USE OF MEDIA IN RECEIVING INFORMATION BY THE ROOFTOP GARDENERS

MST. GULNAHER AKTER

Department of Agricultural Extension and Information System
Sher-e-Bangla Agricultural University
Dhaka-1207

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Mst. Gulnaher Akter

Registration No. 17-08312

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Approved by:

Md. Abul Bashar
Supervisor &
Professor
Department of Agricultural Extension
and Information System
Sher-e-Bangla Agricultural University
Dhaka-1207

Dr. Muhammad Humayun Kabir
Co- Supervisor &
Professor
Department of Agricultural Extension
and Information System
Sher-e-Bangla Agricultural University
Dhaka-1207

Dr. Muhammad Humayun Kabir
Professor & Chairman
Department of Agricultural Extension and Information System
Sher-e-Bangla Agricultural University
Dhaka-1207

Department of Agricultural Extension and Information System

Sher-e-Bangla Agricultural University

Sher-e-Bangla Nagar, Dhaka-1207

CERTIFICATE

This is to certify that the thesis entitled, **"Use Of Media In Receiving Information By The Rooftop Gardeners"** submitted to the Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka in partial fulfilment of the requirements for the degree of **Master of Science (MS) in Agricultural Extension**, embodies the result of a piece of bona-fide research work conducted by **MST. GULNAHER AKTER, Registration no. 17-08312** under my supervision and guidance. No part of this thesis has been submitted for any other degree or diploma.

I further certify that any help or source of information, received during the course of this study has been dully acknowledgement by her.

Dated: DECEMBER, 2018

Dhaka, Bangladesh

Md. Abul Bashar

Supervisor &

Professor

Department of Agricultural Extension and Information System

Sher-e-Bangla Agricultural University

Dhaka-1207

Dedicated to
My
Beloved Parents

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The Author

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ABBREVIATION AND ACRONYMS

AEO	Agriculture Extension Officer
AIS	Agriculture Information Service
DAE	Department of Agricultural Extension
FAO	Food and Agriculture Organization of the United Nation
ICT	Information and Communication Technology
MOA	Ministry of Agriculture
SPSS	Statistical Package for Social Science
SAAO	Sub- Assistant Agriculture Officer
SAU	Sher-e-Bangla Agricultural University
UAO	Upazila Agriculture Officer
UNDP	United Nations Development Programme
URGS	Urban Rooftop Gardeners Society
WWW	World Wide Web

USE OF MEDIA IN RECEIVING INFORMATION BY THE ROOFTOP GARDENERS

ABSTRACT

The purpose of the study was to find out the extent of use of media in receiving information by the rooftop gardeners and to explore the relationship between the selected characteristics of the rooftop gardeners and their use of media in receiving information. The study had been conducted based on data collection in the selected area of Gulshan Block, Dhaka Metropolitan Agriculture Office. Data were collected from 90 rooftop gardeners from 10 April, 2019 to 10 May, 2019. Descriptive statistics, Pearson's Product Moment Coefficient of Correlation (r) were used for data analysis. The results show that the highest proportion (63.3 %) of the rooftop gardeners had medium use of media in receiving information and 18.9 percent of the rooftop gardeners had high use of media in receiving information and 17.8 percent fell in low use of media in receiving information. A significant positive relationship of rooftop gardeners' age, level of education, experience in rooftop gardening, knowledge on rooftop gardening with their use of media in receiving information were found. As per Media Use Index (MUI), Facebook ranked the 1st and Hand Books ranked as last position. It is recommended that the DAE, Horticultural Center, Metropolitan Agriculture Office and NGOs should take necessary steps considering the significant variables with a view to motivating the rooftop gardeners towards higher use of media in receiving information.

Keywords: Rooftop gardening, media, information;

CHAPTER I

INTRODUCTION

1.1. General Background

Bangladesh is recognized as one of the vulnerable countries as a victim of adverse impact of climate change. Urban ecology is the direct victim of the diminishing greens contributing to some extent towards global warming. The rate at which our temperature is rising day by day, a garden on the roof of every house can help cool the air, by absorbing excessive carbon dioxide. Not just that, of birds and the rarest species of insects rooftop gardens create biodiversity in nature, through the presence of different kinds (Jamaluddin M. *et al*, 2016). Urban Agriculture can provide city-dwellers with a source of fresh produce, improved diet and important household budgetary savings. It may also generate employment and economic facilities through its backward and forward linkages. A rooftop garden can supplement diets of a community as it supplies with fresh produce and provide a tangible benefits tie to food production. With rapid and unplanned urbanization, incidence of urban poverty and food insecurity has been also increasing alarmingly in Dhaka (Choguill 1995). An Urban Agriculture (UA) contributes to food security by increasing the supply of food and by enhancing the quality of perishable foods reaching urban consumers. A strong political commitment and solid policy guidelines are the preconditions for creating supportive environment for RTG. However, sometimes gardeners do not understand proper way of gardening due to lack of proper system, lack of information, lack of communication facilities etc. Modern agriculture is characterized among other things by the salient role of communication as factor of change and progress.

