Number of audio messages & voicemails received during the week before the survey

Number of messages	% of Respondents
None	1.4
1-3	9.6
4-5	39.7
6 or more	47.9
No Response	1.4

Table 3.12 Calls on goat rearing made and received on mobile phone

Number of calls	% of Respondents Calls made	% of Respondents Calls received
None	35.6	61.7
1-3	21.9	10.9
4-6	12.3	2.7
7 or more	28.8	23.3
No answer	1.4	1.4

Table 3.13 Person or Institutions to whom Calls made or Received

	Primary Calls Made % of Respondents	Secondary Calls Made % of Respondents	Primary Calls Received % of Respondents	Secondary Calls Received % of Respondents
Immediate Family Members	12.3	1.4	6.8	0
Neighbours	1.4	1.4	1.4	0
Relatives	0	19.1	1.4	4.1
SHG Members in the Village	38.4	5.5	20.4	4.1
SHG Members in other villages	6.8	17.8	4.1	5.5
VIDIYAL and VIDIVELLI	2.7	13.7	1.4	10.9
Extension Officers, Doctors & Others	1.4	4.1	1.4	2.7
None	35.6	35.6	61.7	71.3
No Answer	1.4	1.4	1.4	1.4
	100.00	100.00	100.00	100.00
N	73	73	73	73

Table 3.14 Frequency table for Category of Farmers and Breed

Breed	Category of Farmer		Total
	L3	Non L3	
Kanni Aadu	15 (100.00) [100.00]	0 (0.00) [0.00]	15
Non Descriptive	0 (0.00) [0.00]	15 (100.00) [100.00]	15
Total	15	15	30

The value within () refers to row percentage; The value within [] refers to column percentage

Table 3.15 T test for significance difference between L3F and Non L3 farmers with regard to dimension of Health parameters.

Dimension of Health Parameters	Category of Farmer	Mean	SD	T value	P value
Male Weight of goats (Kg)	L3F	31.20	3.649	4.773	0.000 **
	Non L3F	25.80	2.426		
Female Weight of goats (Kg)	L3F	25.60	2.384	3.757	0.001 **
	Non L3F	22.20	2.569		
Height of Adults (Cm)	L3F	70.13	4.704	3.913	0.001 **
	Non L3F	63.60	4.437		
Length of Adults (Cm)	L3F	63.73	6.041	4.685	0.000 **
	Non L3F	55.27	3.535		
Chest Girth of Adults (Cm)	L3F	69.87	2.326	2.804	0.009 **
	Non L3F	67.53	2.232		

Note 1. * denotes significant at 5 % level

2. ** denotes significant at 1 % level

Table 3.16 T – test for significant difference between L3F and non L3F goat farmers with regard to kidding interval and total number of kids born.

Kidding Parameters	Category of Farmer	Mean	SD	T value	P value
Kidding Interval (months)	L3F	6.93	.258	9.826	0.000 **
	Non L3F	8.27	.458		
Total No of Kids born	L3F	32.13	4.103	2.867	0.008 **
	Non L3F	28.47	2.774		

Table 3.17 T test for significant difference between L3F and Non L3 farmers with regard to Kidding percentage of singles, twins and triplets.

Kidding %	Category of Farmer	Mean	SD	T value	P value
Kidding % - Singles	L3F	34.47	10.895	0.487	0.630
	Non L3F	36.73	14.350		
Kidding % - Twins	L3F	57.13	10.736	1.102	0.280
	Non L3F	62.27	14.494		
Kidding % - Triplets	L3F	17.22	5.911	2.183	0.570
	Non L3F	7.50	3.536		

Table 3.18 Male Female Ratio of Goats

Category of Famer	Male Female Ratio (1:1)	Percentage
L3F	15	50.00
Non L3F	15	50.00
Total	30	100.00

Table 3.19 T-test for significant difference between L3F and Non L3F goat farmers with regard to mortality in kids and number of goats sold

Mortality in Kids	Category of Farmer	Mean	SD	T value	P value
	L3	2.20	0.919	5.840	0.000 **
	Non L3	7.67	2.845		
No. of Goat sold	L3	23.53	2.232	6.631	0.000 **
	Non L3	15.00	4.456		
Average weight (Kg) of goat at the sale of 5 month	L3	10.20	1.474	3.179	0.004 **
	Non L3	8.93	0.458		

Table 3.20 T test for significant difference between L3F and Non L3F goat farmers with regard to income from sale of goats, manure and total income of goats

Income parameters	Category of Farmer	Mean	SD	T value	P value
Income from sale of goats in (INR) [△]	L3F	42929.67	4243.207	9.989	0.000 **
	Non L3F	23220.00	6355.532		
Income from sale of manure in (INR) [△]	L3F	1477.33	392.783	4.869	0.000 **
	Non L3F	913.33	216.685		
Total Income (INR) [△]	L3F	44407.00	4377.367	10.167	0.000 **
	Non L3F	24133.33	6362.436		

[△] Inr – Indian Rupee (1 USD = 47 INR)

Table 3.21 T test for significance difference between L3 and Non L3 with regard to feeding / watering.

Feeding Concentrate in Kg	Category of Farmer	Mean	SD	T value	P value
	L3F	3.4833	0.92807		
Non L3F	1.6875	0.72887			
Pond Water	L3F	15	0.00	-	-
	Non L3F	15	0.00		

a t cannot be computed because the standard deviations of both groups are 0.

Table 3.22 Chi square test for relationship between category of farmer and Deworming of goats.

Deworming	Category of Farmer		Total	Chi square value	P value
	L3F	Non L3F			
Yes	15	11	26	4.615	0.032 **
	(57.7%)	(42.3%)			
	[100.0%]	[73.3%]			
No	0	4	4		
	(0.0%)	(100.0%)			
	[0.0%]	[26.7%]			
Total	15	15	30		

Note

The value within () refers to row percentage

The value within [] refers to column percentage.

Table 3.23 T test for significant difference between L3F and Non L3F goat farmers with regard to frequency / cost of Deworming.

