

USE OF MOBILE PHONE IN SEEKING INFORMATION FROM DIFFERENT AGRICULTURAL SOURCES

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AGROTECHNOLOGY DISCIPLINE
LIFE SCIENCE SCHOOL
KHULNA UNIVERSITY
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ABSTRACT

The main objectives of this study were to determine the farmers' extent of use of mobile phones by the farmers and to explore the relationships between selected characteristics of the farmers and their extent of use of mobile phones in seeking information from different agricultural sources. Data were collected from randomly selected 102 respondents of five villages of namely Raingamari, Sachibunia, Dorgatola, Jhorvanga and Mathavanga Bathiaghata upazila under Khulna district through personal interview method by the researcher herself using an interview schedule during 6 March to 10 April, 2018. Farmers' extent of use of mobile phone was the dependent variable and the eight selected characteristics of the respondents considered as the independent variables of the study. Most 98% of the respondents had medium level of source-accession using mobile phones while very few 2% of the respondents had low-level of source-accession using mobile phones in seeking agricultural information from different sources. The highest accessed source of agricultural information, based on access regularity, was SAAO (1st) followed by seed dealer (2nd) and model farmer (3rd); while AEO and UAO ranked 4th and 7th respectively in this regard. Most 97.1% of the respondents had low level of use of different mobile communication pathways (e.g., phone call, SMS, etc.) while very few 2.9% of the respondents had medium level of use in their nature of mobile phone use regarding different mobile communication pathways for seeking agricultural information. Highest ranked mobile communication pathway was phone call (1st) followed by SMS (2nd) and internet surfing (3rd). Among eight selected characteristics of the respondents, age and farming experience showed a significant positive relationship with their extent of use of mobile phone for seeking agricultural information from different sources. Majority (53.9%) of the respondents had medium level of problem confrontation followed by high level of problem confrontation (46.1%). The farmers might be encouraged more by mitigating the faced problems regarding agricultural information seeking by mobile phones because it is an emerging way in information source-accession all over the globe.

Key words: Extent of use, Farmer's, Mobile phone, Problem confrontation.

DEDICATION

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ACRONYMS

AEO	: Agriculture Extension Officer
DAE	: Department of Agricultural Extension
PCI	: Problem Confrontation Index
NGO	: Non- Government Organization
NS	: Non Significant
RO	: Rank Order
SAAO	: Sub Assistant Agriculture Officer
SD	: Standard deviation
UAO	: Upazila Agricultural Officer
GOB	: Government of Bangladesh
SMS	: Short Message Service
MMS	: Multimedia Message Service

CHAPTER I

INTRODUCTION

1.1 Background of the study

Bangladesh being an agricultural country, the importance of the agriculture sector has long been recognized by the Government of Bangladesh (GoB). To make the agricultural sector as an engine for economic development the adoption of technology is a must. The dissemination of information communication technologies (ICTs) in developing countries provides much opportunity to transfer knowledge and information through private companies and government departments. During the last few years coverage by cell phone has spread fast in Bangladesh. According to Bangladesh Telecommunication Regulatory Commission (BTRC), the total number of Cell Phone subscriptions has reached 131.949 million at the end of April, 2016. Cell phones have provided new approach to farmers to make tentative decisions much more easily than before.

Nowadays mobile phones have been adopted by rural and urban populations in developing countries and getting a good benefit and latest information regarding weather, market and other related issue. Value addition in agriculture requires technological, institutional and price incentive changes designed to raise the productivity.

The popular uses in agricultural practices included getting to know the market prices of different crops, fertilizer and pesticide availability receiving instant solutions and so on.

Mobile phones significantly reduced communication and information costs for the rural people of Bangladesh. This technology has provided new opportunities for rural farmers to obtain knowledge and information about agricultural issues, problems and its usage for increasing agricultural production. Majority of the people in Bangladesh depends on agriculture. Farmers can obtain information (i.e. prices of agricultural commodities or the weather condition) that they can use cell phone to improve their farm income, their lives leading to rural development.

Mobile phone acts as an effective tool for enriching farm business through providing necessary business information.

Information-based, decision-making agricultural system (Precision Agriculture) is designed to maximize agricultural production and is often described as the next great evolution in agriculture. The combination of Global Positioning System (GPS) and mobile mapping are supposed to provide farmers with the information for implementation of decision-based Precision Agriculture (Michael, 2008).

Use of mobile phones as a mode of providing agriculture related information would depend on how far the mobile phone network has been able to link the farmers to market information — timely and accurately. The impact on productivity can be directly measured in terms of increased returns to the farmers with a trickledown effect on the cropping pattern and potential yield of the sowed crop. Information on the price factors —prices of inputs and output, and non-price factors like information about availability of inputs, quality of seeds, modern techniques, etc. would play the primary role in improving farm productivity.

Different Government Organizations (GOs) and Non- Government Organizations (NGOs) are trying with diverse initiatives for strengthening the agriculture sector of Bangladesh. Though various efforts of improvement are in there, but the agriculture sector is facing a range of challenges for its development like over population, political instability, climate change, loss of agricultural land, infertile land, use of excessive pesticides, lack of inputs, improper irrigation etc. For providing agricultural information to the farmers GOs and NGOs has taken some time befitting initiatives. The Government of Bangladesh has established Agricultural Information Service (AIS) through which training guides, newsletters, radio & TV programs, films etc. are arranged for disseminating information. In 2010, AIS has developed SMS based information service with the help of a mobile operator Banglalink and UNDP in the country. Since October 2008, an e-agriculture initiative known as “e-Krishok” has been using information and communication technologies to deliver information and advisory services to farmers in rural and remote locations at a lower cost.

Despite those initiatives, most of the farmers of Bangladesh are still in lack of information and modern agricultural knowledge. They need an easy access point to get and meet their information need. Information need has three basic elements: availability, access and utilization. But the GOs and NGOs initiatives are hard to reach and they lack ease of use by the farmers. Under the above circumstances, this study has tried to measure the contribution of cell phones in disseminating agricultural information in Bangladesh.

It has been claimed that through social networks, farmers can obtain information (e.g price of agricultural commodities of the weather), that they can use to improve their farm income, and their lives, leading to rural development. It has been suggested that farmers in rural villages can use voice and data services over cell phone to benefit from such information. However, it is also necessary to comprehend how the farmers make the best use of cell phone technology.

Farmers currently refer to a variety of sources for their information, which can be time consuming. Using mobile to collate information and advisory services focused on livestock and nutrition, market prices and weather forecasts would greatly streamline this process for farmers, at the same time as offering operators and service providers a chance to create social benefits for their users, enhancing customer loyalty. Secondly using mobile supply chain services can provide real time visibility of supplier networks and track and trace products in supply chain. Finally, mobile financial services for farmers, such as savings, credit products and micro insurance for crops can increase financial inclusion.

There is room for significant growth in operator involvement in reaching the 22 million agricultural workers that have mobile phones; in addition, by offering mobile agriculture services operators have the potential to attract 14 million new customers to their subscriber base by giving them a reason to connect that they may not have had previously. Robi, Banglalink and Grameenphone are currently offering mobile agricultural services, mainly providing market information, agricultural news and weather information via interactive voice response (IVR) or native voice services in both Bangla and English. However, these services have not scaled yet; a study carried out by Katalyst and The Springfield Centre estimates that 200,000 farmers benefitted in 2012 from the two mAgri services offered by Banglalink and Grameenphone⁴. This is a significant number, but it represents only 1% of the total labor force in agriculture in Bangladesh. Offering voice-based services is an important step given the high rates of illiteracy among the target audience. However, we believe there is still a lack of awareness of these services and their value proposition (especially important for individuals with low disposable incomes).