Adams (1982) defined media as any materials, objects, instruments or system which serves to communicate information including leaflets, farming press, other written and printed materials, all types of cinema films, radio and television and video system. Communication has also been defined as a process by which participants create and share information with one another in order to reach mutual understanding. He further defined communication as a process of sending and receiving messages through the channels and devices at a convergence and as established meaning between a source and receiver (Rogers, 1995). Electronic media transmit the agriculture innovation to the farming community. Undoubtedly, there has been a rapid quantitative diffusion of

mass media (Abubakar et. al., 2009; Onuekwusi and Gideon, 2007). Mass media are used for mass contact for impersonal transmission of messages to large audiences. The most generalized and widely accepted classification of mass media which is used in actual practice is print media and electronic media (Nwachukwu, 2003). Print media comprised of those forms of printed material which are distributed on a mass scale. These include newspapers, newsletters, books, grey literature i.e. brochuxes, bulletins, pamphlets, leaflets, hand bills and posters (Muntaqha, 2007). Electronic media include radio and television. The electronic gadgetry of information technology like transistors, video tape recorders, mobile cinema and other audio-visual equipment like sound slide system, slides and film strips and also included electronic media (Akangbe, 2005). According to (Balkrishna and Deshmukh, 2017) today's world is world of 'Social Media'. Various social media tools such as Facebook, Twitter, YouTube, LinkedIn, WhatsApp etc. are becoming greater ways of sharing information about agricultural produce and agricultural marketing. Social media and Information and Communication Technology (ICT) starts sharing of creation, information and advices for the particular cause. Increasing networking of mobile phones in rural areas, increases two way communication. Social media is becoming powerful tool and connects millions of people globally.

Apart from national and international consideration, the grass root population needs to understand the meaning and concept of use of media in receiving information by the gardeners. It is quite pertinent and necessary to know the extent of use of media in receiving information by the gardeners of Dhaka City. But a very limited research work has been done on this aspect. Therefore, the researcher felt necessity to conduct a research entitled "Use of media in receiving information by the rooftop gardeners".

1.2. Statement of the Problem

Rooftop gardening is new hype to urban dwellers for its recreational and healthy activities. Unfortunately gardener often struggle to get help and manage resources. Sometimes they lost interest as it require regular time and man to maintain the garden. Fortunately government organisation came up with set of facilities or packages to help those gardeners. There are also many private organisation including individual entrepreneurs from rural area often offer good bunch of help from their expertise and staffs. Apparently there are many useful communication media for each of them like for individual person they love to use personal relation , nursery or private company

try to involve integrated communication media specially television and government organisation on traditional communication media like Hand Books, leaflet, rally, fair etc. Besides these medium of communication there are few other medium which are ignored or less emphasise by the stakeholder like social media, internet, etc. In this current world urban people see news first on social media and internet then another medium. The urban people has strong communication among themselves in internet or social media. Reality is there are a huge gardening community is growing from social media which can be observed in social group like "Green Bangladesh", "Esho Bagan Kori", "Sobuj Sena", etc. This communities are not limiting themselves over internet they are meeting together, exchanging plants and arranging workshops using this media. The urban people are smart enough to google their problems, ideas and inspiration. It is easy and effective to communicate with them through this medium. So there are few medium left untapped. So if we can emphasis those use of media in receiving information by the rooftop gardeners then every stakeholder will be benefited.

So use of media in receiving information is an important aspect in the context of the above discussion, the researcher intended to find out the answers to the accompanying queries:

- What extent media are used by the rooftop gardeners in receiving information?
- What are the socio economic characteristics of the rooftop gardeners?
- Have there any relationship of selected characteristics of the rooftop gardeners with their use of media in receiving information?

In order to get a clear view of the above questions, the investigator undertook a study entitled "Use of media in receiving information by the rooftop gardeners"

1.3. Objectives of the Study

The objectives of the study are as follows:

i. To describe the following selected characteristics of the respondents

- Age
- Level of education
- Family size
- Experience in rooftop gardening
- Size of rooftop

- Types of plants for rooftop gardening
- Annual family income
- Annual Income from house rent
- Time spent in rooftop gardening
- Knowledge on rooftop gardening

ii. To find out the extent of use of media in receiving information by the rooftop gardener

iii. To make a rank order of the media used by the gardener

iv. To explore the relationship of the rooftop gardeners' selected characteristics with their use of media in receiving information.

