

Chapter 3

Research Design and Methodology

The chapter outlines the research design and methodology applied to study the research problem. The study employs multi-method approach that includes survey method and case study. The study carried out field survey and picked out cases across the fields of Assam, Tamil Nadu, Uttar Pradesh and Uttarakhand. The study choose 640 households from the rural urban spatial contexts of Sonitpur District of Assam and 65 beneficiary households of select villages of Tamil Nadu, Uttar Pradesh and Uttarakhand state of India. By administering questionnaire, focus group discussion and personal in-depth interview with women of the select villages, the study attempts to find data on socio-economic context of household such as income, consumption, changing livelihood strategies, productivity, credit, access to services and infrastructure as well as safety and security, social capital etc. The questionnaire includes questions on work and ‘leisure’ patterns, current daily routine of work, income, social contact with kinfolk, friends, participation in local community enterprises, competence and uses patterns related to mobile phone by the individual members of a household in various social contexts and so on. The study investigates a few cases on various schemes of NGOs to empower women and to make women participate in community development in select villages of Tamil Nadu, Uttar Pradesh and Uttarakhand of India besides the conducted survey in Sonitpur District of Assam. These case studies have given insights on the transformative capacity of women of rural dwelling households after participating in the intervention programme of NGOs via SHGs or community groups.

3.01 Objectives of the Study

- To find out if the acceptance of mobile phone can help women to reconcile home and work with better daily co-ordination
- To assess the gender-specific uses patterns and perceptions of mobile phone among households.
- To examine the gender gap in the acceptance and use of mobile phone and mobile enabled value added services.

- To examine various obstacles to use of mobile phone for housewives and rural women.
- To study the importance of NGO interventions to community through collaboration with government and private sector.
- To discuss the role of community organization in creating an enabling environment to empower women.

3.02 Research Questions

1. What are the gender specific patterns of use of mobile phone and mobile enabled services? Under what circumstances does meaningful use of mobile phone arise?
2. How are women benefitted after accepting and using mobile phone and mobile enabled value added services?
3. What are the common barriers that rural dwelling households face in accessing information?
4. Does acceptance of mobile phone address the current socio-economic challenges of women and aid to change their perception?
5. What kinds of empowerment centric changes do women experience after participating in community groups and organizations?
6. Would NGO intervention to community through tie ups with government and private sector bring effective changes for the benefit of housewives and rural women?
7. What are the implications of Neo-liberalism on housewives and rural women?

3.03 Research Design

The study has employed multilevel multi-method design approach. The contribution of two research methods to collect the data, i.e. survey method and case studies are integrated further to analyze the data. Use of Multi-method design approach (Todd, 1979) is a distinct tradition in the literature of social science research. Use of two or more independent measurement could reduce uncertainty of interpretation. The study employed concurrent multi method approach on sequential basis to study the women of rural dwelling households from different geographical location across India. By using a concurrent transformative approach, the study uses conceptual perspective based on

ideologies of third world feminist research tradition, community driven development approach, institutional approach, capability approach. The theoretical claims combine communication perspective (technology acceptance model, communication infrastructure theory, digital divide) and development approach (community driven development, SEAGA/ Socio-Economic and Gender Analysis and sustainable livelihood framework) have been integrated with the findings. The used theoretical perspective is reflected in the objectives and research questions of the study. The analyses of two dominant theoretical frameworks: (1) Technology Acceptance Model, (2) Communication Infrastructure Theory, that are applied in the study are comprehended in Introduction Chapter (Chapter 1) and broadly in Summary of Findings Chapter (Chapter 7).

As per the use of sequential explanatory strategy, data collected through questionnaire technique, focus group discussion and interviews are qualitatively evaluated in simple percentile form. Morgan and Smircich, (1980) suggested the suitability of such design in testing the components of an emerging theory resulting from the qualitative phase which could be used to different samples to generalize qualitative findings.

A feminist lens, gender and technology studies is used to examine the dynamics of mobile phone use and women empowerment and participation of rural women in community groups or organization. The study builds up a detailed knowledge about the role and identities of housewives and women of rural dwelling households with changing trends and implications of neo-liberalism, their lives and experiences after and before participating in SHGs or local community groups; their level of acceptance, uses pattern of mobile phone and mobile enabled services, gender based perceptions, patriarchal bindings and attitudes.

The study has investigated contested nature of women' access to technology (in particular their effective access, as opposed to what is formally available to them in theory), their actual engagement with, and use of, this technology. While explaining the term 'use' of mobile phone, the dichotomy of 'access' and 'use' has been examined pertaining to 'digital divide'. The study provides a theoretical analysis of digital divide and applied in with the findings (Chapter 7) while evaluating the current status of digital divide in national political debate and policy agenda on social inclusion of government.