Operators and co-operatives can play a larger role in improving this, such as through rural distribution centre's and below the line advertising.

1.2 Objectives of the Study

Followings are the specific objectives of the study:

1. To determine and describe the selected characteristics of the users of mobile-phone.
2. To assess the extent of use of mobile phone by the farmers for receiving agricultural information.
3. To explore the relationship between each of the selected characteristics of the farmers and their use of mobile phone for receiving agricultural information.
4. To find problem confrontation of mobile-phone for receiving agricultural information.

1.3 Statement of the Problem

Use of cell phone in agricultural extension is a challenging task. "Two-way communication" is the strongest part of the cell phone use in receiving agricultural information. Using cell phone for accessing agricultural information is still not very popular. There is also another weakness technical illiteracy among clients and extensionists limits scope. To increase the extent of use of cell phone in receiving agricultural information, it is necessary to have a clear understanding about present status of use of cell phone by the farmers. It is also necessary to have an understanding of the constraints, which may create burden in the use of cell phone.

Any agricultural information can be diffused within a short time directly to the farmers by using cell phone. The use of cell phone for receiving agricultural information is highly dependent on the selection of the extent of service, type of information, Its uses and scope of the application in the real situation. However, it is needed to ascertain the extent use of cell phone by the farmers in receiving agricultural information having the following questions in mind:

1. What are the selected characteristics of the farmers?
2. To what extent farmers use cell phone for receiving agricultural information?
3. Which characteristics of the farmers are related to their use of cell phone in receiving agricultural information?

4. What problems that farmers usually encounter in using mobile phone for seeking information?

1.4 Assumption of the study

An assumption is "The supposition that an apparent fact or principle is true in the light of available evidence" (Goode, 1945). The following assumptions were made in conducting the study:

1. The respondents included in the sample of the study were able to provide their opinions and were competent enough to satisfy the queries.
2. The information furnished by the farmers were reliable.
3. The cell phone user farmers included in the sample were the representative of the population.
4. The collected data were reliable because the researcher who acted as interviewer was well adjusted to the social environment of the study area.
5. The finding of the study will be useful for planning and execution of the extensive and more helpful effective use of cell phone for receiving agricultural information.

1.5 Limitation of the study

Considering the time, money and other necessary resources available to make the study manageable and meaningful, it was necessary to consider the following limitations:

1. The study was confined only to Jhorvanga, Raingamari, Shacibunia and Dorgatola villages of Jalma union in Bathiaghata upazila under Khulna district.
2. Sample size of the study was limited.
3. The investigator was dependent on the data furnished by the selected respondents during their interview.

1.6 Definitions of some terms related to this study

Certain terms used throughout the study are defined and interpreted below for clear understanding.

Respondent

Farmers who answer questions these were asked by the interviewer for a social survey are called respondents. They are the people from whom a social research worker usually gets most data required for his research. In this study, the farmers who responded to the questions during interview conducted by researcher himself were considered as respondents.

Age

Age of an individual respondent was defined as the period of time in years from birth to their time of interview.

Educational qualification

Education referred to the development of desirable knowledge, skill and attitude in the individual through reading, writing, and other related activities. It is measured in terms of years of schooling of individual respondent.

Farm size

The area of land possessed by the respondent and his family members in hectare was the farm size.

Farming experience

It was the period of involvement of a respondent to agricultural practices.

Annual family income

Annual income of the respondents refers to total yearly earnings from agriculture and other source (if any) including him and other family member(s).

Agricultural Training

It refers to the total number of days attended by the farmers in his/her life to the training on agricultural related subject matter.

Organizational participation

It refers to the involvement of the respondent in any type of formal and social organizations.

Cosmopoliteness

It refers to the orientation or exposure or frequency of visit of an individual respondent outside of his own social system

Cell phone/ Mobile phone

A portable telephone that sends and receives radio signals through a network of short-range transmitters located in overlapping cells throughout a region, with a central station making connections to regular telephone lines and also called cellular telephone, mobile phone.

A small telephone that people can take with them and use outside their homes called also mobile phone, (chiefly US) cellular phone, (US, informal) cell, (British) mobile. Cell phone is popular and powerful interpersonal communication media.

Problem confrontation

Problem faced by the farmers in this study was defined as the extent of difficulties faced by farmers in the way of use of mobile-phone.



CHAPTER II

REVIEW OF LITERATURE

The researcher made an extensive search of available literature for the present research. Available literature was intensively reviewed to find out work in the world and almost in Bangladesh. This chapter is divided into four sections. First section deals with the history of cell phone in Bangladesh. Second section deals with the findings on the use of cell phone in general and third section deals with the relationship between the farmers' characteristics and their use of cell phone. The fourth section deals with the conceptual framework of the study.

2.1 History of mobile phone in Bangladesh

Bangladesh was the first South Asian country to adopt cellular technology back in 1993 by introducing Advanced Mobile Phone System (AMPS). In fact, the first mobile license was issued back in 1989 but it took several years to launch the services. The network coverage and number of subscribers had remained very limited due to exorbitantly high subscription cost and call tariff.

In 1996, the then government considering the monopolistic environment prevailing in the sector, awarded three GSM licenses aimed at breaking the monopoly and making the cellular technology affordable to the general masses.

Since then, the country's cellular industry never looked back, now it has turned into the largest infrastructure provider during the last decade as sub sector within telecom sector. This sub-sector has created new opportunities by generating employment, facilitating education and health services for common people.

2.2 Studies related to use of mobile-phone in general and its problem

De Silva and Ratnadiwakara (2010) who randomly sampled 300 farming households in Sri Lanka across four traded vegetable markets, and attempted to understand information search costs for core operations along the agricultural-farmer value chain. They found that 70 percent of all transaction costs related to information search costs (the transaction costs themselves were recorded as 15 percent of the total costs incurred). Costs were accounted for both in direct financial expenditure and the opportunity costs of time expended.

Similarly, Furuholt and Matotay (2011) view the mobile phone as a means whereby the high transaction costs associated with information market failures and inefficiencies in the business environment can be reduced, thus overcoming costs incurred in the coordination of economic activities related to: a) accessing inputs (infrastructure; production technology, knowledge, finance, materials, learning/training, etc.) and, b) reaching output markets (either directly or through market intermediaries) as well as monitoring financial transactions and consulting with experts. Typically, the studies surveyed view search costs and the asymmetric relationships that govern price setting as the most significant informational impediments producers face (e.g., Martin & Abbott, 2011). Such high costs normally add to the market price of products and affect competitiveness in the market.

Campbell (2005) studied the impact of the cell phone on young peoples social life. He identified both positive and negative impacts of cell phone on young people. He observed that the cell phone has led to changed dynamics in the family with issues of safety. Campbell also identified along with other problems of which financial difficulties, non custodial parent access, as well as over reliance on the cell phone for safety issues and intrusion into young peoples lives were important.

Kameswari *et al.* (2011) surveyed 132 farmers across 8 villages in 4 districts of the Indian Himalayan region and found wide variations between districts (and villages) in terms of crops grown, scale of production, water supply, types of soil, etc. This gives rise to diverse vulnerability contexts and differing needs for information-related services often between districts and settlements in quite close proximity, and which are more or less active in information seeking.

A similar perspective was taken by Masuki *et al.* (2010) highlighting how differences in the cultural and social make up of different parishes within the same district of Uganda gave rise to different needs for information, as well capabilities to make use of information.

These livelihoods perspectives support the view that fostering sustainable rural production involves addressing a wide range of interconnected constraints which may be longstanding and entrenched within the realities of rural life, and reach into broad and diverse development concerns of environmental protection and conservation, gender imbalances, political participation, health and education (Feder and Umali, 1993).