1.4. Scope of the Study

The present study was designed to have an understanding of use of media in receiving information by the rooftop gardeners and to explore the relationship of the rooftop gardeners selected characteristics with their use of media in receiving information.

I. The findings of the study will, in particular, be applicable to the study area at Gulshan Block of Agriculture Extension Office, Gulshan in Dhaka Metropolitan City. The findings may also be applicable to other locale of Bangladesh where socio-cultural, psychological and economic circumstance do not differ much than those of the study areas.

II. The findings of the study may also be subsidiary to the field worker of extension service to enhance their action strategies on use of media in receiving information by the rooftop gardeners.

III. The findings of the study will be conducive to accelerate the improvement in agriculture, information needs and the way of dissemination especially tuned to key role players in the society as well as rooftop gardening. The outcomes might also be helpful to the planners, policymakers, extension workers and beneficiaries of agriculture.

To the academicians, it may help in the further conceptualization of the systems model for analyzing the use of media in receiving information by the rooftop gardeners. In addition, the findings of this study may have other empirical evidence to all aspects of use of media in receiving information by the rooftop gardeners which may be used to build the theory of the use of media in receiving information.

1.5. Justification of the Study

Information can play an important role in the production of agricultural goods and can generate wealth to a community as well as affect a whole country's future. The information brought to the area contains fresh ideas and introduces new opportunities and nobody can deny that the right to know and know the truth is a fundamental human right. The importance and potentials of media has been established in every walk of gardeners' life and play a very important role in organizations that occupied with the agricultural sector and aims to gardeners' information.

So, it is logical to investigate the use of media in receiving information by the rooftop gardeners. The finding of the study will be especially applicable to the Dhaka City will also have implications and applicability for other cities of the country, having similarities in physical, socio-economic and socio-cultural conditions with the study area. Thus, the findings are expected to be useful to extension workers and planners for their preparation of extension programmers for rapid action on the use of media in receiving information by the rooftop gardeners. The findings of the study are also therefore, expected to be conducive to the researchers, academicians and policy makers who are concerned with use of media in gardening. The present study will be undertaken to assess the extent of use of media in receiving information entitled "Use of media receiving information by the rooftop gardeners".

1.6. Assumptions of the Study

An assumption is the supposition that an apparent fact or principle is true in the light of available evidence (Goode and Hatt, 1952). The researcher had considered the following assumptions while undertaking the study:

i. The respondents were capable of furnishing proper answers to the questions contained in the interview schedule.

ii. The data collected by the researcher were free from any bias and they were normally distributed.

iii. The responses answered by the respondents were valid, acceptable and reliable.

iv. Information sought by the researcher elicited the real situation was the representative of the whole population of the study area to gratify the objectives of the study.

v. The researcher was well adjusted to herself with the social contiguous of the study area. Hence, the collected data from the respondents were free from favouritism.

The selected characteristics and use of media in receiving information by the gardeners of the study were normally and independently allotted with respective means and standard deviation.

1.7. Limitations of the Study

Considering the time, respondents, communication facilities and other necessary resources available to the researcher and to make the study manageable and meaningful, it became necessary to impose certain limitations as mentioned bellow:

i. The study was confined to only Gulshan Block of Agriculture Extension Office, Gulshan in Dhaka Metropolitan City which may fail to represent the actual scenario of the whole situation as people develop their strategies according to the concrete situation they face.

ii. It is difficult to get exact information on use of media in receiving information indicator from the respondents as many of them are elite society member.

iii. Characteristics of the respondents were many and varied, but only ten characteristics were selected for the research study.

iv. There were embarrassing situations at the time of data collection. So, the researcher had to manage proper rapport with the respondents to collect maximum proper information.

v. Several methods, scales and statistical tests have been utilized in this study over a relatively short period of time.

1.8. Definition of Important Terms

Media: Media (the singular form of which is medium) of collective communication outlets or tools that are used to store and deliver information or data. It is either

associated with communication media or the specialized mass media communication businesses such as print media and the press, photography, advertising, cinema, broadcasting (radio and television) and publishing.

Information: Information is that which informs. Information is any propagation of cause and effect within a system. Information is conveyed either as the content of a message or through direct or indirect observation of anything. That which is perceived can be construed as a message in its own right, and in that sense, information is always conveyed as the content of a message.