The study has been progressed with mainly two theoretical formulations: (1) technology acceptance model and (2) communication infrastructure theory to interpret the data. Once the respondent's point of view has been interpreted, the theoretical significance is integrated to improve the validation of the findings.

The study provides an indirect view of how poor women could see themselves in their communities and their families by executing diverse roles and performances. Many women have experienced a heavily restricted household life. Many women are found not taking participation in the political and economic spheres of their communities. It is noticed that once women join a community enterprise and a group, they are open to opportunities to improve their personal agency. The breadth of empowerment can be best described by the extent to which women after participating in sponsored tie up projects of Government, NGO and technical solution companies (private sectors) via community organization and SHGs, experience change in personal 'agency'- self-esteem, confidence, decision making power, improved cognitive and imaginative faculty. Other questions relating to empowerment looked at the separate experiences that women have after becoming a member of a community group or enterprise and after accepting mobile phone and mobile enabled services such as what have they learned, the skills and capacity they have acquired and so on. An assessment of household structure and the possession of household assets help to identify degree of deprivation of material possession (basic and luxury), basic minimum education and health facilities by the rural poor women of Sonitpur District which is the focus area of the study and which implies the third world perspective.

3.04 Case Study Research

The present study is an execution of multiple-case study for which the data are collected by means of the semi-structured interview method. Yin (1993) defines a case study as an empirical inquiry that examines a contemporary phenomenon within its real-life context when the boundaries between the phenomenon and the context are not clearly evident. Employing case study methods during second phase of the study, cases from Tamil Nadu, Uttarakhand and Uttar Pradesh are intensively chosen to compare and to find out the intervening role of mobile phone and mobile enabled services in woman's life and their participation at home and in community. Whether investigating a single case or

multiple cases, the case study can be exploratory, descriptive, or explanatory. The study has administered a descriptive exploratory case study and it offers a complete description of a given phenomenon 'women empowerment' which is expressed in change of agency, increased autonomy, decision making power, increasing exposure to an extended networks, increasing financial independence, within the context of participation in sponsored tie up programs of Government, private sectors and NGOs via community organization. Being exploratory by nature, it has aimed to dig into questions related to level of acceptance of mobile phone and examine the pattern of uses, perceptions of other household members towards the woman's use of mobile phone.

3.05 Limitation and Justification of the Study

Multi-method approach has been criticized by constructivist (Fahy and Harrison, 2005) arguing it not that relevant as research findings could be seen as just one among many possible renditions of social life. Constructivist writers depict its utility adding a sense of richness and complexity to an inquiry, for enhancing the credibility and persuasiveness of a research account. Sets of data deriving from different research methods are regarded as equivalent in terms of their capacity to address a research question. The study did not find any difficulty to congregate the collected data of structured interview with focus group discussion. No private views have clashed with general views that are voiced in public arena of focus group discussion.

Both qualitative and quantitative approaches have advantages and disadvantages. Many researches while employing feminist lens (Raghuram et al. 1997), use both quantitative methods (e.g. questionnaires, statistical analysis) and qualitative methods (e.g. focus group discussion, in-depth interviews, textual analysis) in the study. The Questionnaire survey has provided clear, unambiguous and fixed information which may be unattainable through personal interview and focus group discussion. In this research, questionnaire technique has disclosed the general information from the select areas e.g. raising capabilities of women after using mobile phone and after participating in Community organization or NGOs-SHG. Certain capability indicators are selected and put as objective parameters in the questionnaire that could determine the women empowerment .i.e. increasing accountability, improved standard of living, increasing

level of self-esteem, degree of SMS literacy, pattern of mobile internet uses, years of mobile phone uses, increasing scale of income and others. The study, through questionnaire has investigated factors such as functional knowledge of women about mobile phone, self-efficacy and the ability to operate the basic and advanced functions of the phone, Woman's grasp over the information etc. Employing the instrument questionnaire has not only contributed to have greater confidence in the generalizability of results and validation of results, but also provided clarification of puzzling findings (Sieber, 1973).

Although the study employs multi-method approach, the analysis of the findings is uncompromisingly qualitative. The potential contribution of the structured questionnaire in eliciting responses from the respondents and to interpret statistical relationship between variables has not incorporated in the analysis of the study as the parameters set for variables (say for example- capability indicators of women and empowerment of women) in the structured questionnaire are qualitative in nature. Although the analysis does not negate the scope for statistical relationship or co-relation between two variables, then, merely qualitative techniques and analysis has reflected the complexity of women's life and experiences instead of limiting the study.

Several alternative techniques (e.g. focus group discussion, personal interview and non-participant observation) have been used to retrieve information by directly and indirectly asking questions, systematically observing the sample's behavior and to measure physiological symptoms. Administering multi-method approach is time-consuming as collecting more data requires greater planning and organization. Multiple conceptual frameworks that are used in the study have not come into conflict with each other; however, without deeper inquiry of the whole research study might obscure the whole phenomenon.