Historically, the complex information needs of rural producers have been pursued through these personal and social networks, and mediated through face-to-face contact. Traditional networks of communication tend to be better aligned with the interests of rural dwellers and information sources may embody a certain level of trust (Molony, 2006) increased speed of price transmission in maize markets – but no marked decrease in transaction costs in markets where exchanges were dominated by traders that lack literacy and rely heavily on visual inspection. Whilst 80 percent of traders and 48 percent of farmers surveyed used mobile phones to access information, traditional means of collecting and exchanging information had not changed (such as travelling to the market) but use of phones speeded up pre-existing processes.

For mobile users, this led to the trading of larger volumes, better prices and slightly larger margins – but only marginal increase in transaction costs (due to an increase in the net cost due to the costs of mobile ownership and use).

Similarly, Muto and Yamano (2009) from analysis of data collected between 2003 and 2005 in Uganda found that mobile network expansion (from 41 to 87 percent coverage) had positive effects on market participation. The effects were found to be more beneficial for farmers in remote areas and particularly for those producing perishable crops such as bananas.

Similarly, Aker (2008) investigated the impact of cell phones on grain markets in Niger identifying positive arbitrage (reduced grain price dispersion and variations across markets) resulting from a reduction in search costs and hence transaction costs, as well as lower grain prices (3.5% reduction from 2001 to 2006).

In common with Muto and Yamano, phone use was found to have greater impact when travel costs were higher – for markets that were more remotely located and unconnected by paved roads (Burrell, 2008). Phones also caused traders to change their behavior – with a greater number of markets searched and more contacts and sales in more markets. These studies also identify a ‘network effect’ meaning that cell phones have higher impact (on price dispersion, for example) once more markets are covered by the network – with Aker (2008) suggesting diminishing returns over and above 75 percent network coverage.

Notable recent studies include that of Subervie (2011) evaluating the impact of SMS-based alerts for farmers via *Esoko* where econometric modeling of spatial arbitrage conditions

The preceding studies demonstrate primary interest in impacts on farmers and the markets they trade into. Studies also highlight the impact of phone use on transactional relationships within value chains – and in particular the changing role of intermediaries or traders. Overå (2006) found that both producers and traders benefited considerably from the use of mobile phones after their introduction in 2001 in Ghana. Speed of communication allowed for more efficient information flows within the network of value chain actors, which in turn, saved time and reduced transportation costs. This led to better matching of supply and demand, and improved monitoring of compliance within the terms of trading contracts. One effect was that early adopters of mobile phones strengthened their existing trader relationships and networks, which were built on strong lineage-based social structures. New market entrants managed (through using mobile phones) to quickly cement good trading reputations and facilitate the building of more efficient trading networks. By contrast, existing traders and new entrants without phones were not able to attain these advantages, although it is not clear whether they were financially worse off as a result.

A working paper by Mittal *et al.* (2010) found that the quality of information, its timeliness, and trustworthiness are the three important features that can enable farmers to use mobile-enabled agricultural information effectively. The Indian study found that while mobiles are currently being used in ways that contribute to farm productivity, they are not being used to their full potential. Infrastructure and farmers' capacity to use the information need to be improved in order to realize the full information dissemination potential of the mobile phone. This study sought to see if findings like Mittal *et al.* (2010) also hold true in the Kenyan context. A flood of new development initiatives using SMS to send information to rural farmers has emerged in Kenya. This study hopes to better understand the use of SMS by Kenyan farmers in order to enhance such new emerging initiatives.

Some of the new agricultural SMS-based service providers include MFarm Ltd., which provides access to localized, current data on markets and weather as well as a network for buying and selling farming goods through SMS (MFarm Kenya 2011). The Kenya Agricultural Commodity Exchange (KACE) has an SMS-based information service, *SokoniSMS*, for farmers to receive market prices in Kenya (KACE Kenya 2011). GSMA recently announced its MFarmer Initiative Fund, supported by a grant from the Bill and Melinda Gates Foundation. The purpose of the Fund is to “encourage mobile communications service providers (in partnership with other public and private sector

agriculture organizations) to use mobile communications to provide information and advisory services to smallholder farmers in developing countries who are living on under US\$2 per day” (GSM 2011). WMO/Sony Ericsson/Airtel have partnered to start “Weather Info for All,” an initiative that will send weather forecasts to farmers via SMS (World News Inc. 2011).

2.3 Studies Regarding Relationship between Selected Characteristics of the Farmers and their Use of Mobile-phone

2.3.1 Age and use of mobile-phone

Anisuzzaman (2003) in his study conducted that age of the farmers had negative and significant relationship with the use of communication media.

Nuruzzaman (2003) conducted that age of the farmers had significant negative relationship with the use of mass media.

Islam (2005) in his study concluded that age of the farmers had a no significant relationship with their use of printed materials.

Roy (2006) in his study concluded that age of the farmers had a negative and non-significant effect on the effectiveness of mass media.

2.3.2 Educational qualification and use of mobile-phone

Nuruzzaman (2003) in his study observed that education of the farmers had significant positive relationship with their use of mass media.

Islam (2005) in his study concluded that education of the respondents had significant positive relationship with their use of printed materials.

2.3.3 Farming experience and use of mobile-phone

Rahman (2003) observed that farming experience of the farmers had no significant relationship between farming experience of the farmers and their adoption of selected technologies by using TV.

2.3.4 Farm size and use of mobile-phone

Anisuzzaman (2003) found that the farm size of the respondents had no significant relationship with their use of communication media.

Islam (2005) in his study concluded that farm size of the respondents had no significant relationship with their use of printed materials.

Nuruzzaman (2003) in his study conducted that farm size of the farmers had no significant relationship with the use of mass media.

Ofuoku *et al.* (2007) found that the farm size of the poultry farmers had significant relationships with the adoption of cell phone.

2.3.5 Annual family income and use of mobile-phone

Anisuzzaman (2003) related that the annual income of the respondents had no significant relationship with their use of communication media.

Islam (2005) in his study concluded that annual income of the respondents had no significant relationship with their use of printed materials.

Nuruzzaman (2003) reported that the annual income of the farmers had no significant relationship with their use of mass media.

2.3.6 Agricultural training and use of mobile-phone

No literature was found related to Agricultural training exposure of the respondents with their use of cell phone or other communication media.

2.3.7 Organizational participation and use of mobile-phone

Nuruzzaman (2003) found that organizational participation of the farmers had positive and significant relationship with their use of mass media.

Islam (2005) in his study concluded that the organizational participation of the respondents had positive significant relationship with their use of printed materials.



2.3.8 Cosmopolitaness and use of mobile-phone

Islam (2005) in his study concluded that the cosmopolitaness of the respondents had positive significant relationship with their use of printed materials.

2.4 Conceptual Framework of the Study

In scientific research, selection and measurement of variables constitute an important task. The conceptual framework of Townsend, (1953) was kept in mind while framing the structural arrangement for the dependent and independent variables. The present study tried to focus on use of mobile-phone in seeking information from different agricultural source by the farmers'.