Rooftop Garden: A roof garden is a garden on the roof of a building. Besides the decorative benefit, roof plantings may provide food, temperature control, hydrological benefits, architectural enhancement, habitats or corridors for wildlife, recreational opportunities, and in large scale it may even have ecological benefits. The practice of cultivating food on the rooftop of buildings is sometimes referred to as rooftop farming.

Variable: The variable is a characteristic, which can assume varying, or different values in successive individual cases.

Independent or causal variable: An independent or causal variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationship to an observed phenomenon.

Dependent or focus variable: A dependent or focus variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variable.

Age: Age refers to the actual years from their birth to the time of the interview, which was found on the basis of the verbal response of the respondents.

Education: Education was measured by assigning score against each successful years of schooling.

Family size: Family size of a respondent refers to the total number of members in his/her family including him/her, children and other dependents.

Annual family income: The term annual family income refers to the annual gross income of respondents and members of his family from different sources.

Annual income from house rent: Annual income from house rent refers to the total financial return from house rent in one year.

Size of rooftop: The area under rooftop garden in which gardening operation carried out.

Time spent in rooftop gardening: Time spent in rooftop gardening was determined by the total of time involved in gardening per week.

Knowledge on rooftop gardening: Acts, information, and skills acquired by a person through experience or education; the theoretical or practical understanding of on rooftop gardening.

Use of information sources: It defines as one's extent of exposure to different communication media.

Hypothesis: A supposition or proposed explanation made on the basis of limited evidence as a starting point for further investigation.

Population: Population is the entire pool from which a statistical sample is drawn. The information obtained from the sample allows statisticians to develop hypotheses about the larger population. Researchers gather information horn a sample because of the difficulty of studying the entire population.

Sampling: Sampling is a statistical procedure that is concerned with the selection of the individual observation; it helps us to make statistical inferences about the population.

Data: Facts and statistics collected together for reference or analysis.

Variance: In probability theory and statistics, variance is the expectation of the squared deviation of a random variable from its mean, and it informally measures how far a set of (random) numbers are spread out from their mean.

Analysis: Detailed examination of the elements or structure of something, typically as a basis for discussion or interpretation.

Findings: The principal outcomes of a research project; what the project suggested, revealed or indicated. This usually refers to the totality of outcomes, rather than the conclusions or recommendations drawn from them.

Discussion: The purpose of the discussion is to interpret and describe the significance of your findings in light of what was already known about the research problem being investigated, and to explain any new understanding or insights about the problem after you've taken the findings into consideration.

Research methods: Research methods are a structured set of guidelines or activities to generate valid and reliable research results.

CHAPTER II

REVIEW OF LITERATURE

In this chapter, review of relevant literatures to the objectives of this study and mainly concerned with 'use of media in receiving information of rooftop gardeners' was presented. There was serious dearth of literature with respect to research studies on this aspect. So, the directly related literatures were not readily available for this study. Some researchers addressed various aspects of the use of media in receiving information and its effect on client group and suggesting strategies for their emancipation from socio-economic deprivations. A few of these studies relevant to this research are briefly discussed in this chapter under the following three sections:

1st. Use of media in agricultural activities including rooftop gardening

2nd. Review on the selected characteristics of farmers and use of media

3rd. Conceptual framework of the study

2.1. Use of Media in Agricultural Activities including Rooftop Gardening

Nira (2006) revealed that a highest proportion (94%) of the respondents had low use of information sources while only 6% had medium use of information sources. Nobody of the respondents was found having high rate of use information sources about roof gardening at Mirpur-10 area under Dhaka City.

Rahman (2014) observed that a highest proportion (53.30 %) of the respondents had low use of information sources while only 46.70 % had medium use of information sources. Nobody of the respondents was found having high rate of use information sources about roof top gardening. Above half of the respondents had low use of information sources because information of roof top gardening was not available at Mohammadpur area under Dhaka city.

Mithon (2016) showed that a highest proportion (42.7 percent) of the respondents had medium use of information sources as compared to 30.5 percent and 26.8 percent having low and high use of information sources respectively at Mirpur-1 under Dhaka city.

Kabir (2018) found that a largest proportion (45.29%) of the house owners fell in the medium media contact category, while 32.07 percent of them were in the low media

contact category and about 22.64 percent constituted the high media contact category. Media contact is important for gathering information from many sources. High media contact is essential for creating awareness about new idea, practice and issues among the house owners at two distinct Thana under Dhaka city.

Uddin (2008) stated that a highest proportion (76.4 percent) rural women of the study area had use low level of information sources, while percent had medium and 7.9 percent had use very low level of information sources at Shariatpur district.