Many scholars have argued for a more arduous analytical approach that combines numerous dimensions and complementary data collection tools (Gibbs, 2007). In this respect, collecting stories from a wide range of sources can give complete picture. However, the subjective quality of many such reports tends to emphasize only on the progressive elements and restrain the negative aspects of the scheme. This may run the

risk of being an instrument of propaganda or publicity rather than a basis for effective research.

3.06 Procedure of Data Collection

Survey method and case study are the primary methodologies employed in the study. Three different techniques/ procedures that have been used to collect data are questionnaire survey, focus group discussion and personal interview.

Field survey across the Sonitpur District of Assam tries to find out the existing village amenities, i.e. village club, CIC, women group, cooperative and other local community organizations in the select villages of Sonitpur District; the registered NGOs in the Sonitpur District that are working in line with primary focus of the thesis: forming SHGs in the village locality and develop organizational capacity of women and to provide them training in order to improve their livelihood standard and to empower women folk; activities of a few SHGs of the numerous SHGs in developing women's accountability and local organizational capacity and so on. Some of the field observations have been discussed in Chapter 4 integrating in with gender studies and development approach.

Questionnaire Survey

A 'Structured questionnaire', is administered as a primary instrument for data collection to elicit information on demographic and psychographic aspects of the household respondents. The questionnaire that is designed for the study is a bit long. Moreover, I choose a large sample size, hence, I had to recruit data collector in some villages to collect data. The questions are designed to be comprehensive, mainly with close-ended questions but also to include a few open-ended questions where possible. The questionnaire contains unit of questions; after getting the responses from the respondents, the units have been analyzed in Chapter 5 and Chapter 7.

Before going to the field, in order to validate the questionnaire, a pilot survey was conducted in 40 households of two villages of Sonitpur District. As per the responses from the respondents of households in pilot phase, the questionnaire was reframed. As all the respondents from villages are not literate enough to understand and to speak

English, I had to take help of a moderator (local volunteers from the select villages who are well versed in all languages, i.e. English, Hindi as well as in local dialects). As the bulk of the sample is taken from Sonitpur District of Assam (N=640), the questionnaire was composed only in bi-language both in English and in Assamese.

The questionnaire contains the questions to find out the livelihood constraints of rural women, their information needs, household expenses in information and communication technologies, kinds of use of mobile phone: general and specific uses, the need of various mobile enabled information services, information that could be accessed through the use of mobile phone, difficulties in using mobile phone, poverty index of the surveyed households, existing village amenities, participation of women in a community groups and organizations, composition of households, mobile readiness of a household, educational qualification of women, financial status or economic and social status of households, 'attitude' of women toward owning and using mobile phone and so on.

Focus Group Discussion

There are five focus group discussion carried out in select villages of Sonitpur District of Assam, of Uttar Pradesh and Uttarakhand on convenient basis involving housewives and rural women, members of village (Gaon) panchayat including village head and village people. Participants of focused group discussion belong to different socioeconomic background from poor to wealthy, involved in agriculture (farming and allied activities), trading, casual labour and others.

The Five focus groups were carried out in the month of July 2013 and in July 2015, out of which three focus group discussions is carried out by housewives and rural women and two focus group was carried out involving the representative of village panchayat, male heads of the households, representative of NGOs and of technical solution companies. I designed a focus group framework and prior to each focus group session; women and men who are to be the participants of the discussion are introduced to the topic and encouraged to deliberate on the topics and to go with the flow of their thought. The average time given to each focus group was one hour. In order to build confidence, I clearly confirmed the purpose of my empirical study and stressed that their views will be

valued. Further, I also confirmed on their confidentiality and explained that their identity would be presented in the thesis as pseudonyms.

In Depth Interview

Case specific personal interview is carried out across the surveyed areas on the basis of deliberative sampling with housewives, part time paid working women, village head, block development officers, government officials and technology experts. Interview with the owners of Arunodoy Kendras was also carried out during the field visit. The executive head of BSNL and Reliance Assam, the Chairmen of NGO IINREM, Hand in Hand, India and representatives of the select NGOs are interviewed. Other interviewees include stakeholders of companies for technical solution or MVAS (Mobile Value Added Service), mobile phone service providers and local vendors.

Sample for the in depth interview is 30 households from Sonitpur District of Assam, Uttarkhand, Tamil Nadu, Uttar Pradesh who have already given their inputs in the questionnaire. I attempted to include women from both urban and rural Sonitpur District among the sample interviewees who are in paid employment and the mothers. The technique personal interview has helped me to probe the prospects of home-work balance for women from diverse backgrounds and to find out the support of the family or spouse in domestic task and in their everyday life. In-depth interview helps to find out the role and position of women in household. Questions are asked about their expectations of marriage and motherhood as well as their position within the family, childcare arrangements and how they wished to raise their children. Other question asked regarding their involvement in NGOs, community groups and organizations and the subsequent benefits or changes they experience in their life. The questions for in-depth interview is open-ended and semi-structured, and most of the discussions are two way.