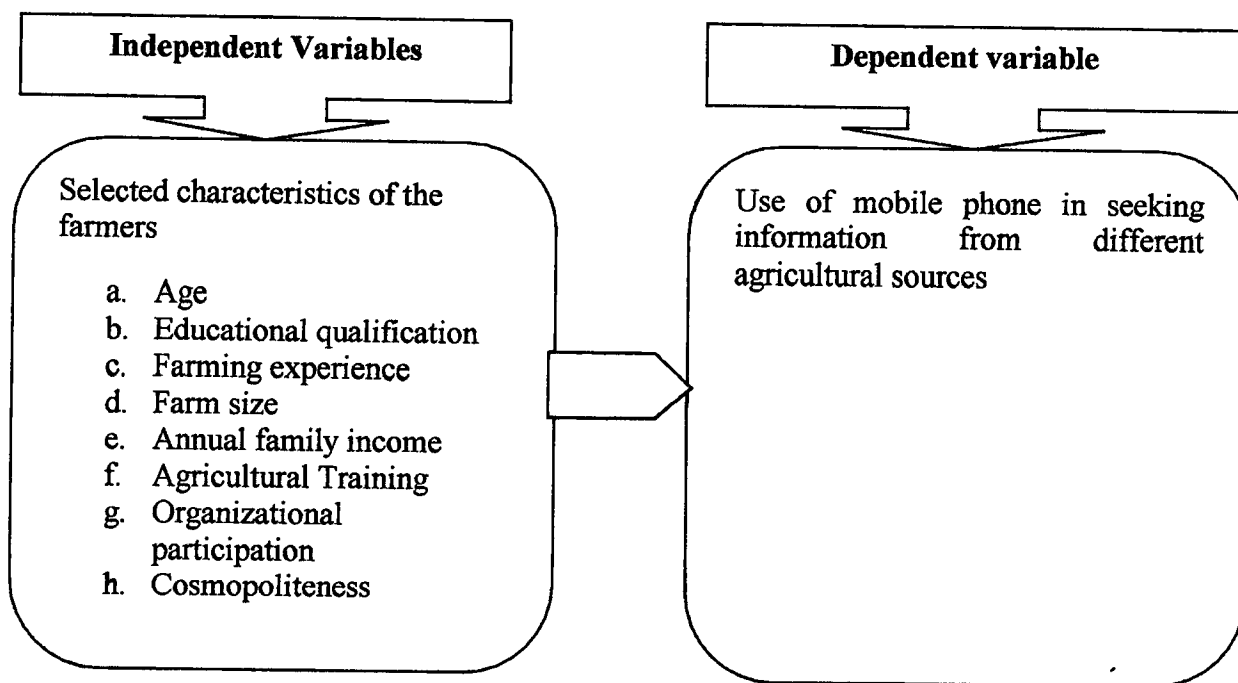


Figure 2.1 Conceptual framework of the study

CHAPTER III

METHODOLOGY

Methodology plays an important role in a scientific research. A researcher should be careful in formulating methods and procedures in conducting research. Methodology should be such as would enable the researcher to collect valid data and reliable information and to analyze that information to arrive at correct decisions. The methods and procedures followed in this study are described in this Chapter.

3.1 Design of the Study

The present study was a social scientific survey. It was designed to study the use of mobile phone in seeking information from different agricultural source in four selected villages of Jalma union.

3.2 Locale of the Study and Sampling

The study was conducted at five selected villages at Bathiaghata upazila under Khulna district. The researcher deliberately selected five villages from Bathiaghata upazila under Khulna district namely Raingamari, sachibunia, Dorgatola, Jhorvanga and Mathavanga. A number of 102 mobile phone users from the study area were randomly selected. This 102 mobile phone user were treated as sample of the study.

3.3 Preparation of Interview Schedule

An interview schedule was used as the research instrument in order to collect relevant information from the respondents (mobile phone users). The interview schedule was prepared for data collection in Bangla keeping the objectives of the study in view. The interview schedule contained both simple and direct form of questions to collect data on the selected variables. The interview schedule was pre-tested before final collection of data. After pre-test necessary correction, addition, alteration and rearrangements were made. The interview schedule was then multiplied in its final form for collection of data. English version of the same interview schedule has been presented in the Appendix I.

3.4 Data collection

The researcher met the selected respondents and explained the purpose of the study and requested them to help and co-operate for collecting data for the study. Data were collected with the help of the interview schedule by the researcher himself. Interviews of the respondents were taken at their homes during leisure period. A good rapport was established with the respondents during interview. However, if any respondent failed to understand any question, the researcher took utmost care to explain the issue. Respondents were assured about the confidentiality of their information by the researcher. After completion of the interview, each statement was checked and verified to make sure that answer to each item had been properly recorded. Data were collected during 6 March to 10 April, 2018.

3.5 Data processing

After completion of survey all the interview schedules were compiled for data processing. At first all the qualitative data were converted into quantitative form by means of suitable code and score whenever necessary. In several instances indices and scales were constructed through the simple accumulation of scores assigned to individual or pattern of attributes. Indices and scales are considered the efficient instrument for data reduction and analysis.

3.6 Selection and Measurement of variables

3.6.1 Selection of variables

Eight selected characteristics of the respondents were treated as independent variable for this study. The selected characteristics were age, educational qualification, farming experience, farm size, annual family income, agricultural training, organizational participation and cosmopolitaness. Use of mobile phone in seeking information from different agricultural source was considered as dependent variable of the study.

3.6.2 Measurement of variables

3.6.2.1 Age of the respondents

The age of the respondents was measured in terms of actual years from their birth to the time of interview on the basis of their response to item number A.1 of the interview schedule (Appendix I). Based on age, the respondents were classified into following categories (Table 3.1).

Table 3.1 Categories of the respondents according to their age

Categories	Score (Year)
Young	≤ 35
Medium	36-50
Old	>50

3.6.2.2 Educational qualification of the respondents

The educational qualification of the respondents was measured based on their year of schooling written specifically in the item number A.2 of the interview schedule (Appendix I). For example, a score of 5 was given to the respondents who passed class v. A score of '0' and '1' also given to those who do not know reading and writing respectively. The respondents were classified into following categories based on their educational qualification as shown in Table 3.2.

Table 3.2 Categories of the respondents according to their educational qualification

Categories	Score (Year of schooling)
Illiteracy	0
Primary	1-5
Secondary	6-10
Higher secondary	11-12
Above Higher Secondary	>12

3.6.2.3 Farming experience of the respondents

The experience of the respondents about farming was determined on the basis of the year that how long they have involved in farming activities. The question to measure the experience in farming of the respondents has been presented in the item number A.3 of the interview schedule (Appendix I). The respondents were classified into following categories Table 3.3.

Table 3.3 Categories of the respondents according to their farming experience

Categories	Score (Year)
Low	≤ 10
Medium	11-20
High	> 20

3.6.2.4 Farm size of the respondents

Farm size was measured as the size of her farm on which rural women continued her farming operations during the period of study. It included the area of homestead, land cultivation under her or her family cultivation as well as those obtained from others as barga, lease and also given to others as barga.

The area was measured in terms of hectare. The farm size of a respondent was calculated by using the following formula:

$$FS = A + B + 1/2(C + D) + E$$

Where

FS = Farm size

A= Homestead area (including pond & garden)

B= Land under own cultivation

C= Land given to others on barga

D= Land taken from others on barga

E= Land taken from others on lease

Actual size of the farm was considered as the score of the farm size. For example, if a respondent had 0.05 ha of land then his score was 0.05. The data were first recorded in local

unit and then converted to hectare (A.4 of the interview schedule; Appendix I). Based on farm size, the respondents were classified into five categories as shown in Table 3.4.

Table 3.4 Categories of respondents according to farm size

Categories	Score (ha)
Landless farmers	<0.02
Marginal farmers	0.02 -0.20
Small farmers	0.21- 1.0
Medium farmers	1.01-3.0
Large farmers	>3

3.6.2.5 Annual family income of the respondents

Family income of a respondent was measured on the basis of total yearly earning from agriculture and his/her other sources (service, business, daily labor etc.) by the respondent and other family members. In calculating the family income of a respondent, income of that respondent as well as his/her family members (earned from different sources) in the year 2017 were added together to obtain total family income of a respondent. Data obtained in response to question A.5 of the interview schedule (Appendix I) were used to calculate the income score of a respondent. The respondents were classified into following categories according to annual income as shown in Table 3.5.

