**Research Method – Research Design**

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Overview

As this research involves mobile phone users of the rural population, mainly peasants, community leaders, authorities and associations in the rural area of Ethiopia where 80 to 85% of the population dwells, obtaining only quantitative data from the population may not be feasible because of high illiteracy rate. On the other hand, while collecting qualitative data from the population through casual interviews and observations may be possible from selected representative population, this single approach may not also address the research problem. The use of mixed method approach may be able to address the research problem to understand the views, perception and anticipation of mobile users involving peasants, community leaders, authorities and association to understand the impact of mobile phone usage on quality of life and the government’s ICT initiatives. Despite the mixed methods research is perceived by many researchers to be relatively new, which emerged in the late eighties and early nineties, its application is widely accepted in the field of social and human research (Creswell, 2013). This approach is found to be useful to combine the outcome of both qualitative and quantitative data for analysis to be integrated in a single study. Creswell, Clark, Gutmann, and Hanson (2008) defined mixed method, “An approach to inquiry involving collecting both quantitative and qualitative data, integrating the two forms of data, and using distinct designs that may involve philosophical assumptions and theoretical frameworks” (p. 163). Tashakkori and Teddlie (2010) describe the mixed methods research to have established itself as a third methodological movement over the past two decades. Johnson and Onwuegbuzie (2014) also position the mixed method as a complement to mono research methods.

This research requires mixing both qualitative and quantitative data to fully explore the opportunities found in the application and use of mobile phones to change the quality of lives of the rural community. This can be achieved by applying a Convergent Parallel Mixed Methods approach, which involves collection of both quantitative and qualitative data in parallel, then analyzes each data separately, and finally compare the findings to confirm or disconfirm each other. The procedure to be employed in this study will first explore the current application and use of mobile use in the rural areas of the population in a selected sites (open market of small towns where peasants congregate to sell or buy products) by collecting qualitative data pertaining to specific use of mobile phone, its attribution towards quality of life and its impact on cost savings and income generation will be examined. In the same selected site, organized groups of communities such as community leaders, government authorities and associations will be surveyed by questionnaire instrument to obtain quantitative data pertaining to their community they serve. The selected nine sites will represent three regional governments where the majority of the population resides with the main assumption that 70% - 80% mobile phone coverage has been achieved by the Ethiotelecom (MCIT, 2014).

The Convergent Parallel Mixed Methods approach is selected for this study for its ability to draw both qualitative and quantitative data for proper data collection, analysis and interpretation, while minimizing the limitation to only use either the traditional quantitative or quantitative approaches, neutralizing the disadvantages in each method (Creswell, Clark, Gutmann, Hanson & Clark, 2008). While the selected method remains to be challenging in terms of time and money to be spent for collecting relevant qualitative and quantitative data and exploring opportunities that mobile phone usage can impact the way of life of the marginalized rural population, the overall approach can explore views, perceptions and anticipation of mobile phone usage to address the research questions. It is to be noted that employing observation and interview techniques for data collection is expected to be implemented in an environment with a population involving high illiteracy, various cultural differences, and language barriers.

Research Design

The purpose of this Convergent Parallel Mixed Methods approach is to explore the views, perceptions and anticipation of the rural population in the application and use of mobile phones with the main intent to understand the impact in changing their way of life and alleviate poverty. By utilizing this approach, it is possible to collect both quantitative and qualitative data separately as each data does not depend on the other, and then the two data sets are analyzed independently from each other utilizing the typical quantitative and qualitative data analytic procedures. The results of the two analyses are compared and get merged to better understand the phenomenon for further interpretation and recommendation. Finally, during interpretation, relationships, convergence and divergences to each other is explained in response to answering the research questions. Furthermore, data from international development agencies and government sources will also be incorporated as a secondary data for analysis.