Deworming Parameters	Category of Farmer	Mean	SD	T value	P value
Frequency of deworming (in months)	L3F	6.00	0.000	3.397	0.002 **
	Non L3F	8.73	3.133		
Cost of Deworming (INR / goat)	L3F	4.00	0.000	11.767	0.000 **
	Non L3F	4.91	0.302		

Table 3.24 Chi square test for relationship between category of farmer and insurance for adult goats

Insurance for Adult goats	Category of Farmer		Total	Chi –Square value	P value
	L3F	Non L3F			
Yes	15	0	15	30.000	0.000 **
	(100.0%)	(0.0%)			
	[100.0%]	[0.0%]			
No	0	15	15	30.000	0.000 **
	(0.0%)	(100.0%)			
	[0.0%]	[100.0%]			
Total	15	15	30		

Table 3.25 Chi square test for relationship category of farmers and FMD vaccination

FMD	Category of Farmer		Total	Chi –Square value	P value
	L3F	Non L3F			
Yes	15	10	25	6.000	0.014 **
	(60.0%)	(40.0%)			
	[100.0%]	[66.7%]			
No	0	5	5	6.000	0.014 **
	(0.0%)	(100.0%)			
	[0.0%]	[33.3%]			
Total	15	15	30		

3.26 Chi square test for relationship between L3F and Non L3F goat farmer and GP vaccination

Goat Pox (GP)	Category of Farmer		Total	Chi –Square value	P value
	L3F	Non L3F			
Yes	12	2	14	13.393	0.000 **
	(85.7%)	(14.3%)			
	[80.0%]	[13.3%]			
No	3	13	16		
	(18.8%)	(81.3%)			
	[20.0%]	[86.7%]			
Total	15	15	30		

Table 3.27 Chi square test for relationship between category farmer and BT vaccination

Blue Tongue (BT)	Category of Farmer		Total	Chi –Square value	P value
	L3F	Non L3F			
Yes	2	0	2	2.143	0.143 **
	(100.0%)	(0.0%)			
	[13.3%]	[0.0%]			
No	13	15	28		
	(46.4%)	(53.6%)			
	[86.7%]	[100.0%]			
Total	15	15	30		

Table 3.28 Chi square test for relationship between category farmers and ET vaccination

Enterotoxenia (ET)	Category of Farmer		Total	Chi –Square value	P value
	L3F	Non L3F			
Yes	12	0	12	20.000	0.000 **
	(100.0%)	(0.0%)			
	[80.0%]	[0.0%]			
No	3	15	18		
	(16.7%)	(83.3%)			
	[20.0%]	[100.0%]			
Total	15	15	30		

Table 3.29 Audio Messages for L3F

Number of times listened by Farmers	Frequency	Percentage
Four	1	6.7
Five	14	93.3
Total	15	100.0

Table 3.30 Quality of audio messages for L3F

Quality of voicemail	Frequency	Percentage
Good	1	6.70
Excellent	14	93.30
Total	15	100.00

CHAPTER IV

Table 4.1 Age * Participants group wise

Age (Years)	Participants			Total
	L3F	SHG	Non L3F & Non SHG	
20-45	136	140	137	413
	80.0%	82.4%	80.6%	81.0%
46 and above	34	30	33	97
	20.0%	17.6%	19.4%	19.0%
Total	170	170	170	510
	100.0%	100.0%	100.0%	100.0%

$$\chi^2 = .331 \quad df = 2 \quad p = NS$$

Inference: There is no significance between age and participant group

Table 4.2 Education * Participants group wise

Education	Participants			Total
	L3F	SHG	Non L3F & Non SHG	
No school	77	53	72	202
	45.3%	31.2%	42.4%	39.6%
Primary Education	42	41	31	114
	24.7%	24.1%	18.2%	22.4%
High School and above	51	76	67	194
	30.0%	44.7%	39.4%	38.0%
Total	170	170	170	510
	100.0%	100.0%	100.0%	100.0%

$$\chi^2 = 11.669 \quad df = 4 \quad p = 0.05 \text{ level}$$

Inference: There is a significant difference between education and participant group

Table 4.3 Marital status * Participants group wise

Marital status	Participants			Total
	L3F	SHG	Non L3F & Non SHG	
Not Married	1	1	2	4
	.6%	.6%	1.2%	.8%
Married	162	160	155	477
	95.3%	94.1%	91.2%	93.5%
Widowed	7	8	10	25
	4.1%	4.7%	5.9%	4.9%
Divorced	0	1	3	4
	.0%	.6%	1.8%	.8%
Total	170	170	170	510
	100.0%	100.0%	100.0%	100.0%

$$\chi^2 = 2.527 \quad df = 2 \quad p = NS$$

Inference: There is no significance between marital status and participant group

Table 4.4 Occupation of the respondent * Participants group wise

Occupation of the respondent	Participants			Total
	L3F	SHG	Non L3F & Non SHG	
Farmers	42	16	13	71
	24.7%	9.4%	7.6%	13.9%
Farmers cum agricultural labourers	50	15	21	86
	29.4%	8.8%	12.4%	16.9%
Landless agricultural labourers	59	100	85	244
	34.7%	58.8%	50.0%	47.8%
Other occupation	19	39	51	109
	11.2%	22.9%	30.0%	21.4%
Total	170	170	170	510
	100.0%	100.0%	100.0%	100.0%

$$\chi^2 = 70.902 \quad df = 6 \quad p = 0.01 \text{ level}$$

Inference: There is a significant difference between the three groups in terms of occupation.

Table 4.5 Mean Family Income in Rs

	Groups	Mean Annual Family Income	Standard Deviation
1	L3F	90830	75217
2	SHG	68464	44077
3	Non L3F-Non SHG	95524	125080

Table 4.6 Mean Value of Land in Rs

	Groups	Mean Value of Land	Standard Deviation
1	L3F	136411	272723
2	SHG	49205	127422
3	Non L3F-Non SHG	86035	313517

Table 4.7 % of Household with infrastructure

Households with	L3F	SHG	No L3F No SHG
Television with Satellite Channel Connection	92.9	99.4	96.5
CD/DVD Player	20.0	12.4	23.5
Radio/Transistor	15.3	7.1	5.9
Mobile phones	96.5	83.5	80
Bicycle	38.2	34.7	38.2
Scooter/Moped	21.9	11.2	22.9
Gas Stove	34.1	40.0	48.8

Table 4.8 Information and Communication Index

	Groups	Mean Value of Index	Standard Deviation
1	L3F	29.14	5.99
2	SHG	26.94	5.12
3	Non L3F-Non SHG	25.95	4.59

Index score ranging from 10 to 50

Table 4.9 Mobile Phone Learning Index

	Groups	Mean Value of Index	Standard Deviation
1	L3F	29.14	5.99
2	SHG	26.94	5.12
3	Non L3F-Non SHG	25.95	4.59

Index score ranging from 10 to 50

Table 4.10 Learning and training * Participants group wise

	Mean	Std. Deviation
L 3F	64.3765	9.08471
SHG	54.4706	7.10461
Non L3 & Non SHG	52.2941	6.98405