Table 3.5 Categories of respondents according to annual family income

Categories	Taka “ 000” (BDT)
Low income	≤75
Medium income	76-150
High income	>150

3.6.2.6 Agricultural training

The training experience score was determined based on the number of training received by the respondents considering duration of training. For example, a respondent received one training; his training score was '1' irrespective of its duration. Based on training score, the respondents were classified into following categories.

Table 3.6 Categories of respondents according to their training experience

Categories	Score
No training experience	0
Low training experience	1-3
Medium training experience	4-6
High training experience	>6

3.6.2.7 Organizational participation of the respondents

Organizational participation of a respondent was measured by the nature and duration of participation in selected organizations. For example a respondent participate one organization; his organization participation score was '1' irrespective of its duration. Based on organizational participation score, the respondents were classified into following categories.

Based on organizational participation scores, the respondents were grouped into following categories as shown in Table 3.7.

Table 3.7 Categories of the respondents based on organizational participation

Categories	Score (No. of organization)
No Participation	0
Low participation	1-3
Medium participation	4-6
High participation	>6

3.6.2.8 Cosmopolitanism of the respondents

Cosmopolitanism is measured by the following method. Cosmopolitanism of the respondent was measured by the frequencies of visit to the places external to his own social system. The respondent was asked to mention the number of visits made in seven different places in terms of frequently, occasionally, rarely and not at all and the assigned scores were 3, 2, 1 and 0 respectively. Cosmopolitanism scores of a respondent could scores ranged from 0-21. A score of 0 indicated no cosmopolitanism and 21 indicated very high cosmopolitanism. Cosmopolitanism of the respondents has been shown in the item A.8 in the interview schedule (Appendix I). The respondents were classified into the following categories based on the cosmopolitanism scores as shown in Table 3.8.

Table 3.8 Categories of the respondents according to their cosmopolitanism

Categories	Score
No cosmopolitanism	0
Low cosmopolitanism	1-7
Medium cosmopolitanism	8-14
Higher cosmopolitanism	15-21

3.7 Use of mobile phone (Dependent variable)

3.7.1 Use of mobile phone in seeking information from different agricultural sources

The use of mobile phone in seeking information from different agricultural sources was measured with four-point rating scale. Score assigned to each of the responses as 3 for regularly, 2 for occasionally, 1 for rarely and 0 for not at all. Thus the total possible score could range from 0 to 27, where '0' indicated no use and '27' indicates high use mobile phone in receiving agricultural information.

Use of mobile phone in seeking information from different agricultural sources for each issue was calculated by using Mobile Phone

Mobile Phone Use Index (MPUI) and it was computed by using the following formula:

$$MPUI = N_{reg} \times 3 + N_{oc} \times 2 + N_r \times 1 + N_n \times 0$$

Where,

N_{reg} = Number of farmers use mobile phone regularly

N_{oc} = Number of farmers use mobile phone occasionally

N_r = Number of farmers use mobile phone rarely

N_n = Number of farmers never use mobile phone in seeking agricultural information

Thus, MPUI could vary from 0 to 306 where 0 indicates no use and 306 indicate regular use of

Mobile phone. Each issue was ranked according to obtained score.

Based on the score, the respondents were also classified into four categories as shown in the Table 3.9.

Table 3.9 Categories of the respondents according to their use of mobile phone in seeking information from different agricultural sources score

Categories	Score
Not at all	0
Rarely	1-9
Occasionally	10-18
Regularly	19-27

3.7.2 Nature of mobile phone use for seeking information from different agricultural sources

The nature of cell phone use for seeking information from different agricultural sources was measured with four-point rating scale. Score assigned to each of the responses as 3 for regularly, 2 for occasionally, 1 for rarely and 0 for not at all. Thus the total possible score could range from 0 to 15, where '0' indicated no use and '15' indicates high use mobile phone in receiving agricultural information.

Nature of mobile phone use in seeking information from different agricultural sources for each issue was calculated by using Mobile Phone

Nature of Mobile Phone Use Index (NMPUI) and it was computed by using the following formula:

$$NMPUI = N_{reg} \times 3 + N_{oc} \times 2 + N_r \times 1 + N_n \times 0$$

Where,

N_{reg} = Number of farmers use mobile phone regularly

N_{oc} = Number of farmers use mobile phone occasionally

N_r = Number of farmers use mobile phone rarely

N_n = Number of farmers never use mobile phone in seeking agricultural information

Thus, NMPUI could vary from 0 to 306 where 0 indicates no use and 306 indicate regular use of mobile-phone. Each issue was ranked according to obtained score.

Based on the score, the respondents were also classified into four categories as shown in the Table 3.10.

Table 3.10 Categories of the respondents according to their nature of mobile phone use in seeking information from different agricultural sources score

Categories	Score
Not at all	0
Rarely	1-5
Occasionally	6-10
Regularly	>10



3.8 Problem Confrontation

A number of 6 problem related use of mobile phone was included in the interview schedule (Item no. B.3; Appendix I). A 5-point scale such as very high, high, moderate, little and not at all was employed against each of the problem and a score of 4, 3, 2, 1 and 0 was assigned against the rating scale respectively. Each of the respondents was asked to rate the extent of problem confrontation against each of the 6 problems. Thus, the problem confrontation score of a respondent could range from '0' to '24' where '0' indicate no problem confrontation and '24' indicate high problem confrontation. Based on problem confrontation scores, the respondents were classified into following categories as shown in Table 3.11.

Table 3.11 Categories of respondents according to their problem confrontation score

Categories	Score
No problem confrontation	0
Low problem confrontation	1-6
Medium problem confrontation	7-12
High problem confrontation	13-18

3.9 Statistical Analysis

After collection, data were analyzed and tabulated for interpretation. Statistical treatments such as number, mean, standard deviation, range, rank order etc. were used to interpret data. To explore relationship between any two variables Pearson's product correlation coefficient 'r' as well as Spearman rank correlation (ρ) were employed. For analysis of data Statistical Package for Social Science (SPSS) version 20 was used.

CHAPTER IV

RESULTS AND DISCUSSION

The findings of the study and interpretation of results with necessary discussion have been presented in this chapter. The results of this study have been presented according to the objectives. Firstly, the selected characteristics of the respondents have been presented in section 4.1, the farmers' extent of use of mobile phone are presented in section 4.2, the relationships between the selected characteristics of the respondents and their extent of use of mobile-phone are presented in section 4.3 and finally the problems confronted by the farmers in using cell phone for receiving agricultural information presented in section 4.4.

4.1 Selected characteristics of the respondents

4.1.1 Age of the respondents

The age of the respondents was markedly varied. Based on age, the respondents classified into different categories are shown in Table 4.1.

Table 4.1 Distribution of the respondents according to their age

Categories	Score (Year)	Respondent (N=102)		Mean	Sd	Range	
		Number	Percentage (%)			Min	Max
Young	≤ 35	38	37.3	41.11	10.47	24	65
Middle aged	36-50	47	46.1				
Old	>50	17	16.7				
Total		102	100.00				

Data furnished in the Table 4.1 reveals that the about half (46.1%) of the respondents were middle aged as compared to 37.3% being young and 16.7% old. It means that middle aged as compared as young people of that locality were more interested to use mobile phone in their communication.

4.1.2 Educational qualification of the respondents

The educational qualification score of the respondents ranged from 0 to 16 with mean and standard deviation of 6.02 and 4.2, respectively. On the basis of education, the respondents were categorized into five categories as shown in Table 4.2.