In addressing the research question this mixed methods design intends to explore the opportunities that are available to empower the rural population with affordable technology solutions to access cloud-based services to share information and knowledge on agriculture and health to help them improve their respective quality of lives of the rural poor utilizing two distinct data collection and analysis techniques. The field work starts with a pilot site for pretesting observation and interview instruments as well as questionnaire items to ensure adequacy and consistency of the interview questions and questionnaire items. Once interview questions and questionnaire items are refined, and familiarization of the environment assured, the main field work begins in selected sites. The collection of qualitative data in an open market from selected towns through the use of interview and observation instruments with the main goal to understand the degree to which use of voice communication has changed individual’s way of life and further explore information and knowledge gaps in their wellbeing focused on major information and communication drawbacks pertaining to information gaps on agriculture and health to answer the research first question, The data collection procedure involves observing the open market and interviewing peasants as well as collecting data through questionnaire evolving community leaders, government district administrators and associations in the same town. The overall field work is expected to be undertaken in selected nine towns involving three main regions of the country that represent 80% of the population of Ethiopia. Furthermore, secondary data pertaining to mobile phone penetration, coverage, household income and other pertinent data for the study will also be collected from various national and international sources such as the World Bank, ITU, Ethiotelecom, MCIT as well as Ethiopian Statistics Agency. Furthermore, specific interview will be conducted with policy makers to identify available policies and ICT-related initiatives and implementation strategies pertaining to information and knowledge delivery mechanisms to answer the second research question.

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To manage the administration of both quantitative and qualitative data collection, analysis and interpretation, Convergent Parallel Mixed Methods approach is favored for this study for its ability to capture both qualitative and quantitative data and the convenience to collect both data in the same towns as well as its advantage to save time and resources covering the selected sites. The application of Convergent Parallel Mixed Methods approach in this study is considered relevant as it allows combining both qualitative and quantitative data for ease of data collection, analysis, and interpretation. At the center of the study lies the exploration of opportunities in the use of extended use of mobile services and the means of delivering information and knowledge for the rural population in a language they can easily understand to impact their way of life is a critical component of this study.

Appropriateness of Design

Selecting a research approach that best matches the research problem is a challenging task. Research approaches are plans, procedures, and steps that cover concepts, broad assumptions, and detailed methods of data collection, analysis, and interpretation, (Creswell, 2013). While quantitative research approach is considered useful for testing objective theories by examining the relationship among variables, qualitative research approach can also help researchers in exploring and understanding the meaning of individuals or groups attributing to a social or human problem (Creswell, 2013). Without a doubt, both traditional quantitative and qualitative research methods are widely used in studying social science research problems separately for meaningful data collection, analysis, and interpretation. However, many researchers suggest that data collection utilizing these methods separately have some limitations, (Creswell, Clark, Gutmann, Hanson & Clark, 2008). Bamberger (2012) also explains that both quantitative and qualitative research approaches to have strengths and weaknesses when used in isolation. Despite its emergence in the last couple of decades, the mixed method which combines both quantitative and qualitative research approaches has recently attracted many researchers in the area of social science.

As this research involves participation of the peasants, community leaders, government authorities, associations and policy makers in an environment where illiteracy rate is very high in rural communities, obtaining qualitative and quantitative data by various survey instruments is anticipated to be challenging. With the assumption that the combination of qualitative and quantitative data can provides a more complete understanding of the research problem at hand than either approach alone, it may be feasible to undertake a mixed methods research approach to match and tackle the research questions. In selecting appropriate research design methodology, factors such as illiteracy rate of the population and cultural barriers, orientation of the research problem together with unknown important variables and overcoming time and resource constraints have also been considered. In situation of this sort, integrating quantitative and qualitative data can maximize the strengths found in booth approaches and minimizes the weaknesses of each type of data for better understanding of the research problems than either approach alone.

Procedure

The Convergent Parallel Mixed Methods approach for this study will be conducted in four distinct phases, namely planning, data collection, analysis and interpretation each containing distinct activities.

Planning the Data Collection Procedure

The planning phase starts with identifying resource requirements and convenient representative sites which also include pilot site to pretest data collection, analysis, and interpretation activities. Once identified, tasks to be performed for each phase will be identified, and a schedule will be developed for smooth research undertaking. Prior to site travel, appropriate forms which include interview questions, questionnaires, semi-structured observation and consent form will be developed.