Wangu (2014) revealed that a majority of respondents, 20.7% access the internet for agricultural information, followed by 16.9% who use extension services, then 14.3% seeking information from the social media and 13.0% from other farmers. Among the least used sources include radio and magazines, recording percentages of 7.8% and 3.9% respectively at Lower Kabete, Kiambu County in Kenya.

Wangu (2014) remarked a majority of gardeners use social media to seek for a variety of agricultural information, mostly scientific, educational and technology based, including training information, agrochemicals and technological information. A majority of gardeners however do not take as much interest in market based agricultural information including market trends, price, and stock available as well as credit facilities, source, terms and conditions at Lower Kabete, Kiambu County in Kenya

Gakuru *et al.* (2009) found out that basic information needs for farmers are market information prices, weather forecasts, transport facilities and information on storage facilities. This first type of data is, although vital and of concern to the farmer, quickly outdated and changes constantly. The second level of information needed is about crop and cattle diseases, fertilizers. The third level is more context and local specific and requires the direct interface between the extension worker and the farmer.

Gakuru et al. (2009) suggest that with the widespread use of mobile phones, voice and SMS solutions should find more use as they offer easy accessibility. However they point out that they may have some challenges as the SMS carries only a limited amount of information and requires a basic level of literacy. Voice-based solutions are also complicated to develop as they require machines to produce natural speech or good speech synthesis. They also do not offer detailed information such as pictorial illustrations as in web solutions.

Uddin (2015) revealed that about two third (64.50 o) of the respondents had medium use of ICTs in receiving agricultural information compared to 13.6 °o and 21.8 0'0 having low and high use of ICTs in receiving agricultural information respectively at Homnaupazilla of comilla district in Bangladesh.

Lucky (2012) stated that telephone is a quick way of making "contact" with the extension workers or farmers. Whenever we want to, it does not need any traveling up and down. Questions can be asked by farmers and answered by extension worker on the telephone on the spot without wasting too much time especially very urgent questions.

Gakuru ez‘ al. (2009) noted that in Tanzania, building on the utility of mobile phones as recording tools, listening devices, money-makers, and catalysts for dialogue, community radio stations are incorporating mobile technology into programming and it is being used for advisory services in agriculture.

According to Gakuru et al. (2009) agricultural informatics is a new concept that has arisen following the rapid development in ICT and the internet. Referred to as agriculture, agricultural informatics is an emerging field which combines the advances in agricultural informatics, agricultural development and entrepreneurship to provide better agricultural services, enhanced technology dissemination, and information delivery through the advances in ICT and the internet. The e-Agriculture concept, however, goes beyond technology, to the integration of knowledge and culture, aimed at improving communication and learning processes among relevant actors in agriculture at different levels that is locally, regionally and globally.

Kaini (2007) in a study found that ICTs was very important for developing agricultural sector. He found ICTs were very efficient in terms of time, cost and distance, developing agricultural programs through assisting access to new technologies, production inputs and market information.

Tanvir (2007) stated that ICTs for poverty alleviation through agricultural development was increasing rapidly electronic media which were far more effective in view of its high speed, vast range of coverage and particularly because it offers visual contents except in case of Radio.

Pandian (2002) conducted a study on the Effect of Video Education on Knowledge Retention and found direct positive effect with age, education, farming experience,

economic motivation, mass media exposure, extension agency contact, involvement in decision making, innovativeness and direct negative effect with respondents' annual income, farm size, social participation.

Egbule and Njoku (2001) in their study on communication technologies for adult education in Nigeria found that ICTs has performed poorly in disseminating requisite agricultural information to farmers, although there is a positive correlation between communication technologies usage and farm yield.

Papa (1991) conducted a study on intensity of extension contact and innovativeness of multiple cropping farmers in Philippines and the study showed that fifty four percent of the farmers had high intensity of extension contact while only forty seven percent had extent of innovativeness. The extension contact of teaching methodologies frequently preferred by the multiple cropping farmers were farm and home visit, leaflet, television, general meeting and seminar.

Djankovet al. (2001) reported that independent radio broadcasting services were found to be positively and significantly correlated with a range of development outcomes which included improved lives and better functioning markets.

Kirui et al. (2013) conducted a study on the effect of mobile phone-based money transfer, especially in agriculture to examine the effect of MMT services on household agricultural input use, agricultural commercialization and farm incomes among farm households in Kenya. It was observed in the study that mobile phone-based money transfer services significantly increased level of annual household input use by $42, household agricultural commercialization by 37% and household annual income by $224.