Table 4.2 Distribution of the respondents according to educational qualification

Categories	Score (Year of schooling)	Respondent (N=102)		Mean	Sd	Range	
		Number	Percentage (%)			Min	Max
Illiterate	0	24	23.5	6.02	4.2	0	16
Primary	1-5	29	28.4				
Secondary	6-10	37	36.3				
Higher secondary	11-12	9	8.8				
Graduate or Above	>12	3	2.9				
Total		102	100				

Data presented in the Table 4.2 demonstrates that more than one-third (36.3%) of the respondents had secondary level of education followed by primary (28.4%), illiterate (23.5%), higher secondary (8.8%) and rest (2.9%) graduate or above.

4.1.3 Farming experience of the respondents

The farming experience score of the respondents ranged from 2 to 45 with a mean and standard deviation of 20.36 and 10.42 respectively. Based on farming experience, the respondents were classified into low (≤ 10), medium (11-20) and high (> 20) categories as shown in Table 4.3.

Table 4.3 Distribution of the respondents according to their farming experience

Categories	Score (Year)	Respondent (N=80)		Mean	Sd	Range	
		Number	Percentage (%)			Min	Max
Low experience	≤10	23	22.5	20.36	10.42	2	45
Medium experience	11-20	36	35.3				
High experience	>20	43	42.2				
Total		102	100				

Table 4.3 indicates that highest proportion (42.2%) of the respondents were high experienced in farming followed by medium experience (35.3%) and (22.5%) respondents had low experience.

4.1.4 Farm size of the respondents

The observed farm size scores of the respondents varied from 0.03 hectare to hectares 1.81. The average farm size was 0.62 hectares and the standard deviation was 0.43. The distribution of the respondents according to their farm size is shown in Table 4.4.

Table 4.4 Distribution of the respondents according to their farm size

Categories	Score (ha)	Respondents (102)		Mean	SD	Range	
		Number	Percentage (%)			Min	Max
Landless	<0.02	0	0	.62	.43	.03	1.81
Marginal	0.02-0.20	19	18.6				
Small	0.21-1.00	63	61.8				
Medium	1.01-3.00	20	19.6				
Large	>3.00	0	0				
Total		102	100				

The findings show that majority (61.8%) of the respondents possessed small farm size compared to 18.6% and 19.6% of them having marginal and medium farm size respectively. None of the respondents belong to landless and large farm categories.

4.1.5 Annual family income of the respondents

Annual family income of the respondents ranged from 50 to 150 with a mean of 90.29 and standard deviation of 24.97. The distribution of the respondents according to their annual family income is shown in Table 4.5.

Table 4.5 Distribution of respondents according to annual income of their family

Categories	Scores "30000"(Tk)	Respondents (N=102)		Mean	SD	Range	
		Number	Percentage (%)			Min	Max
Low income	≤75	32	31.4	90.29	24.97	50	150
Medium income	76-150	70	68.6				
High income	>150	0	0				
Total		102	100				

Data presented in Table 4.5 reveals that the majority (68.6%) of the respondents had medium income while 31.8% had low income. None of the respondents belong to high income categories.

4.1.6 Training experience of the respondents

Training experience scores of the respondents ranged from 0 to 4 with an average score of 1.94 and standard deviation being 1.3. Based on the number of training received, the respondents were grouped into four categories as shown in Table 4.6.

Table. 4.6 Distribution of the respondents according to their participation in training experience on agriculture

Categories	Score	Respondent (N=102)		Mean	Sd	Range	
		Number	Percentage (%)			Min	Max
No training	0	28	27.5	1.94	1.3	0	4
Low training	1-3	63	61.8				
Medium training	4-6	11	10.8				
High training	>6	0	0				
Total		102	100.00				

Analysis of data presented in Table 4.6 shows that about (27.5%) of the respondents had no training. However, majority (61.8%) of the respondents had low training while 10.8% of the respondents had medium training. None of the respondent had high training experience.

4.1.7 Organizational participation of the respondents

The observed organizational participation score of the respondents ranged from 0 to 4 with a mean of 1.91 and standard deviation of 1.5; respectively. The distribution of the respondents according to organizational participation their score is presented in Table 4.7.

Table 4.7 Distribution of the respondents according to their organizational participation

Categories	Score	Respondent (N=102)		Mean	Sd	Range	
		Number	Percentage (%)			Min	Max
No	0	34	33.3	1.91	1.5	0	4
Low	1-3	48	47.1				
Medium	4-6	20	19.6				
High	>6	0	0				
Total		102	100.00				

Data contained in Table 4.7 indicates that highest proportion (47.1%) of the respondents had low level of organizational participation. On the other hand, one-third (33.3%) of the respondents had no organizational participation and only (19.6%) respondents having high organizational participation. None of the respondent had high organization participation.

4.1.8 Cosmopolitaness of the respondents

Cosmopolitaness of the respondents ranged from 7 to 16 with a mean of 12.74 and standard deviation of 2.1. The distribution of respondents according to their cosmopolitaness is shown in Table 4.8.

Table 4.8 Distribution of respondents according to cosmopolitaness

Categories	Score	Respondent (N=102)		Mean	Sd	Range	
		Number	Percentage (%)			Min	Max
Not at all	0	0	0	12.74	2.1	7	16
Rarely	1-7	3	2.9				
Occasionally	8-14	75	73.5				
Regularly	15-21	24	23.5				
Total		102	100.00				

Data contained in Table 4.8 reveals that less than three-fourth (73.5%) of the respondents had medium cosmopolitaness compared to 23.5% had high cosmopolitaness and 2.9% of the respondents had low cosmopolitaness. None of respondents belonged to no cosmopolitaness categories.

4.2 Extent of use of mobile phone

4.2.1 Use of mobile phone in seeking information from different agricultural sources

The extent of use score of the respondent varied from 10 to 18 with a mean and standard deviation of 13.46 and 1.7, respectively. On the basis of extent of use score the respondents were classified into four categories which is presented in Table 4.9.

Table 4.9 Distribution of respondents according to their extent of use of mobile phone in seeking information from different agricultural sources

Categories	Score	Respondent (N=102)		Mean	Sd	Range	
		Number	Percentage (%)			Min	Max
Not at all	0	0	0	13.46	1.7	10	18
Rarely	1-9	2	2				
Occasionally	10-18	100	98				
Regularly	19-27	0	0				
Total		102	100.00				

It was revealed from the study that most 98% of the respondents had medium level of source-accession using mobile phones while very few 2% of the respondents had low-level of source-accession using mobile phones in seeking agricultural information from different sources. The findings of the study did not match with other study.

4.2.2 Comparative extent of use of farmers regarding individual statement related to mobile phone in seeking information from different agricultural source

Based on the Mobile Phone Use Index (MPUI) score, the statement was also arranged in rank order as shown in the Table 4.10.

Table 4.10 Relative position (rank order) of the statements related to mobile phone in seeking information from different agricultural sources

Sl. no	Statement	MPUI	Rank
1	SAAO	300	1 st
2	AEO	222	4 th
3	UAO	185	7 th
4	Seed dealer	281	2 nd
5	Fertilizer dealer	206	5 th
6	Pesticide dealer	203	6 th
7	Model farmer	279	3 rd
8	Banglalink krishigigysha	0	8 th =
9	Radio talk	0	8 th =

Data presented in Table 4.10 indicate that the highest accessed source of agricultural information, based on access regularity, was SAAO (1st) followed by seed dealer (2nd) and model farmer (3rd); while AEO and UAO ranked 4th and 7th respectively in this regard.

4.2.3 Nature of mobile phone use for seeking agricultural information

The nature of mobile phone use score of the respondent varied from 1 to 6 with a mean and standard deviation of 2.75 and 1.2, respectively. On the basis of nature of mobile phone use score the respondents were classified into four categories which is presented in Table 4.11.