Data Collection Procedure

The data collection procedure will employ the Convergent Parallel Mixed Methods to carry out the required data collection activities. First, pretesting of the data collection procedure will be tested in a nearby town for understanding the environment and help refine what needs to be observed, fine-tune interview questions and questionnaire items. Soon after pretesting, data collection activities will be carried out in the selected open market of specific towns. For example, in the Amhara Regional State, the qualitative and quantitative data collection procedures will be carried out in small towns with open market settings such as Adet, Merawi and Woreta involving the peasants with mobile phone possession as well as community leaders, authorities and association. The same data collection will be replicated in other regions namely Oromia and Southern Nations Nationalities. The qualitative data collection procedure is expected to employee observation and interview techniques and the quantitative data collection procedure will employee questionnaire survey instrument. During observation practice, attempts will be made to understand and note the size of the open market, the language spoken, the culture, behavior and activities of individuals, how people communicate, interact and use mobile phones and the type of mobile device they use will be noted in a form. The one-on-one interview will consider assimilation, randomness, willingness, ethical issues and politeness. The total sample size for the qualitative approach covers three regions each holding three towns and in each town at least 15 volunteer participants, making a total sample size of 135 participants. For the quantitative approach, 10 questionnaire participants will be randomly selected from each town, making the total participants of 90. The overall exercise is expected to consume at least three weeks covering road length in excess of 2000 km. Furthermore, relevant secondary data pertaining to household income, mobile penetration, and other relevant data to the study will be collected from the World Bank, ITU, MCIT, Ethiopian Statistics Agency, and Ethiotelecom for further analysis and interpretation.

Data Analysis

Data analysis tasks commence once qualitative and quantitative data are successfully collected. The qualitative data is first organized; themes are classified, coded and summarized for meaningful analysis and interpretation. Each theme is carefully analyzed to provide a general perspective to provide insight to the study problem. The quantitative data will also get organized, classified and coded utilizing Google Form data entry and analysis tool. A summary of the quantified results will be put into meaningful perspective for further interpretation. Relevant secondary data from the international and national agencies will be collected and gets analyzed to match the research questions.

Validity and Reliability

Many researchers believe that mixed method approach to improve validity of theoretical propositions and to obtain a more complete and less biased picture of the phenomenon under study. While data quality in quantitative research relies in validity and reliability, in qualitative research it is based on trustworthiness and credibility of collected data, (Tashakkori & Teddlie, 2010). This research study will ensure that measurement, recording, and capture of data are all done as intended with great consistency to meet the research purpose. The interview questions and questionnaire items will be verified by domain experts and furthermore, these data collection instruments will be pretested on a pilot site.

Interpretation

It is quite clear that the independent analysis of the two sets of results should merge at some point in time. It is possible to start identifying content areas represented in both data sets to compare, contrast, and synthesize the results. Once the differences are identified, a procedure will be developed to transform one type of result to the other. Finally, the interpretation is expected to discuss results in such a way that to what extent results converge, diverge and relate to one another geared towards answering the research questions. The outcome of the interpretation is then summarized and documented in the results of the qualitative and quantitative section of this study.

The Role of the Researcher

First and foremost, the topic of the impact of wide-spread use of mobile phones for economic and social developments was first conceived by the researcher of this study during conducting a research work for MCIT on the development of Cloud Computing Strategy and Roadmap. The main purpose of this study is to explore opportunities to empower the rural poor to exploit the advent of technology to improve their respective livelihoods in fighting poverty. The researcher of this study will be fully engaged in all research activities ranging from research design and data collection to analysis and interpretation. The researcher intends the data collation procedures both for qualitative and quantitative methods in understanding the research problem to be conducted incredible and ethical manners with minimum risk to participants. The researcher of this study is fully responsible for the outcome of the entire study.

According to MDGs (United Nations, 2014), the most important economic and social development strategy for developing countries is to totally eradicate poverty. In this endeavor, a consensus has been reached to use of ICTs as enabler to accelerate economic and social development programs. This study attempts to explore the opportunities that are available from the use of mobile phones to profoundly change the quality of life of the rural population, which intern translates into fighting poverty. While voice communication remains to be extremely important, obtaining information and knowledge pertaining to agriculture and health on the same technology delivery mechanisms will undoubtedly save time and travel costs of the rural poor. Exploring the advent of cloud computing technology services for its capabilities to capture, disseminate, communicate, and collaborate localized contents of information and knowledge for web-enabled devices is also important for this study. This exploration of the impact of mobile phones on society and use of extended services to provide information and knowledge may assist policy makers to optimize their ICT strategies and implementation priorities. Most importantly, it intends to explore the impact of mobile phone access to information and knowledge on agriculture and health utilizing web-enabled mobile devices through the provision of cloud-based services to improve per capita income of the rural population, which intern can improve livelihoods contributing towards economic growth and the government’s effort to fight poverty. There are two critical research questions that this research is attempting to answer. The research questions were:

Research Question 1: How can access to information and knowledge on agriculture and health through the use of mobile phones improve the quality of life of the rural population in Ethiopia?