Xiaolan and Akhter (2009) conducted a study to examine the Effect of a mobile phone technology enhanced service delivery system on agricultural extension service delivery in India. They carried out the Effect analysis on the basis of randomized survey data taking potential systematic selection bias through double difference techniques and reflexive comparisons in consideration. It was observed that there was indirect benefit of the ICT enhanced service delivery system in the dimensions of greater awareness and knowledge in agriculture technology and information of the farmers. Farmers' attitudes towards trying new technologies in future was also improved.

Mittal and Tripathi (2009) on the use and Effect of mobile phones and mobile enabled services on agricultural productivity it was found that some of the farmers who used mobile phones for at least some agricultural activities reported about significant productivity gains.

Mangstl (2008) also reported that information regarding weather forecasts, where to get the best catch, local market information was communicated through mobile phone among the fishermen in Tanzania. It was also revealed that mobile phones were also used by them to coordinate pick-up of catches.

UNDP (2001) carried out a study and found that farmers' incomes were dramatically increased by receiving information about cr0p status, weather, global market prices and training through an internet network among the farmer organizations in Chile.

BanglarKrishi (2015) reported that the farmers are benefited by the instant solutions to their different problems regarding diseases and insects of crop, cultivation practices, fertilizer management, different agricultural aspects, livestock and fisheries from the experts and field level specialists over phone from Krishi Call Centre operated by Agriculture Information Service (AIS) under the M inistry of Agriculture (MoA).

AIS (2013) reported that the farmers are provided with the instant solutions to their problems related to agriculture, fisheries and livestock by the specialists in the relevant fields in Krishi Call Centre over phone in Bangladesh.

Katalyst (2012) reported that the farmers were able to access the timely and accurate information and become more knowledgeable about opportunities to improve agricultural practices, production, and farm investment decisions with the help of Grameenphone Community Information Centre (CIC) and the helpline services in Bangladesh. It was observed that the vast majority (90%) of the beneficiaries were benetitted by preventing near-certain losses through the access to information which assisted them to counter and remedy the identified pest, disease, and animal health concerns. It was also revealed that farmers achieved benefits ranging from BDT 1,000 (approximatelyUSD 12) to upwards of BDT 20,000 (USD 240).

Glendenning and Ficarelli (2012) observed that Lifeline (a mobileand Internet-based ICT project in agriculture which provides answers to farmer queries based on their

demand) had Effect on their productivity estimated to be around 20 percent as perceived by the farmers in India.

Ogutu et al. (2014) to evaluate the effect of an ICT-based market information services (MIS) project on farm input use and productivity in Kenya using Propensity Score Matching (PSM) technique. It was revealed from the study that there was a positive and significant effect of the intervention on the use of seeds; fertilizers, land, and labor productivity.

Lwoga and Ngulube (2008) revealed in a study that the farmers were able to improve their production, linkages to profitable markets, and reduce poverty by accessing agricultural knowledge and information through ICTs (such as, telecenters, cell phones and radio) in Tanzania.

2.2. Review on the Selected Characteristics of Farmers and Use of Media

2.2.1. Age and use of media

Jannat (2015) revealed that age had significant contribution to the impact of using ICT media by the farmers.

Ahmed (2012) it was observed that there was no significant relationship between age of the farmers and ICT utilization in agriculture by them.

Ali (2011) that age of the farmers had no significant relationship with adoption of mass media based information for decision-making in vegetable cultivation.

Pandian (2002) found that farmers‟ age had direct positive effect between age of the farmers and effect of use of video education on knowledge retention.

Reza (2007) reported that there was no significant relationship between the age of the farmers and their perceived effect of ICT use.

Nuruzzaman (2003) conducted a study and found that age of the farmers had significant negative relationship with the use of ICTs.

2.2.2. Education and use of media

Alam (2015) found that education showed significant and positive relationship with their use of cell phone.

Uddin (2015) found that education had significant contribution on their use of ICT media.

Jannat (2015) revealed that level of education had significant contribution to the impact of using ICT by the farmers.

Anisuzzaman(2003) concluded that the education of the farmers had significant positive relationship with their use of information and communication media.

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

2.2.3. Family Size and use of media

Kafura (2015) observed that there was no significant relationship between the family size of the farmers and the level of use of different ICT tools for agricultural purpose by them.

Ahmed (2012) observed that family size of the farmers had no significant relationship with ICT utilization in agriculture by them. However, there was different result also.

Okello *et al.* (2012) found in a study that the household size of the farmers was a factor negatively influencing the use of the mobile phone for agricultural transaction purposes by them.