The secondary data are collected mostly from government departments, books, journals, newspapers etc. Data from the archive are compared with data gathered from interviews, focus group discussion, cross-sectional survey, and other unobtrusive techniques. Self-opinion, interviews, and coworker (data collectors) observations reflect a range of perceptions; some are qualitatively described while others are quantitatively represented.

3.07 Area and Population Considered for the Study

Overall samples for survey taken are 705 households=640 households of Sonitpur District of Assam+ 65 households from Uttarakhand, Tamil Nadu and Uttar Pradesh. Dominant Sample populations for survey are the households of Sonitpur District of Assam consist of 640 numbers.

AREA	Population or Sample Size for Survey		
	RURAL	URBAN	Total (N=705)
Assam	560	80	640
Tamil Nadu	20	-	20
Uttar Pradesh	25	-	25
Uttarakhand	20	-	20

30 households from **the total of 705** households of Assam, Uttarkhand, Tamil Nadu, Uttar Pradesh are chosen as the sample for **the in depth interview.**

From 14 developmental blocks in Sonitpur District, 14 Gaon Panchayats from each block and two wards from municipal boards of Sonitpur District are chosen. One village from each Gaon Panchayat and forty households from each village are chosen for survey. The sample size from the rural Sonitpur District of Assam is 560 households. Two wards are chosen from Tezpur and Dhekiajuli Municipal Boards of Sonitpur District, Assam in order to find out the specificities and different communication action and pattern of rural-urban spatial contexts. Chosen population for the ‘ward’ survey (Town or Urban areas of Sonitpur District) are 80 households. Over all sample size from Sonitpur District of Assam is 640 households from rural- urban shares.

During the first phase of field work, Biswanath Chariaali was one Municipal Board of Sonitpur District. After one year, Biswanath Chariaali is declared as a separate District.

In the second phase, multiple case studies are carried out to evaluate the impacts of Government and private sector sponsored Gender scheme services by select NGOs via SHGs on the housewives in the select villages of Uttarakhand, Tamil Nadu and Uttar Pradesh.

The total numbers of beneficiary households of tie ups or partnership schemes are 65. Those 65 households are chosen from Deri Macha Village, Tilpata Village of Gautam Buddh Nagar District, Uttar Pradesh, Rasingapuram Village of Theni District and Cheyyar village of Tiruvannamalai District Tamil Nadu, Todhara and Simtoli of Almora District of Uttarakhand.

Name of the NGO	Area or Location
IINREM	Tilpata, from Bistrakh Block Deri Machcha, of Dadri Block, Gautam Buddh Nagar, Uttar Pradesh (Working since 2009)
Hand in Hand	Village Cheyyar, Tiruvanmalai District, Thimri villages of Vellore Tamil Nadu, (Working since 2010-11)
Sewa Bharat	Todhara and Simtoli Village, Almora District,Uttarakhand (Working since 2009)
Vidyal NGO	Rasingapuram, Theni District, Tamil Nadu, (Working since 2008)

Household is taken as the sample for the survey which would help to apprehend dissimilar preferences of household members, i.e. perceptions of male head of the household towards the acceptance of mobile phone by women, gender specific pattern of uses, existing inequalities in joint decision making process of household and so on. By choosing ‘household’ of villages as sample for survey instead of ‘women’ for the women specific work (as the aim of the thesis suggests), the study signifies the importance of the institutional approach. The institutional structure of the family by exercising hierarchy, degree of influence and authority over the members maintains the bond and ties among the family members. The concept, ‘Housewife’ is essentially related to household production and care economy.

The family or household is the first network through which housewives could extend the relational capabilities to the community. It is the family or the household that assists

women in identity formation in and through given networks and by the voluntary commitment of women to others members of the household. Household and economic activities of women indicate her status and position in society.

The distinction between the identity and self is important because of the construction of the self-image of women and the relationship of women in institutional frameworks like marriage, family and education (Chapter 4; Chapter 7; Chapter 8). Identity is dependent on socio-economic condition whereas self is based on human perception and awareness (Jain,2011).

The study has used both the term 'house wives' and 'rural women' that generally imply housewives who are the inhabitant of villages. However, housewives from urban areas of Sonitpur District are also studied. Rural women includes women, many of who are not essentially housewives, but unmarried women aged between 20 to 30 years, middle aged unmarried women, middle aged mother with son and daughter in law. However, the study has covered 80 households from town or urban areas of Sonitpur District of Assam. 80 households from only two town areas don't seem to be underrepresented for a predominantly rural based study as the size of the sample is adequate to find out the role of geographical proximity and remoteness towards accessing necessary services, and an attitude that is shaped by becoming the urbane which may further affect the behavior towards accepting mobile phone, thus help to find out gender specific differences, dissimilar perceptions and pattern of uses of mobile phone across rural urban divide.