Research Question2: What needs to be done to create enabling environments for government managed cloud computing service to provide access to information and knowledge on agriculture and health for web-enabled mobile device?

The first research questions can be answered by engaging the rural population (peasants) to explore their views, perception and anticipation on the use of mobile phones by interview instruments from open markets of selected small towns. The views and perceptions of community leaders, authorities and associations of their communities will also be explored through survey instrument utilizing questionnaires. Further data from international and national government agencies will also be incorporated in an attempt to answer the second research question.

Population and Sample

Located in the eastern part of Africa, Ethiopia is the second most populous country in Africa with population of 90 million people and per capita income of less than $500, (World Bank, 2014). Ethiopia being one of the poorest countries in the world, 84% of the population lives in rural areas. The federal constitution divides the country into nine regional states and two municipalities, primarily on the basis of ethnicity. This survey study will focus on three regional states, Amahara National Regional State, Oromo National Regional State and Southern Nations, Nationalities and People's Region accounting close to 80% of the overall population of the country. The study will utilize Stratified Random Sampling Technique, categorizing mobile phone users of the population into mutually exclusive (only mobile users of the rural population) and collectively exhaustive towns, where significant number of the nearby rural population congregate for trading agricultural products in an open market. An independent simple random sample is then drawn from the above-mentioned regions each containing three towns having open market settings.

The assumption is that the Stratified Random Sampling Techniques can provide more accurate estimates if the population being surveyed is heterogeneous, meaning only those who use mobile phone as a basic communication tool to simplify their way of lives. This approach not only can save significant research costs and resources but also increases administrative efficiency of the research at hand. The qualitative aspect of this research will employ interviews and observations methods in the open market involving a minimum of 15 volunteers of mobile phone users in the open market. At the same time, the quantitative aspect of the research will involve at least 10 questionnaire participants randomly selected from community leaders, authorities and associations from the same open market town. Three regions each containing three open market towns will make up a population sample of 135 participants. By the same token, the total questionnaire participants of the nine towns each with 10 participants will make up a total of 90. To determine the sample size, a confidence level of 95%, confidence interval of 8.5 for the estimated 12 million households of the rural population is considered.

Geographic or Virtual Location

Each regional state has ICT Development Agency that promotes the use of ICTs within the regional state. The researcher will contact these authorities for collaboration such as issuing a letter of recommendation to conduct research on mobile use and encourage interview participants, community leaders, administrators and associations for each town to cooperate in the data collection endeavor. The three selected regional states are geographically diverse and culturally different. The national and regional highways and the Ethiotelecom mobile services coverage is well stretched across the mentioned regions and selected towns. The overall distance to be covered is estimated to exceed 2000 km. Despite the national language, Amharic, being spoken in major cities, some towns are expected to speak and understand only in their own languages. To overcome the language barrier problem, the researcher of this study intends to hire language interpreters as needed.

Instrumentation

As stated earlier, the Convergent Parallel Mixed Methods will require collection of both qualitative and quantitative data to be collected from peasant participants from the open markets and community leaders, authorities and association in the same site. For the qualitative portion of the study, observation method will be used as instrument to capture data in the natural settings of the open market to understand the open market environment and identifying people with mobile phones and other relevant information will be observed. Based on the interview questions, volunteer peasant participants will be randomly selected and get interviewed. Upon completion of the qualitative portion of the research, a questionnaire will be provided to community leaders, authorities, and associations in the same town to respond to questionnaire items.