2.2.4. Experience and use of media

Kafura (2015) noted that there was negative significant relationship between the farming experience of the farmers and the level of use of different ICT tools in agriculture by them.

Ogutu *et al.* (2014) revealed that no significant relationship was observed between the farming experience of the farmers and their participation in ICT based market information service projects for accessing to agricultural market information.

Reza (2007) revealed that no significant relationship was observed between farming experience of the farmers and the impact of use of ICT media.

Pandian (2002) reported that there was direct positive effect of the farm size on the impact of video education on the knowledge retention by the farmers.

2.2.5. Land size and use of media

Alam (2015) found land possession and effective farm size showed significant and positive relationship with their use of cell phone.

Uddin (2015) found that farm size had significant contribution on their use of ICT media.

Jannat (2015) revealed that effective farm size had significant contribution to the impact of using ICT by the farmers.

Khatun (2006) in her study concluded that farm size of the respondents had significant positive relationship with their homestead gardening.

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

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

2.2.6. Annual income and use of media

Alam (2015) found that annual family income showed significant and positive relationship with their use of cell phone.

Kafura (2015) revealed that there was positive significant relationship between the annual income of the farmers and the level of use of different ICT tools for agricultural purposes by them.

Uddin (2015) found that annual family income had significant contribution on their use of ICT media.

Ahmed (2012) observed that there was no significant relationship between the annual income of the farmers and utilization of ICT in agriculture by them.

Ali (2011) that income levels of the farmers are more likely to affect the adoption of mass media based information for decision-making in vegetable cultivation.

Reza (2007) noticed that annual income of the farmers had a positive significant relationship with their perceived effect of ICT use.

Lio and Liu (2006) revealed that the farmers in richer countries began to utilize new ICT (especially the internet) much more effectively to get enhanced agricultural productivity.

2.2.7. Knowledge and use of media

Jannat (2015) revealed that agricultural knowledge had significant contribution to the impact of using ICT by the farmers.

Ahmed (2012) observed that agricultural knowledge of the farmers had no significant relationship with the utilization of ICT in agriculture by them.

Qiang et al. (2012) that farmers' access to knowledge and information had contribution to the expansion of their capacity through the use of ICT media.

Reza (2007) found that positive significant relationship between agricultural knowledge of the farmers and the effect of use of ICT as perceived by them.

Karim (2005) observed that knowledge of the farmers had a significant positive relationship with the use of communication sources by them in improving cultural practices.

2.3. Conceptual Framework of the Study

In scientific research, selection and measurement of variables constitute an important task. Studies on individual, group and society revealed that acceptance of modern technologies is conditional upon many factors. Some of these are social, personal, economical and situational factors and the behaviour of rooftop gardeners are influenced by these characteristics. The hypothesis of a research while constructed properly consist at least two important elements i.e.: a dependent or focus variable and an independent or causal variable. A focus variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variables (Townsend, 1953). A causal variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationship to an observed phenomenon. Variables together are the causes and the phenomenon is effect and thus, there is cause effect relationship everywhere in the universe for a specific events or issues.

This study is concerned with the 'use of media in receiving information by the rooftop gardeners'. Thus, use of media in receiving information were the focus variable and 10 selected characteristics of rooftop gardeners were considered as causal variables

under the study. Use of media in receiving information of rooftop gardener may be affected through interacting forces of many causal variables. It is not possible to deal with all of the causal variables in a single study. It was therefore, necessary to limit causal variables, which age, level of education, family size, experience in rooftop gardening, size of rooftop, types of plants for rooftop gardening, annual family income, annual income from house rent, time spent in rooftop gardening and knowledge on rooftop gardening for this study. Considering the above-mentioned situation and discussion, a conceptual framework has been developed for this study, which is diagrammatically presented in the following Figure 2.1.