Moreover, survey includes a few female headed households where the woman of the household who is the mother, daughter or daughter in law choose or driven by circumstances to be in paid employment either part time or full time. In depth interview include wives who are equally mothers and daughters or daughter in law engage in paid employment. It signifies the importance of finding out the role and identity of housewives across rural-urban divide; how housewives are labeled by society and how do they see themselves.

On the other hand, 65 beneficiary households are picked out from the villages of Tamil Nadu, Uttar Pradesh and Uttarakhand which might look uneven compared to bulk of 640 households from Assam (Sonitpur District). As the area emphasized in the study is Assam (Sonitpur District) where only, it is attempted to scale the success of the projects

on community intervention of NGOs in the villages outside Assam. It is attempted to replicate and to apply the learning of the case study of Tamil Nadu, Uttar Pradesh, Uttarakhand to the survey areas of Assam.

3.08 Sampling Technique

The sampling technique applied for survey in Sonitpur District to choose population is multistage random sampling. Forty (40) households are randomly chosen from each fourteen (14) villages of fourteen development blocks (14) of Sonitpur District of Assam along with another forty (40) households from two municipal board (town or urban areas) of Sonitpur District of Assam. The sampling technique used to collect data for this study during second phase from outside Assam, in the villages of Tamil Nadu, Uttar Pradesh and Uttarakhand of India was the sequential sampling. In the selected sequential sampling technique, sampling proceeds according to the relevance of the cases instead of their representativeness.

3.09 Variables of the Study

The study investigates a complex issue of women empowerment through acceptance of mobile phone, mobile enabled services and participation in an institutionalized collaborative program/project of NGOs, Government and private sectors via community groups. 'Capability' is an explanatory variable to explain the individual efficacy of housewives and rural women. Increased capability is examined through the concurrent use of mobile phone and mobile enabled services and the resultant changes in attitude of woman towards her 'self'. Empowerment was examined through 'agency' by using a set of proxy questions. These questions explored the group members' perceptions of what they had learnt as a result of being active in the group; the key changes in their lives that had occurred during the past few years; if use of mobile phone has increased the level of participation in the community, if the use of mobile phone has increased the scope of entrepreneurial activities among women. Identified empowerment indicators include enhanced self-esteem, increased independence, increased accountability, improved standard of living.

Capability indicators that define increased self-esteem of housewives are: (1) Go out of home freely, (2) Meet officials, (3) Attend village meeting, (4) Actively participate in local political process, (5) Gaining family respect, (6) Gaining influence in society.

Another set of capability indicators that define increased sense of accountability of housewives include (1) Listen to each other more, (2) Discuss issues together, (3) Sense of reciprocity enhanced, (4) Help to oversee family responsibility.

On the other hand, capability indicators that define improved standard of living of housewives are identified as (1) Increased economic stability, (2) Reduced cost of credit, (3) Increased income, (4) Increased safety and security, (5) Reduced boredom.

The variables are identified on the basis of literature review and previous empirical findings. The survey investigated factors such as functional knowledge of women resident's household about the mobile phone and mobile phone enabled services, woman's grasp over information, motivation and impediments of the women towards accepting phone. The patterns and perceptions of uses of mobile phone by women have been determined by variables- educational qualification which is further divided into: Primary education, Secondary education, Higher education, Vocational training; Degree of SMS Literacy as per level of education. Specific telecommunication needs of women has been identified such as best priced handset/subsidized, Connectivity offer, VAS offer, Free SIM, Lower call rate, Full talktime on all recharge, Free SMS and so on.

Challenges and barriers of women residents of household in accessing MVAS constitute another variable. Challenges are variables such as Illiteracy, Not trained or skilled enough, Language difficulty, Conspicuous content, Handset screen difficulty, Not consistent with the need or no relevance, Format of the content video/text/audio is not compatible, Not delivered timely

The preferences of surveyed women to the types of guidance procedure from information Centre for operating the phone technology, applications and mobile phone enabled services has been attempted to find out, i.e. (1) Voice services (want to listen to a person from opposite end) , (2) Computational voice services, (3) Push SMS, (4) Two way SMS.

Another set of capability indicators that have been developed to measure the empowerment of women who have participated in NGOs-SHGs program include (1) Greater economic stability, (2) Reduced cost of credit, (3) Obtaining entrepreneurial skills, (4) Acquired an identity at home & in society, (5) Improving group dynamics, (6) Improving marketing skills, (7) Improving financial skills, (8) Better business decision, (9) Engaged in managerial work, (10) Gaining more access to schemes and scholarship, (11) Gaining more access to legal information.