Data Collection

As this research methodology calls for both qualitative and quantitative data in a mixed method, data collection will be collected to explore views, perception and anticipations of not only mobile phone users of the rural population but also community leaders, authorities and association on the specific use to access information and knowledge on agriculture and health and its impact on economic and social wellbeing of the communities. Creswell (2013) explains the intention of qualitative data collection to be the identification and gathering of extensive information from a small sample, whereas in quantitative research general data may be required to conduct meaningful statistical test. Upon receipt of authorization from Institutional Review Board approval number 23-12-14-16096, the researcher of this study will be fully engaged in all data collection and administration activities to gain firsthand experience. Despite the official language usage in major cities in Ethiopia, people in small towns usually speak their own local languages and for this specific reason, an interpreter may be required for the qualitative data collection activities. Following pretesting, the actual qualitative and quantitative data collection fieldwork commences in two stages involving volunteer peasant participants from the open market and community leaders, authorities and associations in the same site.

Qualitative Data Collection

For this study, the qualitative data collection work will involve a maximum of 135 participants from three major regions each contain three small towns with their respective open markets where regular weekly trading occurs. Through the use of observation and direct face-to-face interview instruments, qualitative data will be collected utilizing predesigned observation and interview question forms, for easy administration and enforcement of consistency and standardization procedures. The qualitative data collection procedure will be carried out in two stages. First observation data will be captured on the form pertaining to open market size, estimated number of people in the market, language spoken, identifying people with mobile phones, the culture and other relevant information for the study. Once observation data are noted and captured, the interview portion commences by randomly selecting peasant volunteers of mobile phone users in the open market for interview. The predesigned interview question form will also be used as an instrument to drive interview and capture data from interviewees.

Quantitative Data Collection

Quantitative data will be collected in the same small town where the open market exists.

This involves the cooperation of participants from community leaders, authorities, and associations by utilizing questionnaire. Obtaining a cooperation letter from regional ICT Agencies is critical to convince questionnaire participants to participate. Usually, community leaders, authorities, and association can be reached within a walking distance in the same town. The strategy is that the researcher will select few volunteers and explain the purpose of the study and should be able to convince participants to complete the questionnaire by providing some guidance in a standardized manner. As part of the administration of the data collection procedure, the researcher will employ little or no variation in explaining questionnaire items to avoid bias in the process. Secondary data from national statistics office, Ethiotelecom, and international development agencies, will also be collected after completing the field work.

Data Analysis

According to Levine and Roos (2002) data analysis is a body of methods that help to describe facts, detect patterns, develop explanations, and test hypotheses. As the Convergent Parallel Mixed Methods design calls collected qualitative and quantitative data to be analyzed separately and then brought together by making side- by- side comparison (Creswell, 2013).

Qualitative Data Analysis

The data analysis strategy for the qualitative portion of this study employs the constructivist grounded theory approach. Grounded theory according to Strauss A. and Corbin J. (1990) is a general methodology for developing theory that is grounded in data, which is systematically gathers and analyzes utilizing distinct steps. According to Levine (2002), the steps involve the application of grounded theory, first the qualitative data is organized for coding and establish categories. Open and axial coding can be used to examine the text with items of a particular interest so that codes are grouped into categories. Second, it is possible to build relationships between categories by employing comparative approach constantly comparing new instances, ideas and insights of the category until the saturation of categories is reached. Third, grouping of the categories together forms a theoretical constructs. The net outcome of grounded research is a theory that contains a central phenomenon, its causal conditions, its intervening conditions, and consequences. Accordingly, the process of data analysis in this research starts after relevant data is collected and organized, conceptualized and summarized as short paragraph to describe the evaluation in general terms is referred against answering the research question. Summary of individual observation and interview notes are then entered into a spreadsheet and assigned codes with the aim to find repetitive patterns and consistency in the data. Code is a word or short phrase assigned for the paragraph. The codes are then grouped and categorized in order to consolidate meaning and explanation as well as concepts to emerge from the data. The next step is memo writing by elaborating concepts, catch phrases embedded in the data, or making connections among concepts so that substantive theory could be generated to explain the phenomenon in a specific context by reducing the data to a relevant summary in light of answering the research questions. In short, the whole analysis process entails in grounded theory involving concept labeling (coding), identifying core categories, finding relations among categories, and generating a theory from such relationship helpful to answering the research question.