Table 4.11 Distribution of respondents according to their nature of mobile phone use for seeking agricultural information

Categories	Score	Respondent (N=102)		Mean	Sd	Range	
		Number	Percentage (%)			Min	Max
Not at all	0	0	0	2.75	1.2	1	6
Rarely	1-5	99	97.1				
Occasionally	6-10	3	2.9				
Regularly	>10	0	0				
Total		102	100.00				

It was revealed from the study that most 97.1% of the respondents had low level of use of different mobile communication pathways (e.g., phone call, SMS, etc.) while very few 2.9% of the respondents had medium level of use in their nature of mobile phone use regarding different mobile communication pathways for seeking agricultural information.

4.2.4 Comparative nature of farmers regarding individual statement related to mobile phone use for seeking agricultural information

Based on the Nature of Mobile Phone Use Index (NMPUI) score, the statement was also arranged in rank order as shown in the Table 4.12.

Table 4.12 Relative position (rank order) of the nature of mobile phone high in seeking information from different agricultural sources

Sl. no	Statement	NMPUI	Rank
1	Phone call	271	1 st
2	SMS	50	2 nd
3	MMS	0	4 ^{th=}
4	Video call	0	4 ^{th=}
5	Internet surfing	10	3 rd

Data presented in Table 4.12 indicate that the farmers' seeded informed for different source thing communication pathway was phone call (1st) followed by SMS (2nd) and internet surfing (3rd). They also expressed their no use of mobile phone though MMS and 'Video call'.

4.3 Relationship between the selected characteristics of the respondents and their extent of use of mobile-phone

4.3.1 Relationship between the selected characteristics of the respondents and their extent of use of mobile phone in seeking information from different agricultural sources

This section deals with the relationship between eight selected characteristics of the mobile phone users (farmers') and their use of mobile phone in seeking information from different agricultural sources. To explore the relationships between the selected characteristics of the respondents and their use of mobile phone in seeking information from different agricultural sources Pearson's Product Moment Co-efficient of Correlation (r) as well as Spearman Rank Correlation Coefficient (ρ) were used. Here age, educational qualification, farming experience, farm size and annual family income used Pearson's Product Moment Co-efficient of Correlation (r) and agricultural training, organizational participation and cosmopolitaness were used Spearman Rank Correlation Coefficient (ρ). The relationship of the selected characteristics of the respondents with their extent of adoption appears in Table 4.13.

Table 4.13 Computed coefficient of correlation (r) and spearman rank correlation between the selected characteristics of the respondents and their use of mobile phone in seeking information from different agricultural sources

Characteristics (Independent variable)	Dependent variable	Correlation coefficient	Remark
Age	Extent of Use of mobile phone in seeking information from different agricultural source	.203*	PPCC
Educational qualification		-0.025	PPCC
Farming experience		0.202*	PPCC
Farm size		-0.016	PPCC
Annual family income		-0.107	PPCC
Agricultural training		-0.102	SRCC
Organizational participation		0.027	SRCC
Cosmopolitaness		0.081	SRCC

NS= Non-significant **. Correlation is significant at the 0.01 level (2-tailed) * Correlation is significant at the 0.05 level (2-tailed). PPCC = Pearson's Product Moment co-efficient of correlation. SRCC = Spearman Rank Correlation Coefficient

Data presented in Table 4.13 shows that among eight selected characteristics of the respondents' age and farming experience showed a significant positive relationship with their extent of use of mobile phone. It means that with the increases of age and farming experience extent of use of mobile phone in seeking information from different agricultural sources increase significantly. The findings of the study about age have harmony with the findings of Galindo (1994). He found that the exposure to the communication media had a significant relationship with the age of the farmers.

4.3.2 Relationship between the selected characteristics of the respondents and their nature of mobile phone use for seeking agricultural information

To explore the relationships between the selected characteristics of the respondents and their nature of mobile phone use for seeking agricultural information Pearson's Product Moment Co-efficient of Correlation (r) as well as Spearman Rank Correlation Coefficient were used. The relationship of the selected characteristics of the respondents with their extent of adoption appears in Table 4.14.

Table 4.14 Computed coefficient of correlation (r) and spearman rank correlation between the selected characteristics of the respondents and their nature of mobile phone use in seeking agricultural information from different agricultural sources

Characteristics (Independent variable)	Dependent variable	Correlation coefficient	Remark
Age	Nature of use of mobile phone in seeking information from different agricultural source	-0.299**	PPCC
Educational qualification		0.363**	PPCC
Farming experience		-0.326**	PPCC
Farm size		-0.035	PPCC
Annual family income		-0.033	PPCC
Agricultural training		-0.081	SRCC
Organizational participation		-0.020	SRCC
Cosmopolitaness		0.128	SRCC

NS= Non-significant **. Correlation is significant at the 0.01 level (2-tailed) * Correlation is significant at the 0.05 level (2-tailed). PPCC = Pearson's Product Moment co-efficient of correlation. SRCC = Spearman Rank Correlation Coefficient

Data presented in Table 4.14 shows that among eight selected characteristics of the respondents' age and farming experience showed a significant negative relationship with their nature of mobile phone use for seeking agricultural information. It means that with the increases of age and farming experience nature of mobile phone use for seeking agricultural

information decrease significantly. The findings of the study about age have harmony with the findings of Anisuzzaman (2003). He found that age of the farmers had negative and significant relationship with the use of communication media. Nuruzzaman (2003) conducted that age of the farmers had significant negative relationship with the use of mass media.

4.4 Problem Confrontation

Problem confrontation score of the respondents ranged from 12 to 21 with a mean of 16.27 and standard deviation of 1.6. The distribution of respondents according to their problem confrontation score is shown in Table 4.15.

Table 4.15 Distribution of respondents according to problem confrontation score

Categories	Score	Respondent (N=102)		Mean	Sd	Range	
		Number	Percentage (%)			Min	Max
No	0	0	0	16.27	1.6	12	21
Low	1-6	0	0				
Medium	7-12	55	53.9				
High	13-18	47	46.1				
Total		102	100.00				

Data presented in Table 4.15 indicates that majority (53.9%) of the respondents had medium level of problem confrontation followed by high (46.1%) of the respondents had high level of problem confrontation. None of respondents belonged to no to low level of confrontation categories.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The study was conducted to have an idea about use of mobile phone in seeking information from different agricultural sources by the farmers. The researcher deliberately selected five villages from Bathiaghata upazila under Khulna district namely Raingamari, sachibunia, Dorgatola, Jhorvanga and Mathavanga. A number of 102 mobile phone users from the study area were randomly selected. This 102 mobile phone user were treated as sample of the study. Data were collected randomly from selected 102 respondents through interview method by the researcher himself using an interview schedule during 6 March to 10 April, 2018.

5.1 Summary of Findings

5.1.1 Selected characteristics of the respondents (Independent variable)

The major findings of the study are summarized below:

Age

Age of the farmers ranged from 24 to 65 years with the average of 41.11 years and the standard deviation was 10.47. About half (46.1%) of the respondents were middle aged as compared to 37.3% being young and 16.7% old. It means that middle aged as compared as young people of that locality were more interested to use mobile phone in their communication.

Educational qualification

The educational qualification score of the respondents ranged from 0 to 16 with mean and standard deviation of 6.02 and 4.2, respectively. More than one-third (36.3%) of the respondents had secondary level of education followed by primary (28.4%), illiterate (23.5%), higher secondary (8.8%) and rest (2.9%) graduate or above.

Farming experience

The farming experience score of the respondents ranged from 2 to 45 with a mean and standard deviation of 20.36 and 10.42 respectively. Highest proportion (42.2%) of the respondents were high experienced in farming followed by medium experience (35.3%) and (22.5%) respondents had low experience.