General constraints faced by women (independent variables) to develop local organizational capacity or to participate in SHGs or community enterprises (dependent variable) are identified. These are poor living conditions and livelihood insecurity, illiteracy, lack of proper employment, socially unorganized set up, gender inequality, health problems, scientifically less advanced, constraints in accessing information and so on. Some identified constraints (independent variables) that women face after participating in SHG or community organizations due to which they fail to continue participation in local community groups or organization for collective action (dependent variable) are: (1) Many women consider marketing as a tough task, (2) Choosing diversification is difficult, (3) Hectic procedures in preparing minutes, reports, meetings, banking etc. (4) SHG/other community enterprises became an additional burden besides their household management.

Income variables is assessed by total income of a household, additional income, proposition of income, ratio of income earned from primary and secondary sources; if use of mobile phone raise the level of income etc.

3.10 Observation of Tasks

A task is given to woman of the surveyed households of rural Sonitpur District, along with the questionnaire in order to identify the extent of the domestication of mobile phone by them. The respondents are observed if they are capable of operating the general features of the mobile phone, then to tame the latest features incorporated in the mobile phone to make the best use of mobile phone and mobile enabled value added services or applications. Parameters to assess the domestication of mobile phone technology by Women Residents have been put in the structured questionnaire. To compare the gender

specific uses and level of aptness, both the male head of the household and housewife are given the task to operate the phone.

The primary task related to the operation of a mobile phone is given to the Household members are as follows:

1. How to save number in the phonebook
2. How to set date, time and an alarm
3. Opening a Menu button
4. How to write a message or SMS and to send it
5. How to use Bluetooth
6. How to use calculator
7. How to use a touch navigation when there is a touch screen
8. How to search internet through Google, open a you tube video and to check internet connection
9. How to use social media and instant messaging applications
10. How to record and send a video through Bluetooth and social media and instant messaging applications
11. How to use camera, click a photo and send the photo through Bluetooth and social media and instant messaging applications

The time taken to finish the task on mobile phone is observed carefully to find out if the respondents make meaningful use of a mobile phone and mobile enabled services or not. Also the perceived difficulty level of the respondents has been identified from the numbers of request for assistance.

3.11 Data Collection and Analysis

Data collection is as a systematic process of gathering, assembling, storing and retrieving data from the field and from available literature (Denzin, 1978). Data analysis, on the other hand, refers to data reduction, data display, and drawing and verification of conclusion. This section describes how the data for this study were collected and what was done to the data prior to the final analysis. UGC sponsored maiden project on A Study on Use of Mobile Phone in Sonitpur District, Assam (from September, 2012 to March, 2014) has aided and fulfilled the initial requirement of data collection during the first phase of the PhD study. Understanding to the phenomenon emerges gradually in the

course of the fieldwork as I overcome the initial bewilderment, unfamiliarity with an unusual language in the state, Tamil Nadu and Uttarakhand specially. The NGO representative of select NGOs were quite helpful in understanding the opinions and views of the select villages of the states, Tamil Nadu, Uttar Pradesh and Uttarakhand beyond Assam.

According to Patton (1990) personal experience and prior knowledge sensitize the researcher to significant problems and issues in the data, and allow him/her to see alternative explanations and to recognize the properties and dimensions of emerging concepts. My familiarity with the research phenomenon and practical experience of myself and some of my friends have proved to be very helpful in different levels of the study – in preparing the questionnaire, in designing the questions of the interviews, in analyzing the findings and drawing conclusions. Neuman (1994) finds both personal and subjective experiences during field work are valuable in interpreting the events in the field. A qualitative case study requires description of the whole research process, because there are no exact data to be analyzed (Patton, 1990). From the conversations and the stories told by the respondents naturally followed the thematic aspect of the analysis that had been assumed to be relevant beforehand, the saturation point was determined to be reached at the ten selected cases.

3.12 Scheme of Data Analysis

Data interpretation is presented from the divergent findings gathered from survey, interview and focus group discussion. First-hand knowledge, drawn from the multiple viewpoints of women and the male head of the household, representative of NGO, technical solution companies, and members of gaon panchayat are reflected in the interpretation process. The survey is supported by available census information and other documentation on Sonitpur District of Assam.

Qualitative research that is based on a case study is usually reported in the form of a story or narrative. Study of a complex and multi-layered phenomenon such as women empowerment through their participation in community groups and organizations and the role of mobile phone as a facilitating device to empower women, call for a diversity of paradigmatic perspectives. Morgan and Smircich (1980) see challenges and appropriateness in putting interpretation in narrative style in researches that are process-

oriented, multi-perspective with a contextual reality. According to Patton (1990), narrative style of presentation is quite heterogeneous and there is no precise definition of a 'narrative'. The contribution of narrative presentation in my thesis would be: 1) interpreting the construction of a gender identity (role and identity of housewives and rural women) on the basis of the in depth storytelling interview, 2) seeing the role of stories as a way of articulating women's participatory entrepreneurial experience, change of her 'agency' and her 'self' and 3) understanding storytelling as strategy, or vice versa. The thesis is not reported in pure narrative form, rather it is presented in a descriptive narrative and a little bit of argumentative ways where the stories and perspectives of housewives and rural women, the male of households, of women entrepreneurs and SHG members form the basis on which the cases are presented and interpreted.