Quantitative Data Analysis

Following quantitative data collection from community leaders, authorities and association from the three selected regions and secondary published data from international and government agencies, the quantitative data analysis process starts. Quantitative methods of data analysis can be of great value to draw meaningful results from a large body of qualitative data in addressing the research questions, while at the same time helps to understand livelihoods and constraints of mobile users allowing reporting capabilities in numerical terms within specific degree of confidence (Abeyasekera, n.d.). In regard to the primary data, the researcher believes that the sample size to be adequate and representative of the population of mobile users as such; the application of statistical methods is expected to provide greater validity to address the research questions. In analyzing the quantitative data, methods such as descriptive and inferential statistics will be used to summarize the outcome. While descriptive statistics can help to summarize, organize, and make sense of set of calculated results or observations and at the same time, inferential statistics can also be used to generalize observations made with samples to the larger population from which they were selected. For the purpose of this study Google Form data entry and analysis tool will be used.

Human Participants and Ethics Precautions

In preparing for a research project involving human subject, it is important to reflect several issues of ethical dimensions. Engel and Schutt (2009) stress the importance of researchers to be honest and reveal their methods and at the same time apply code of ethics to protect the vulnerable populations while conducting social work research. The participants to be interviewed and surveyed in this study are mobile phone users, community leaders, authorities and associations, involving people from various ethnic background, different culture, diverse religion, both genders and varying age groups. In this study, codes of ethical practices will be exercised to embrace basic principles of protecting the rights and welfare of those who volunteer to participate. Wherever possible, the interviewer of this study will inform all participants about the purpose of the investigation and will obtain verbal consent from participants. This study will demonstrate inclusiveness regardless of ethnicity, religion, culture, gender, age and social makeup. The questionnaire to be responded by community leaders, authorities and associations will also remain anonymous without disclosing identity of participants.

Validity and Reliability

In exploring the views, perceptions and expectations of mobile phone users and the impact it has brought in improving the quality of life of the rural segment of the population, both qualitative and quantitative data collection and analysis methods will be used. In achieving quality of data, many researchers agree that the assessment to be made to be free of bias and distortion. In the case of this study, clarity and simplicity of the interview questions and questionnaire items are paramount as both methods involve the interaction of people with limited basic education. To ensure clarity and measurement accuracy, the concepts of ensuring validity and reliability will be utilized in this study.

Validity

Validity is understood by many researchers within a realist philosophy of science. In a research project, validity entails the question, if the measurement process, assessment, or project actually measure what it intends to measure. On the other hand, reliability addresses whether repeated measurements or assessments provide a consistent result given the same initial circumstances. In most cases, behavioral research takes place within the paradigm of measurement instruments that reflects consistent validity and reliability. Validity is concerned with the meaningfulness of research components. Despite its difficulty to answer all questions with absolute certainty, researchers can develop strong support for the validity of respective measures, (Kimberlin & Winterstein, 2008). The most widely used validity that researchers consider include statistical conclusion validity, internal validity, construct validity, and external validity where relationship implies generalizing to other persons, settings, and times (Drost, 2011).

The qualitative portion of this study will be assured by developing an interview inquiry form to capture the views, anticipation and expectations of participants from randomly selected volunteers in the open market of a small town. To ensure validity, conducting pretest of the interview instrument as a pilot project is essential. The aim of pretesting is to ensure how interview questions function in a society with high level of illiteracy and diverse cultural and ethnic background. Pretesting will be carried out in a nearby open market located few kilometers from the main capital city of Ethiopia. The pretesting can allow the refinement of the interview questions so that validity could be assured. Due to the fact that there is no statistical test to determine whether a measure adequately represents a construct, content validity usually depends on the judgment of experts in the field (Kimberlin & Winterstein, 2008). This study intends to consult domain experts from Regional Bureaus of Finance and Economic Development to check the validity of the interview questions and questionnaire items. By the same token, the questionnaire can also get pretested in the same town with community leaders, authorities and association members where the open market exists, to see if the questionnaire responses measure what it intend to measure. Again, this study intends to consult domain experts found in regional offices for validity of the questionnaire to capture the required information.

Reliability

Reliability refers to consistency or stability of measurements. It attempts to answer questions such as testing the measure or other form of observation, if it can be confirmed by further measurements or observations to be the same. In other words, reliability is the extent to which measurements are repeatable if tested on different occasions, under different conditions, with alternative instruments (Drost, 2011). All measurements, especially measurements of behaviors, opinions, and constructs, are subject to fluctuations (error) that can affect the measurement’s reliability. Reliability is more concerned with consistency.