Score ranging from 20 to 100

Table 4.11 Training and Visits to Extension Centre

	Mean Training Days	Standard Deviation	Mean of Visits to Extension Centre in Minutes	Standard deviation
L3F	10.5235	33.44451	91.25	69.681
SHG	.6647	3.32098	27.12	53.487
Non L3F-Non SHG	.0882	1.15045	6.12	22.220

Table 4.12 Correlation between L3F membership and learning

No	Variable	Correlation
1	Days of training in 2009-2010	.418** .000
2	Days of training in 2010-2011	.337** .000
3	Visit to extension centres in 2009-2010	.355** .000
4	Visit to extension centres in 2010-2011	.401** .000
5	Mobile learning index	.189** .000
6	Learning and training index	.555** .000

** Correlation is significant at the 0.01 level (2-tailed)

Table 4.13 Collective Action & Cooperation index* Participants group wise

Collective Action & Cooperation index score	Participants			Total
	L3F	SHG	Non L3F & Non SHG	
Below 12	20	39	58	117
	11.8%	22.9%	34.1%	22.9%
13 above	150	131	112	393
	88.2%	77.1%	65.9%	77.1%
Total	170	170	170	510
	100.0%	100.0%	100.0%	100.0%

Scale: 4 to 20

$$\chi^2 = 24.024 \quad df = 2 \quad p = 0.0level$$

Inference: There is a significant difference between Collective Action & Cooperation index and participant group

Table 4.14 Social capital index* Participants group wise

Social capital index score	Participants			Total
	L3F	SHG	Non L3F & Non SHG	
Below 90	0	13	20	33
	.0%	7.6%	11.8%	6.5%
91 above	170	157	150	477
	100.0%	92.4%	88.2%	93.5%
Total	170	170	170	510
	100.0%	100.0%	100.0%	100.0%
Mean	111.94	106.82	96.84	
Standard Deviation	9.53	10.84	5.62	

Scale: from 20 to 150

Table 4.15 SHG index* Participants group wise

SHG index score	Participants			Total
	L3F	SHG	Non L3F & Non SHG	
Below 30	1	24	170	195
	.6%	14.1%	100.0%	38.2%
31 above	169	146	0	315
	99.4%	85.9%	.0%	61.8%
Total	170	170	170	510
	100.0%	100.0%	100.0%	100.0%

Scale 10 to 50

Table 4.16 Correlation between social capital index and learning and training index

	Variable	Correlation
1	Social capital index and learning and training index	.393** .000

** Correlation is significant at the 0.01 level (2-Tailed)

Table 4.17 Mean Value of Credit in Rs among three group from different sources

Sources	L3F	SHG	Non L3F-Non SHG
From Commercial Banks	66,759 (319,233)	1041 (6359)	88 (1150)
From SHGs	3,920 (11793)	117 (1165)	0
From Informal Sources	1352 (6544)	247 (1920)	174 (1622)

Table 4.18 Economic Upliftment index* Participants Group wise

Economic Upliftment score	Participants			Total
	L3F	SHG	Non L3F & Non SHG	
Below 15	12	108	147	267
	7.1%	63.5%	86.5%	52.4%
Above 16	158	62	23	243
	92.9%	36.5%	13.5%	47.6%
Total	170	170	170	510
	100.0%	100.0%	100.0%	100.0%

Score from 5 to 25

$$\chi^2 = 227.657$$

$$df = 2$$

$$p = 0.01 \text{ level}$$

Inference: There is a significant difference between economic upliftment and participant group

Table 4.19 Political and Psychological Empowerment * Participants group wise

Empowerment Index score	Participants			Total
	L3F	SHG	Non L3F & Non SHG	
Below 45	9	37	80	126
	5.3%	21.8%	47.1%	24.7%
Above 46	161	133	90	384
	94.7%	78.2%	52.9%	75.3%
Total	170	170	170	510
	100.0%	100.0%	100.0%	100.0%
Mean	53.55	48.83	46.12	
Standard Deviation	5.26	4.62	4.73	

Score : from 30 to 150

$$\chi^2 = 80.889 \quad df = 2 \quad p = 0.01 \text{ level}$$

Inference: There is a significant difference between empowerment index and participant group

Table 4.21 Multiple regression explaining Empowerment Index

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	30.090	4.195		7.173	.000
Age	-.023	.044	-.020	-.535	.593
Education	-.309	.103	-.111	-2.999	.003
Total Market value	.102	.308	.011	.330	.742
Learning & Training Index	.469	.048	.382	9.687	.000
Social capital index	.421	.040	.399	10.487	.000

a Dependent Variable: Empowerment Index

ANOVA(b)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	30718.261	5	6143.652	84.051	.000(a)
Residual	36766.297	503	73.094		
Total	67484.558	508			

a Predictors: (Constant), Social capital index , Education, Total Market value, Age, Learning & Training index

b Dependent Variable: Empowerment index

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.675(a)	.455	.450	8.54950

a Predictors: (Constant), Social capital index , Education, Total Market value, Age, Learning & Training Index