The analysis is thematic by following the review of existing literature, theories, and earlier studies. The interpretation and description include statements of the interviewee and views expressed by the interviewees. Analysis involves the acceptance and use of mobile phone by housewives specially women of rural dwelling households, universal access to telecommunication infrastructure, implications of neo-liberalism, changing role and identity of households, feminization of labour.

Unit of Analysis

The study investigated and evaluated the 'needs' of the women resident of Sonitpur District, Assam corresponding the existing use, actual use and potential use of mobile phone by them. However, the need is no longer separated from the affordability and status seeking attitude of the respondent of the household.

The contribution of women to the household and community by owning and using a mobile phone is measured by the amount of time women folk (mother or wife of the head of the family) spent in housework and wage labour. Total hours worked/ spent in household by women is dependent upon household asset, household income, number of children under age one to seven and participation in labor market.

The **poverty index** of the surveyed households has been examined through questionnaire that includes information on housing conditions, structure of house, the source of water supply, type of toilet facility, land owning by household, owning of communication and

information technology; possession of APL, BPL card. The level of economically poor is approximated by variables based on occupation of the head of the household and women of the household, households' monthly income, additional income source, nature of job; formal or informal, numbers of earners in household.

Attanasio and Székely (2001) while employing an asset-based approach to the analysis of poverty, mention the structural causes of poverty. The asset based approach includes (1) Ownership of income-earning assets, which can be physical assets (housing and basic services), human assets (health, education) or social assets (social networks and rules). (2) Rate of asset-use, since higher the use, higher the income (employment opportunity, gender, credit access).

The **composition of household** is determined by variables identified on socio-economic context : (1) Educational level of the head of family: (Illiterate, Literate-up to Primary, Middle complete, High school and above); (2) Place of Residence (Urban, Rural); and (3) Gender and occupation of the head of family (Male, Female); (4) Ages of the members of family (less than 35 years, 36-60 years and above 60);(5) Size of family (Small; Nuclear family of 1-3 members, Medium; Nuclear family of 4-6 members, Semi-Large; joint type of family of 7-9 members, Large: joint extended family of 10 and above). (6) Occupation of the women of the household. The educational qualification of women of households is divided into three levels: elementary or primary, high school, university and other technical education. Employment status, labour supply per farming household, type of occupation- formal and informal of households has been identified through questionnaire.

The mobile connected index has been formulated in a similar pattern of index of internet connectedness that is developed by Jung (Jung et al., 2001). The connection to mobile phone is not only in terms of the time they spent on mobile phone and frequency of uses, but also in the types of meaningful use that results in economic, social and cultural capital which are essential in the daily practices of healthy community life.

The **mobile connected or mobile readiness** of a household is measured by: (1) monthly expenditure on mobile phone, (3) skills and knowledge of the housewives, (4) frequency of using mobile phone (the hours of engagement in voice and data telephony). Skills and knowledge of women is measured by the respondents' perception of their own skills and knowledge in the use of embedded features and applications in the mobile phone; the

capacity to manage simple work on a computer and to surf and use internet; proficiency in English language (0=no knowledge, 1=beginner, 5=advanced); psychological attributes regarding the interest in information and digital technology.

The information related to **availability, accessibility and affordability** of mobile phone technology can be measured by network connectivity loss, power shortage, and experience of borrowing friend's cell phone, minimum and maximum recharge, and duration of uses, preferred connection, and problem in registering a SIM.

The **availability** and **usability** of **applications and service components** of Mobile Phone Technology is measured by if services or applications 1) Available and used, 2) Available but not used, 3) Not available. List of applications and services available in a cell phone are categorized as for (calling purpose, use of SMS, use of beeping services, use of camera, use of recorder, use of calculator, use of headphone to listen to music, use of touch screen, use of internet or google, use for communication-social media, what's app or hike, use of bluetooth, use of calendar, use of clock, game, GPS, video, book reading use of online shopping)

Moreover, **mobile internet connected index** has been designed by following indicators: 1) Are not aware of mobile internet, 2) Aware of mobile internet but have not accessed it, 3) Access to job portal, 4) Browse social networking site or What'sapp, 5) Taking part in discussion on mobile discussion sites or forum, 6) Google through mobile phone to retrieve information, 7) Mobile shopping, 8) Paying bills through mobile phone

Uses of Mobile phone to update information as per **explicit information needs** of households has been identified by (1)'Talk only' use , 2)Market information such as use of market light app, 3) Mobile Krishi, 4) Weather information, 5) Mobile Health or use for Health information,6) Talking to clients (business purpose), 7) Mobile phone as a substitute to transportation, 8) Information about Disasters, 9) Checking examination results, 10) Searching employment opportunities, 11) To reach new contacts and opportunities, 12) M-banking or money transfer, 13) Other service subscription, 14) Use mobile phone to communicate with children's school teachers.