The qualitative portion of this study will be assured by developing an interview form to improve consistency and standardization of the interview questions. To ensure reliability, a triangulation technique will be used to assess responses from the results of both qualitative and quantitative data to achieve confidence in the results. According to Engel and Schutt (2010), utilizing two different methods such as survey questionnaire and field observation to establish confidence in the validity and reliability of measures to obtain similar and consistent results is necessary. The questionnaire based quantitative inquiry will consider clarity and simplicity. At pretesting stage, participants will be asked for any other problems in understanding the items in the questionnaire and from their experiences, some enhancement can be made. Furthermore, domain experts from MCIT will collaborate to review the questionnaire for reliability and accuracy of the measurements.

Contribution to Social, Practice, or Organizational Change

This study intends to explore the opportunities that are available in the application and use of mobile phones and the delivery mechanism of information and knowledge on agriculture and health by utilizing cloud computing services to impact the quality of lives of the rural communities. There are significant publications available which describe mobile phone coverage and penetration in developing countries. However, research that details the impact of mobile phone in the rural area of the population in developing countries is minimal. Aker and Mbiti (2010) argue that empirical evidence to have shown the potentials of mobile phones to benefit respective users and perhaps to have brought broader economic development outcomes.

The need to understand the tangible benefits and the respective impact of mobile phone voice communication usage in the rural area of the population together with the means to deliver information and knowledge on agriculture and health through the deployment of cloud computing services is the main focus of this study. Sharing the knowledge gained in this study with policy makers and the incumbent telecom operator will raise awareness and help refocusing of strategic priority practices to profoundly change the livelihood of the rural poor. This study can also contribute to the existing body of knowledge on the impact of mobile phone usage and the means to create disseminate and utilize localized information and knowledge pertaining to agriculture and health through the provision of extended mobile phone services in cloud computing settings to impact quality of life in developing countries, which intern can contributes to poverty alleviation efforts.

Summary

The main purpose of this study is to explore and understand the impact of mobile phones and delivery means of information and knowledge for the rural population to improve the quality of life of individuals and households. Further access to localized contents of information and knowledge on agriculture and health through web-enabled devices from government managed cloud computing service may assist the fight against poverty and this phenomenon needs to be deeply investigated. Despite abundant publications on mobile phone adoption, penetration, and coverage, academic research investigating the changes it has brought on the rural population and more specifically in developing countries is minimal. This research can contribute towards further understanding of the weak link between the current widespread use of mobile phones and the impact it has brought in the rural segment of the population as well as predicting future trends that may be applicable to access information and knowledge utilizing Smartphone. The research problem entails to understand access to information and knowledge on agriculture and health through the use of web-enabled devices to improve per capita income and quality of life of the rural population in Ethiopia and the means to create enabling environments for rendering government managed cloud computing service to provide access to those information resources is a critical component of this study.

This chapter has introduced the selected Convergent Parallel Mixed Methods which is a mixed method design incorporating both qualitative and quantitative methods of research suitable to answer the research questions in this study. The selected methodology is dependent upon participants of the rural population of the country where high illiteracy rate exists and gaining insight on views, perception and anticipation of the community from local community leaders, authorities and associations pertaining to their community way of life is a paramount importance. The qualitative portion of the study will be administered by means of interview method and further utilizes questionnaire survey instrument for data collection. For data collection purpose, interview questions will be organized utilizing a form for easy administration to ensure consistency and standardization. Data collection will be carried out in selected towns in an open market where people from the rural area congregate to trade agricultural products, and volunteer participants will be selected randomly for interview. Questionnaire will also be designed to collect quantitative data from community leaders, authorities and associates from the same town.

Following the data collection, the qualitative data will be organized, coded and categorized for analysis and Google Doc statistical tool will be used to enter and analyze quantitative data. To ensure validity and reliability, great care will be undertaken to make interview questions and questionnaire items to be clear and simple. Furthermore, both interview questions and questionnaire items will be validated by domain experts prior to field work. Once the data is analyzed and discussed, the findings will be properly documented. There is great anticipation by the researcher that this study can contribute to the existing body of knowledge on the impact of mobile phone on marginalized segment of the population in developing countries and can assist the incumbent mobile operator and policy makers to re-align their respective ICT implementation strategies and priorities.