ANNEX 2: FIGURES

Figure 4.1

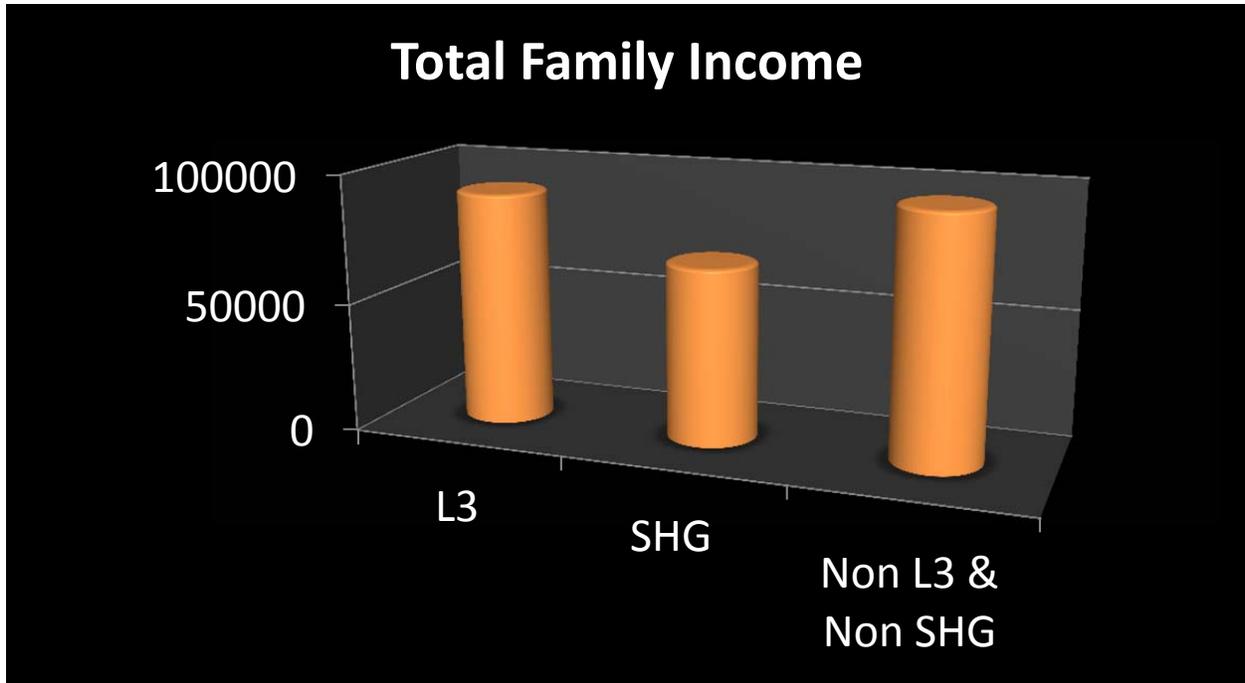


Figure 4.2

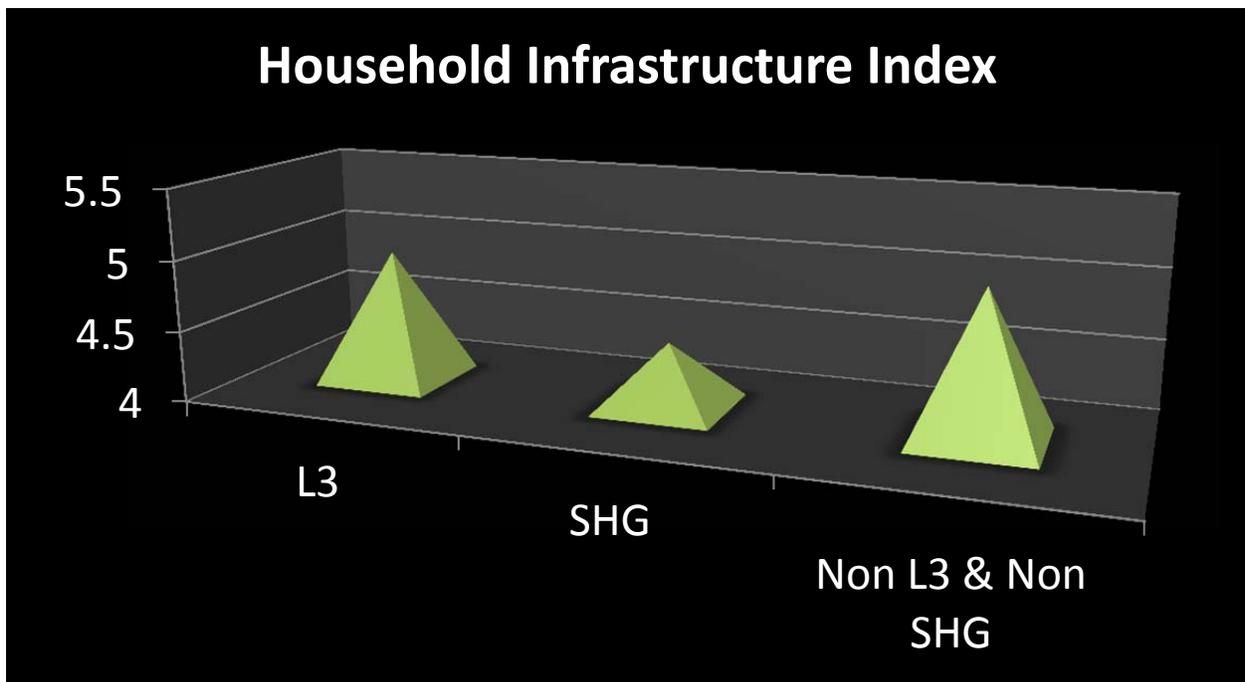


Figure 4.3

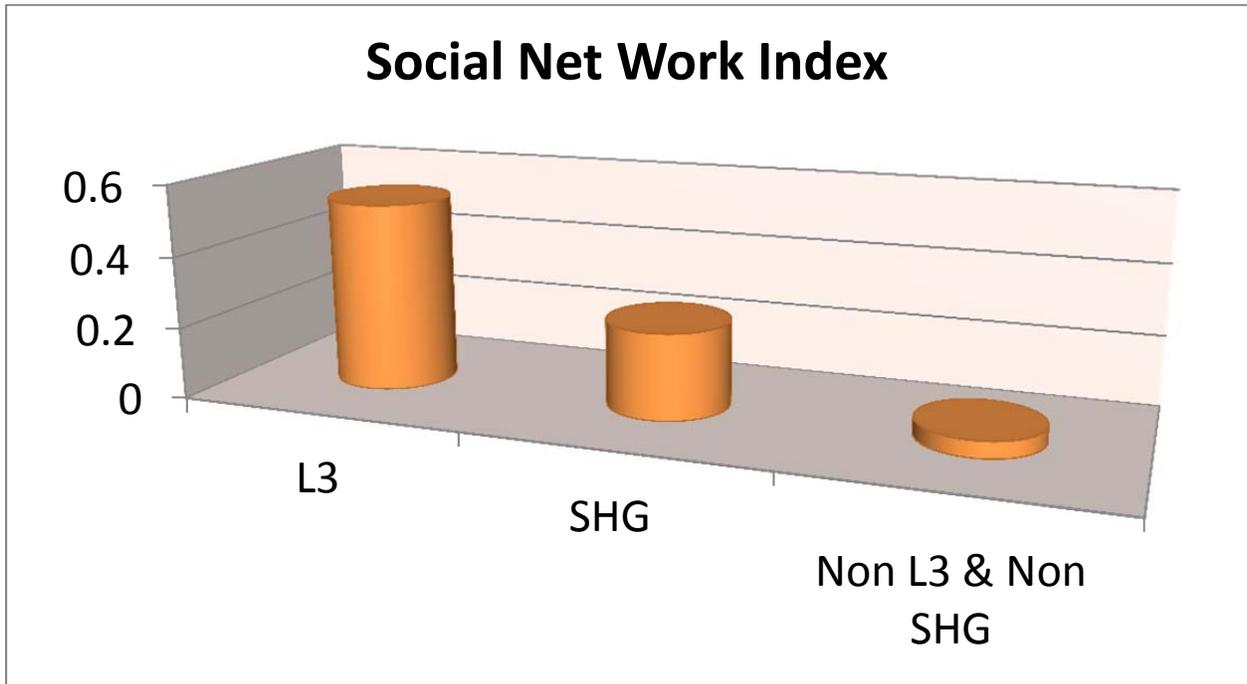