Farm size

The observed farm size scores of the respondents varied from 0.03 hectare to hectares 1.81. The average farm size was 0.62 hectares and the standard deviation was 0.43. The findings show that majority (61.8%) of the respondents possessed small farm size compared to 18.6% and 19.6% of them having marginal and medium farm size respectively. None of the respondents belong to landless and large farm categories.

Annual family income

Annual family income of the respondents ranged from 50 to 150 with a mean of 90.29 and standard deviation of 24.97. Majority (68.6%) of the respondents had medium income while 31.8% had low income. None of the respondents belong to high income categories.

Training experience

Training experience scores of the respondents ranged from 0 to 4 with an average score of 1.94 and standard deviation being 1.3. About (27.5%) of the respondents had no training. However, majority (61.8%) of the respondents had low training while 10.8% of the respondents had medium training. None of the respondent had high training experience.

Organizational participation of the respondents

The observed organizational participation score of the respondents ranged from 0 to 4 with a mean of 1.91 and standard deviation of 1.5; respectively. Highest proportion (47.1%) of the respondents had low level of organizational participation. On the other hand, one-third (33.3%) of the respondents had no organizational participation and only (19.6%) respondents having high organizational participation. None of the respondent had high organization participation.

Cosmopolitanness of the respondents

Cosmopolitanness of the respondents ranged from 7 to 16 with a mean of 12.74 and standard deviation of 2.1. Less than three-fourth (73.5%) of the respondents had medium cosmopolitanness compared to 23.5% had high cosmopolitanness and 2.9% of the respondents had low cosmopolitanness. None of respondents belonged to no cosmopolitanness categories.

5.1.2 Use of mobile phone in seeking information from different agricultural sources (Dependent variable)

The extent of use score of the respondent varied from 10 to 18 with a mean and standard deviation of 13.46 and 1.7, respectively. It was revealed from the study that most (98%) of the respondents had medium level of use while (2%) of the respondents had low use of phone in seeking information from different agricultural source. The findings of the study did not match with other study.

5.1.3 Nature of mobile phone use for seeking agricultural information (Dependent variable)

The nature of mobile phone use score of the respondent varied from 1 to 6 with a mean and standard deviation of 2.75 and 1.2, respectively. It was revealed from the study that most (97.1%) of the respondents had low level of use while (3%) of the respondents had medium level use. The findings of the study did not match with other study.

5.1.4 Relationship between the selected characteristics of the respondents and their use of mobile phone in seeking information from different agricultural sources

Among eight selected characteristics of the respondents' age and farming experience showed a significant positive relationship with their extent of use of mobile phone. The rest characteristics did not show any significant relationships with adoption.

5.1.5 Relationship between the selected characteristics of the respondents and their nature of mobile phone use for seeking agricultural information

Among eight selected characteristics of the respondents' age and farming experience showed a significant negative relationship with their nature of mobile phone use for seeking agricultural information. The rest characteristics did not show any significant relationships with adoption.

5.1.6 Problem Confrontation

Problem confrontation score of the respondents ranged from 12 to 21 with a mean of 16.27 and standard deviation of 1.6. Majority (53.9%) of the respondents had medium level of problem confrontation followed by (46.1%) of the respondents had high level of problem confrontation. None of respondents belonged to no to low level of confrontation categories.

5.2 Conclusions

Based on result and its logical interpretation the following conclusions are drawn:

Most of the respondents had medium level of use of mobile phone followed by low use of mobile phone regarding source-accession in seeking agricultural information from different sources. Most of the respondents had low level of use of different mobile communication pathways (e.g., phone call, SMS, etc.) while very few of the respondents had medium level of use in their nature of mobile phone use regarding different mobile communication pathways for seeking agricultural information.

Among eight selected characteristics of the respondents, age and farming experience showed a significant positive relationship with their extent of use of mobile phone for seeking agricultural information. The farmers had had medium level of problem confrontation followed by high level of problem confrontation.

The farmers might be encouraged more by mitigating the faced problems regarding agricultural information seeking by mobile phones.

5.3 Recommendations

1. Similar research should be conducted by the researchers in other areas of Bangladesh.
2. Majority of the respondents had medium level of use of mobile phone in seeking agricultural information. So in order to increase use of mobile phone for seeking agricultural information it is necessary to motivate farmers through training and other extension approaches. Department of Agricultural Extension (DAE) along with experts NGO representatives, different social media and mass media can play a crucial role in this regard.



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APPENDIX I
AGROTECHNOLOGY DISCIPLINE
KHULNA UNIVERSITY
KHULNA

Interview Schedule for the Study of

**USE OF MOBILE PHONE IN SEEKING INFORMATION FROM DIFFERENT
 AGRICULTURAL SOURCES**

Serial No:

Date: / / 2018

Name of the respondent:

Husband/ Father's Name: Village:

Upazila:

Union:

District:

A. Socio-economic characteristics of the respondent

A.1. Age Years

A.2. Educational qualification

a. Don't read and Write. ()

b. I have read up to class

A.3. Farming experience Years

A.4. Farm size:

According to use, please indicate the area of land that your family possess.

Sl. No.	Type of land use	Area of land	
		Local Unit	Hectare
1.	Homestead		
2.	Own land under own cultivation		
3.	Own land given to others on barga		
4.	Land taken from other on barga		
5.	Land taken from others on lease		
	Total = (FS = A + B + 1/2(C + D) + E)		

A.5. Annual family income:

A. Agriculture

Sl. No.	Sources	Amount (Tk)
1	Crop	
2	Livestock	
3	Fisheries	
4	Poultry	
6	Other	
	Total	

B. Non-agriculture

Sl. No.	Sources	Amount (Tk)
1	Service	
2	Business	
3	Laboring	
4	Others	
	Total	

Grand Total = A+B=..... TK

A.6. Training experience:

Have you received any training on agricultural issues () yes/ () No

If, yes please specify the training experience

Name of Training	Organized by	Duration

A.7. Organizational participation:

Please indicate the nature of your present or past participation in the following organization.

Sl. No.	Name of organizations	Nature of participation (with duration)				
		Executive committee officer (3)	Executive committee member (2)	Ordinary member (1)	Not Involved (0)	Duration (years)
1	Farmers' cooperative committee					
2	NGO society					
3	Youth club					
4	Union Parisad					
5	Mosque/Temple/Madrasha / School					

A.8. Cosmopolitaness:

Sl. No.	Place of visits	Frequency of visit			
		Regularly (3)	Occasionally (2)	Rarely (1)	Not at all (0)
1	Visit to other villages	>5 times /month	3-4times/month	1-2times/month	0 time/month
2	Visit to other union	>5 times /month	3-4times/month	1-2 times/month	0 time/month
3	Visit to own Upazilla Sadar	>4 times /month	2-3 times/month	1 time/month	0 time/month
4	Visit to other Upazilla Sadar	>3 times /year	2 times/year	1 time/year	0time/year
5	Visit to own District town	>4 times /year	2-3 times/year	1 time/year	0time/year
6	Visit to other District town	>3 times /year	2 times/year	1 time/year	0time/year
7	Visit to Capital city(Dhaka)	>3 times /year	2 times /year	1 time/year	0time/year

B.1. A. Use of mobile phone in seeking information from different agricultural sources:

Sl	Name	Regularly (3)	Occasionally (2)	Rarely (1)	Not at all (0)
1	SAAO				
2	AEO				
3	UAO				
4	Seed dealer				
5	Fertilizer dealer				
6	Pesticide dealer				
7	Model Farmer				
8	Banglalink krishi Gigysha				
9	Radio talk				