Explicit Information Needs of a household can be partly measured in line of possession of information sources or various communication technologies such as TV, radio, computer, internet, newspaper, mobile ; monthly expenditure on various forms of ICT in households; allocation of time per day to ICT. This is accompanied by the attitude of household and specially women towards the awareness of events in their surrounding and the interest of the household members to get informed or to participate in such events. Venues and means of accessing information are found varied and are not necessarily determined by the owning of the communication technology. The financial status of the household is represented in the monthly expenditure on various basic needs and communication services show a significant and interesting difference between the rural and the urban/semi-urban regions.

‘**Access**’ to Communication Infrastructure at Home and in Community suggest the availability and affordability of basic services and getting the relevant information. Access parameters have been identified to find out the availability and usability of Communication Technology at home as well as at community setting, Community Information Center (CIC), SAHAJ, Aronoydoy Kendra. Frequency of access to Internet Café/CIC/Arunodoy Kendra is measured by parameters such as 1) Once/twice/thrice a week, 2) Once a month, 3) Once in six month , 4) Once in one year, 5) Have not visited yet. The purpose of accessing CIC services such as for Commodity/ Mandi Marketing Information/ Rural Market , Rural News Paper (Information of the Gaon), Health Service Information ,Customer complain; the nearest distance Internet café/ CIC/Arunodoy Kendra; if women are trained in any programs offered by CIC i.e. CAP (Computer awareness Program)/ CCCA (Certificate Course in Computer application)/ACAP (Advanced CAP)/ CCC (Course on Computer Concepts) of DOEACC/Computer Literacy Program of IGNOU/ Internet; If women are engaged in ICT sales service such as Computer (Hardware and Software), Mobile Phone Sale, TOP-UP-recharges; If possess Adhaar card/UID card are to be analyzed in this unit.

The **barriers to Access** to mobile phone and other communication technology determine the aptitude of women to accept and use a technology. With the application of technology acceptance model and technology of reasoned action, the study proposes certain factors 1) Supposed difficulties, 2) Technology phobia, 3) Cost of operation, 4) Lack of time beyond household management, 5) Child rearing, 6) Lack of skills, 7)

Lack of knowledge/ information regarding benefits of mobile phone , 8) Inappropriate opening timing of information kiosk, cyber café which is not consistent with household timing, 9) Lack of requisite transport facilities, 10) Lack of security. On the other hand, the motivation and willingness of the community of women to accept and adopt mobile phone has been determined by evaluating three aspects: (1) Maturity of technology; (2) Aptitude of service providers and (3) the level of awareness and interest among user women.

Another Unit comprises of analysis of intervention through institutional **approach** by NGOs via community organizations or SHGs. A detail investigation of origin and activities of NGOs, collective action of women, voluntary organizations and funding regime, need for an autonomous spaces for women, a framework for community intervention have been included in this unit. The questionnaire comprises open ended questions on frequency and pattern of participation of housewives and rural women in Village Society, SHGs, Community groups, CIC, Village Development Committee, Local Self-Government, Village Cooperative, and Banks etc. Numbers of state/government sponsored schemes/ projects, i.e. income enhancement program, social welfare program and women centric empowerment program on skill development or capacity building by NGOs have been identified and the nature of participation of women and the subsequent experiences of women have been discussed.

Institutional approach highlights the importance of intervention without breaking the balance of community coordination, harmony and sense of belongingness. Information revolution will be misnomer if each and every household don't have access to information and communication technologies. The affordable and the interactive most among teeming numbers of ICTs is the mobile phone.

The development goals of the mobile value added services (MVAS) are mainly centred on improving the economic well-being of the community although mainly in indirect ways, by facilitating the ability of women to earn money. The case study focuses on the improvement of earning potentials, economic independence, self-awareness of 65 beneficiary households as conditioned on the acceptance and use of mobile phone.

3.13 Referencing Style Used in the Study

As per the report of Research Committee of Tezpur University (60th meeting, resolution No' RC' 60/201'6/1/2'2, Dated 07/4/2016), Ph. D. thesis of the Department under the School of Humanities and Social Sciences would follow 'Author year' mode. The referencing style, 'Author-year' mode for citing documents in the contents of a thesis thus, helps to find the original source of the existing literatures and to add authenticity to the research argument.