Figure 4.4

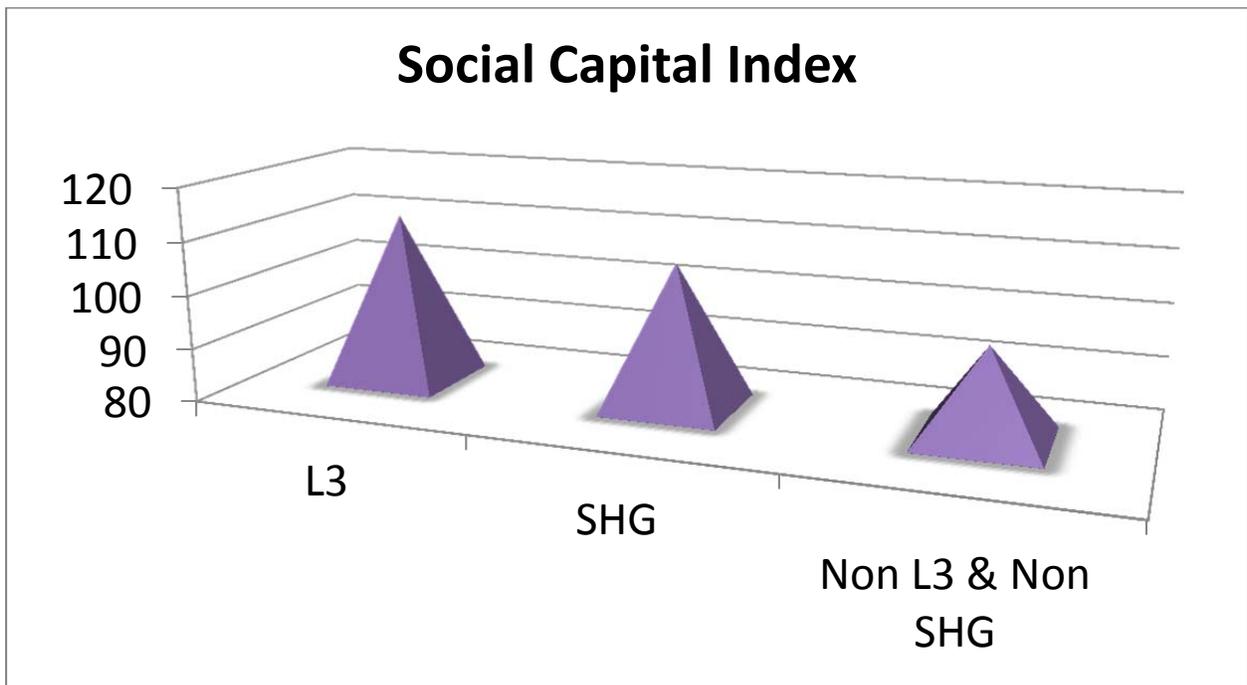


Figure 4.5

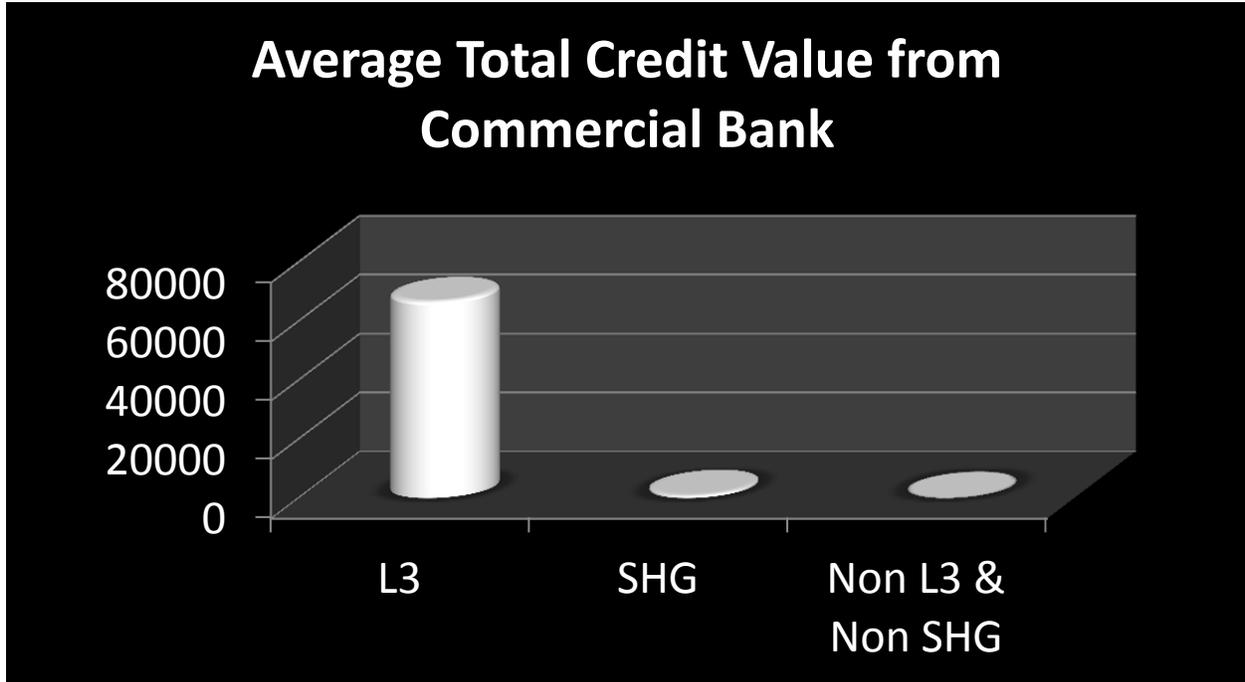
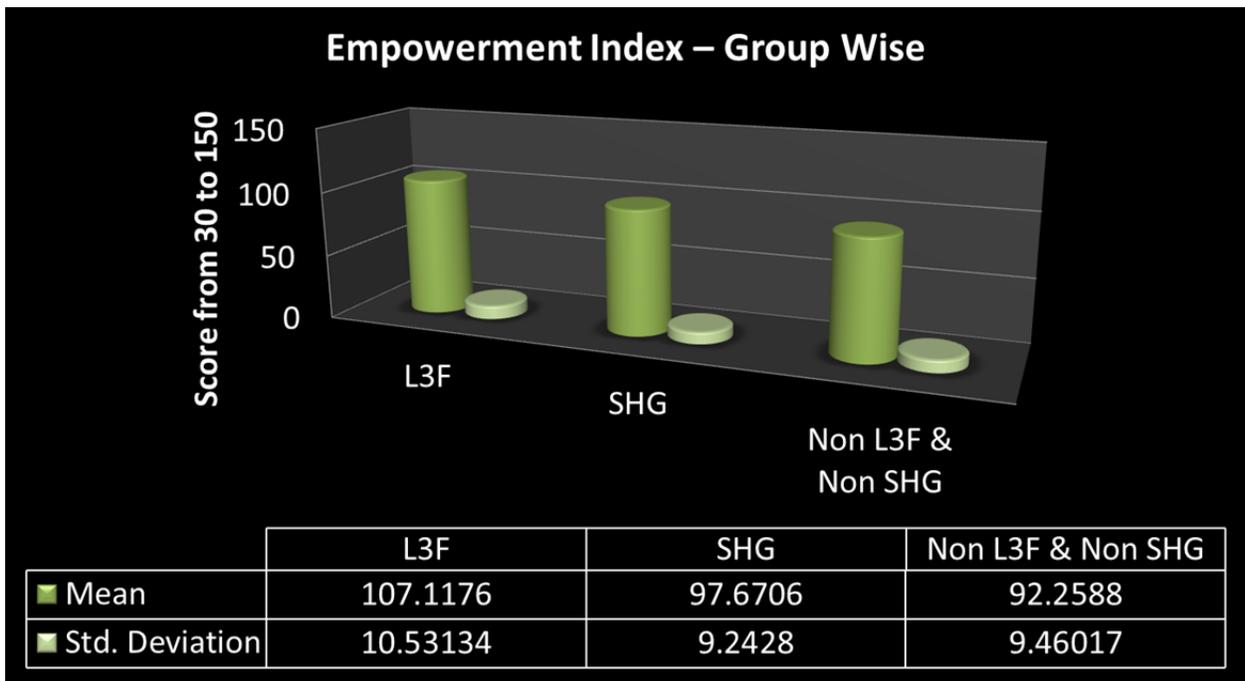


Figure 4.20



ANNEX 3 QUESTIONNAIRE-2011

A Study on Lifelong Learning for Farmers Initiative of VIDYAL

I: Respondent & Household Details

1.1 Participants: 1.1.1 L3 Member 1.1.2 SHG Member 1.1.3 Non-L3 Non SHG member

1.2 Age (in Years) :

1.3 Education : 1.3.1 the last class in school attended 1.3.2 no schooling

1.4 Marital Status: 1.4.1 Not Married 1.4.2 Married
1.4.3 Widowed 1.4.4 Divorced 1.4.5 No Answer

1.5 Occupation of the respondent: 1.5.1 Farmer 1.5.2 Farmer cum Agricultural Labourer
1.5.3 Landless Agricultural Labourer 1.5.4 Other Occupation

1.6 Family Detail

No	Relation	Gender	Age	Education *	Annual Income (April 2010-March 2011)

*If student mention the class and Write S

1.7 Household Infrastructure

Sl. No	Infrastructure	Number
1.7.1	Television	
1.7.2	CD/DVD Player	
1.7.3	Radio/Transistor	
1.7.4	Landline Telephone	
1.7.5	Mobile Telephone	
1.7.6	Bicycle	
1.7.7	Computer/Laptop	
1.7.8	Moped/ Scooter/Motorcycle	
1.7.9	Car/Jeep	
1.7.10	Gas stove	
1.7.11	Washing Machine	
1.7.12	Refrigerator	

1.8 House: Owned/ Rented

II. Social Capital: Network

2.1 Your membership

No	Types of Organization	Membership		Frequency of attendance	Number of family members who are in
		Types	Duration		
2.1.1	Microfinance				
2.1.2	Women's association				
2.1.3	Religious Association				
2.1.4	Political				
2.1.5	Sports				
2.1.6	Education (like PTA)				
2.1.7	Cooperatives				
2.1.8	Cultural				
2.1.9	Farmers				
2.1.10	Trade Union				
2.1.11	Community/Neighbourhood Based Organization				
2.1.12	Others				

Types of Membership: 1: ordinary member 2. Secretary/President/leader/executive committee member 3: no answer
 Frequency : Once in a week 2. Once in a month 3: once in 6 months 4. Once in year 5. Never attends 6. No answer

2.2.1 How long you have been involved in L3F (in Months)?:

2.2.2 How long you have been in SHG Groups (in Months)?

2.2.2. The members of your SHG:

2.2.3. Number of your family members and relatives:

2.2.4. Number of your caste group :

Answers for questions 2.3 to 5.1, 6.9 -6.10

1. Fully agree 2. Agree 3.No Answer 4. Do not agree 5. Definitely disagree

2.3. Self-Help Group Index

No	Statement	Answer
2.3.1	I attend the SHG meetings regularly	
2.3.2	I have a strong sense of belong to my SHG	
2.3.3	Decisions are taken in consultation in SHG	
2.3.4	SHG has given me a status in the community/Neighbourhood	
2.3.5	SHG is useless	
2.3.6	Whenever some body in my SHG group fail to repay, we come together, provide financial support and later recover from the member	
2.3.7	In SHG decisions are taken without consulting the group members	
2.3.8	NABARD/Bank has given a high rating to our group	
2.3.9	I do not understands the rules in SHG	
2.3.10	SHG has helped me in strengthening my livelihood	

2.4. Social mobility

No	Statement	Answer
2.4.1	My awareness and understanding of the social problems have increased in last 2 years	
2.4.2	My sense of social responsibility has increased in last 2 years	
2.4.3	I express my anger against social evils and corruptions while discussing with friends, neighbourhood, officers	
2.4.4	My social contacts have increased in last 2 years	

2.5 Trust & Solidarity

No	Statement	Answer
2.5.1.	Generally speaking most people who live in this village can be trusted	
2.5.2	People in my village willingly help each other	
2.5.3	If a project has benefit to the whole village but not directly to me, I will contribute either labour, or money	
2.5.4	In this village one has to be alert or someone will take advantage of me	

2.6 Collective Action & Cooperation

No	Statement	Answer
2.6.1.	In last 12 months I have worked with others in the village to do something benefit for the community	
2.6.2	People who do not participate in community activities will be criticized	
2.6.3	When somebody in the neighbourhood has serious health problems, others in the village will help the family	
2.6.4	When a member of your SHG. association/group is in a serious financial problems , other members will help her/him	

2.7 Social Cohesion

No	Statement	Answer
2.7.1.	I feel very close to my neighbourhood in the village	
2.7.2	My neighbourhood is riddled with caste/class/religious conflicts	
2.7.3	My neighbourhood has seen lots of violence during last two years	
2.7.4	I am not allowed to participate in the some of the community based activities	

2.8 Sociability

No	Statement	Answer
2.8.1.	I regularly meet people in public place and talk	
2.8.2	Regularly relatives and friends visit my home	
2.8.3	People from different caste groups, religious groups and income groups visit my home regularly	
2.8.4	I regularly participate in village level and family level functions such as marriage or ceremonies such as death.	

III. Information and Communication

3.1 Radio / Television/Newspaper

No	Statement	Answer
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3.1.1.	I listen to the news regularly	
3.1.2	I listen radio at least 1 hour a day	
3.1.3	I can operate the television on my own and watch channels which I like	
3.1.4	I watch television at least 1 hour a day	
3.1.5	I listen to agricultural programmes regularly	
3.1.6	I write/call to television /radio station to provide feedback	
3.1.7	I read newspaper regularly	
3.1.8	I read magazines regularly	
3.1.9	I able use the touch screen	
3.1.10	I can operate a computer	

3.2 Mobile Phone and Landline

No	Statement	Answer
3.2.1.	I receive calls from my friends at least 3 to 4 times a week	
3.2.2	I make calls to my friends at least 3 to 4 times a week	
3.2.3	I speak to my friends at least once in a week through phone about agriculture/Livestock	
3.2.4	I receive calls from my friends /SHG members once in a week through phone about agriculture/Livestock	
3.2.5	In last one year, I have contacted at least once, extension officers, veterinary doctors/ traders to discuss about agriculture and livestock issues.	
3.2.6	I can send SMS without anybody's help	
3.2.7	I learn about agriculture and livestock regularly from mobile phone	
3.2.8	Investing in mobile phone is useful for my agriculture, livestock management	
3.2.9	Learning through mobile is convenient	
3.2.10	Learning and training are useless	

3.3 Mobile Phone Based Learning

3.3.1 Since when you have started listening to goat rearing messages in Mobile Phone: Month Year

3.3.2 During last Month (June 2011) approximately how many messages in a day you listened to?

3.3.3 During last month (June 2011) how many days you received messages?

3.3.4 Knowledge testing

3.3.4.1 When the insured goat dies, one of the following document is to be submitted to the insurance company: which One?

A) Ration card B) Bank Passbook C) Veterinary doctor's certificate

3.3.4.2 While buying a healthy goat you should look for animal with

A) One tooth B) Two teeth C) No teeth

IV. Empowerment

4.1 Political

No	Statement	Answer
4.3.1	I know the local level political situation	
4.3.2	I know the state level political situation	
4.3.3	I know the national level political situation	
4.3.4	I somewhat know the international level political situation	
4.3.5	In last two years, My attendance in Gram Sabha meetings and other panchayath related meetings have increased	
4.3.6	I have walked into government offices and have demanded facilities for my household	
4.3.7	I have walked to into government offices and demanded about the development programmes implemented in the village	
4.3.8	I have participated in protest meetings	
4.3.9	I know my fundamental rights	
4.3.10	I do not care about the political situation or development programmes	

4.4 Psychological

No	Statement	Answer
4.4.1	My self-confidence has increased in last 2 years	
4.4.2	I have gained status and respectability in my family	
4.4.3	Male members in the family listen to me	
4.4.4	My husband or other male members do interfere with my SHG involvement	
4.4.5	Education is very important for the children in the family	

V. Learning and Training

5.1 Training

No	Statement	Answer
5.1.1	Last year I have attended at least one direct training programme in agriculture/Livestock	
5.1.2	Attending face-to-face training programme involves costs and drudgery for me	
5.1.3	Face-to-face training is better than mobile phone based training	
5.1.4	I have trained some people in agriculture and livestock	
5.1.5	In my neighbourhood people will listen to me if I talk about agriculture, livestock	
5.1.6	Male in the neighbourhood will listen to me if I talk about agriculture and livestock	
5.1.7	Generally women in our neighbourhood know more about agriculture and livestock than men	
5.1.8	Learning has helped to understand my rights	
5.1.9	Learning in last two years have helped to enhance my assets and income	
5.1.10	Learning and training are useless	

5.2. Face to face training

No	Subject	Number of days training attended in 2009-10	Number of days training attended in 2010-2011
5.2.1	Training on Goat and Sheep		
5.2.2	Training on Agriculture/Horticulture		
5.2.3	Training on financial literacy/ credit/financial management		
5.2.4	Training on governance, women's rights		
5.2.5	Other training		

5.3 Visit to Extension Centre

5.3.1	Approximate Number of times visited	2009-10	2010-2011	Approximate amount of time spent in minutes
5.3.2	Veterinary Doctors			
5.3.3	Veterinary Assistants			
5.3.4	Agricultural Extension Officers			
5.3.5	Input Suppliers			

VI. Economic Conditions

6.1 Net income earned by the respondent during April 2010-March 2011:

6.2.Credit Details (All)

No.		2009-2010	2010-2011	% of Repayment of the Credit
6.2.1	Total Credit Received from Commercial Banks/Cooperative Banks			
6.2.2	Total Credit received from SHG			
6.2.3	Total Credit received from other sources such as friends, families, moneylenders etc.			

6.3 Credit Details for Goats and Sheep

No.		2009-2010	2010-2011	% of Repayment of the Credit
6.3.1	Total Credit Received from Commercial Banks/Cooperative Banks for goats and sheep			
6.3.2	Total Credit received from SHG for goats and sheep			
6.3.3	Total Credit received from other sources such as friends, families, moneylenders etc. for goats and sheep			

6.4 Land details

No.		Irrigated	Dry land	Grazing land	Total area in ac	Total Market Value
6.4.1	Owned					
6.4.2	Leased in					
6.4.3	leased out					

6.5 Purchase of Goats & Sheep (including kids)

No.		Purchased No	Purchased Value (Rs)	Dead Number	Dead Value (Rs)	Sold Number	Sold Value (Rs)
6.5.1	Goats 2009-2010						
6.5.2	Goats 2010-2011						
6.5.3	Sheep 2009-2010						
6.5.4	Sheep 2010-11						

6.6 The present stock of goats and sheep

No.		Number	Approx. market value in Rs
6.6.1	Goats including kids		
6.6.2	Sheep including kids		
6.6.3	Cow & Buffalo		
6.6.4	Poultry		
	Total		

6.7 Other income earned from goats and sheep in Rs.

No.		2009-2010	2010-2011
6.7.1.	Approximate income (direct & indirect) from Patti		
6.7.2	Approximate income from selling goat milk and other products		
	Other incomes		

6.8 Approximate Expenditure for goats and sheep in Rs.

No.		Reared for Breeding		Reared for Selling	
		2009-2010	2010-2011	2009-2010	2010-2011
6.8.1	Commercial Feed				
6.8.2	Fodder Purchased				
6.8.3	Medicine, Vaccination and Treatments				
6.8.4	Grazing charges paid to labour				
6.8.5	Transporting, marketing and commission charges				
6.8.6	Other expenditures				

6.9 Economic upliftment

No	Statement	Answer
6.9.1	My knowledge in agriculture/livestock has increased in last 2 years	
6.9.2	My knowledge about market in agriculture/Livestock has increased in last 2 years	
6.9.3	I negotiate with traders whole selling livestock or agricultural products	

6.9.4	I have an important say in the family in spending money and my family listens to me	
6.9.5	There are some assets including agriculture and livestock which are in my name	

6.10 Entrepreneurial Index

No	Statement	Answer
6.10.1	I wait for directions from others before taking action	
6.10.2	I like challenges and new opportunities	
6.10.3	I try things that are very new and different from what I have done before	
6.10.4	When starting a new task, I gather lot of relevant information	
6.10.5	My enterprise is better than that of other people who are in my neighbourhood/group	
6.10.6	It bothers me when my time is wasted	
6.10.7	When trying something difficult or challenging, I feel confident that I will succeed	
6.10.8	When starting a new enterprise I systematically plan	
6.10.9	I do not attempt anything new	
6.10.10	I am not able to complete jobs on time	

7. Contribution of Family labour

	Number of Family Members	Approximate hours of work in taking care of the goats & sheep in a day (excluding grazing)	Approximate number of days in a year involved in grazing
The respondent			
Other Family Members			

ANNEX 4: REFERENCES

- Belenky, M.F., Clinchy, B.M., Goldberger, N.R. & Tarule, J.M. (1997). *Women's Ways of Knowing: The Development of Self, Voice, and Mind*. New York: Basic Books
- Bruegel, I.(2005). Social Capital and Feminist Critique in Franklin, J. (Ed.) *Women and Social Capita*. (pp 4-17) Retrieved on April 14, 2010 from <http://www1.lsbu.ac.uk/families/workingpapers/familieswp12.pdf>
- Bryson, M., & De Castell, S. (1996). Learning to make a difference: Gender, new technologies, and in/equity. *Mind, Culture and Activity*, 3(2), 119-135
- Christensen, L.H. (2002). *The 'Impact of Interactivity on Television Consumption- Stay tuned, visit our Website, press the red button..* Retrieved January 9, 2010 from http://www.stem.dcu.ie/pdf/impact_of_interactivity.pdf
- Daniel, J. (2004). *Building Capacity in Open and Distance Learning*. Presented at the UNESCO/OECD Australia Forum on Trade in Educational Services Conference on Bridging the Divide. Retrieved April 15, 2010, from <http://www.col.org/resources/speeches/2004presentations/Pages/2004-10-12.aspx>
- Fischer, C. S. (1992). *America Calling: A Social History of the Telephone to 1940*. Berkeley : University of California Press.
- Freire, P. (1970). *Pedagogy of the Oppressed*. New York: Herder & Herder
- Frissen, V. (1995). Gender is calling: Some reflections on past, present and future uses of the telephone', in K. Grint & R. Gill (Eds.) *The Gender-Technology Relation: Contemporary Theory and Research*, (pp. 79-94). London: Taylor and Francis.
- Kabeer, Naila.(1999). Resources, Agency, achievements: Reflections on the measurement of Women's empowerment. In *Development and Change*,Vol,30,1999, (pp 435-46)
- Kennedy, T., Wellman, B., & Klement, K. (2003). Gendering the Digital Divide. *IT & Society*, 1(5), 72-96. Retrieved, April 10, 2010 from www.stanford.edu/group/siqss/itandsociety/v01i05/v01i05a05.pdf
- Knowles, M.S., Holton E. F. and Swanson, R.A (2005). *The Adult Learner*. London: Elsevier
- McNaught, C. (2005). Understanding the contexts in which we work. *Open Learning*, 20(3), 205-209
- Marvin, C. (1988). *When Old Technologies Were New: Thinking about Electric Communication in the Late Nineteenth Century*. Oxford University Press: New York.
- Narayan, Deepa. (2005). *Measuring Empowerment: Cross-Disciplinary Perspectives*. The World Bank: Washington DC.
- Nelson, C. S., & Watson, J. A. (1995). The computer gender gap: Children's attitudes, performance, and socialization. *Montessori LIFE*, Fall, 33-35

Nzioki, Akinyi. (2007). Land and Property Rights. Retrieved from <http://www.oecd.org/dataoecd/55/12/38599961.pdf>

Omari, H.H., & Ribak, R. (2008). Playing with Fire: On the Domestication of the Mobile Phone among Palestinian Teenage Girls in Israel *Information, Communication, and Society*, 11 (2), 149-166.

Plant, S. (2003). *On the mobile: The effects of mobile telephones on social and individual life*. Retrieved 16th April 2010 from http://www.motorola.com/mot/doc/0/234_MotDoc.pdf

Rakow, L. F. & Navarro V. (1993). Remote mothering and the parallel shift: Women meet the cellular telephony. *Critical Studies in Mass Communication*, 10(2), 144-157.

Raudaskoski, S. (2009). Tool and machine: The affordance of the mobile phone. Academic dissertation presented in the University of Tampere. Retrieved April 14, 2010 from <http://acta.uta.fi/pdf/978-951-44-7802-4.pdf>

Silverstone, R., Hirsch, E. & Morley, D. (1992). 'Information and communication technologies and the moral economy of the household', in R. Silverstone & E. Hirsch (Eds.), *Consuming Technologies: Media and Information in Domestic Spaces* (pp 15-31). London :Routledge.

Tenhunen, S. (2008). Mobile technology in the village: ICTs, culture, and social logistics in India. *Journal of the Royal Anthropological Institute*, 14(3), 515-534

Zhou, G., & Xu, J. (2007) Adoption of Educational Technology: How Does Gender Matter? *International Journal of Teaching and Learning in Higher Education*, 19(2), 140-153. Retrieved February 7, 2010 from <http://www.isetl.org/ijtlhe/pdf/IJTLHE206.pdf>