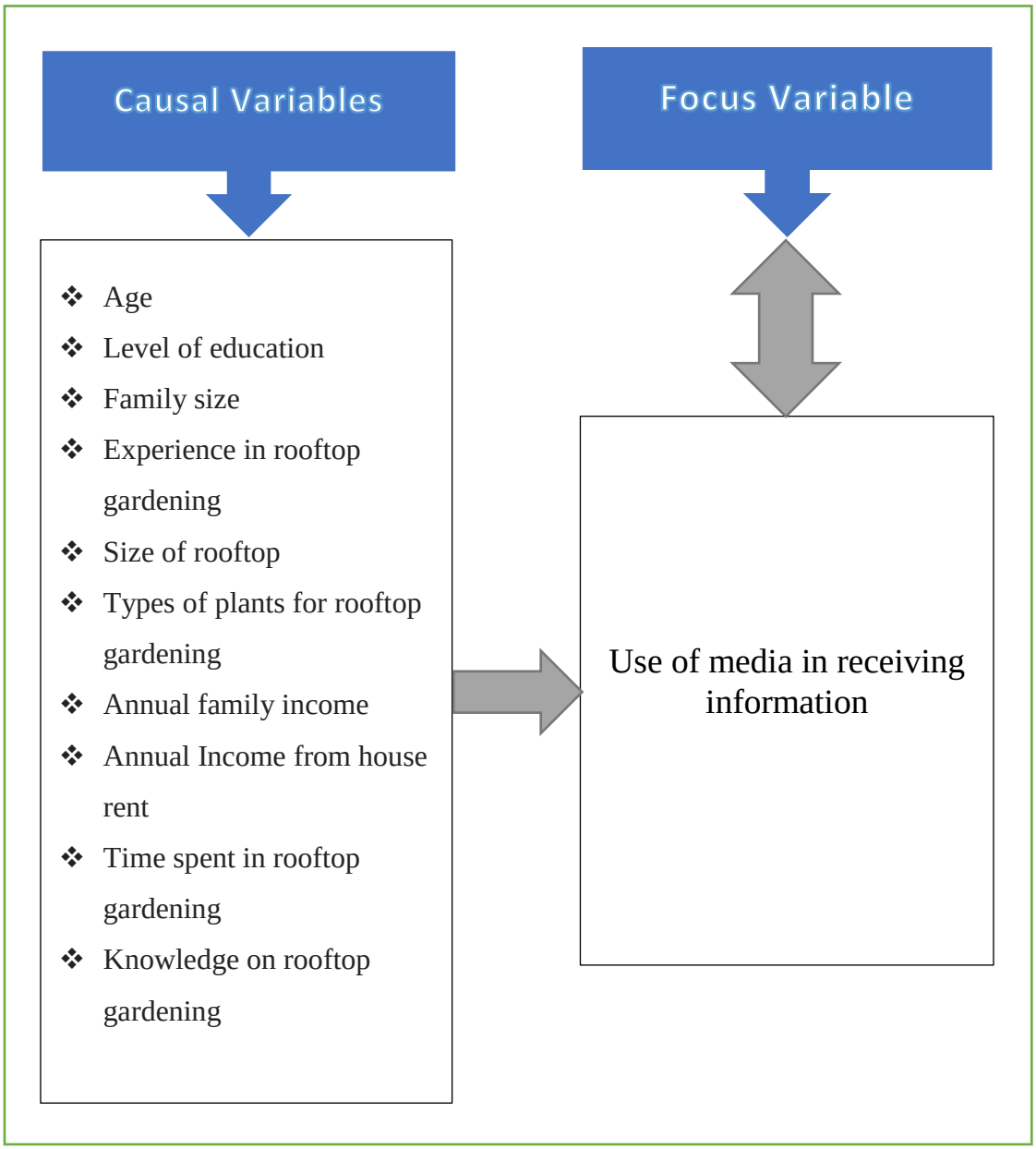

Figure 2.1 The conceptual framework of the study

CHAPTER III

MATERIALS AND METHODS

Methods play an important role in a scientific research. To fulfil the objectives of the study, a researcher should be very careful while formulating methods and procedures in conducting the research. According to Mingers (2001), research method is a structured set of guidelines or activities to generate valid and reliable research results. This chapter of the thesis illustrates the research methods and procedures used to collect and analyze the data for answering the research questions and attaining the purposes. The methods and operational procedures followed in conducting the study are selection of study area, sampling procedures, instrumentation, categorization of variables, collection of data, measurement of the variables and statistical measurements. A chronological description of the methodology followed in conducting this research work has been presented in this chapter.

3.1. Locale of the Study

The study was conducted in the Gulshan, Dhaka (Metropolitan Agriculture Office) area which occupies an of 27.814 square kilometre located in 23°46' 50.2" North Latitude and 90°24'21.4" East Longitude. It is bounded by Khilkhet and Cantonment Thana on the north, Tejgaon and Khilgaon Thana on the south, Badda and Khilgaon Thana on the east, Kafrul and Cantonment Thana on the west. The house owners of this area are more or less interested to make rooftop garden along with their other services. A large number of house owners are also practicing the rooftop gardening at this area especially: North administrative area of Metropolitan Agriculture Office, Dhaka. The present study was conducted at Gulshan based on the population size in the selected area. The inhabitants of the study area are involved in rooftop gardening. The number of house owners who involves in rooftop gardening in the study area are 298.

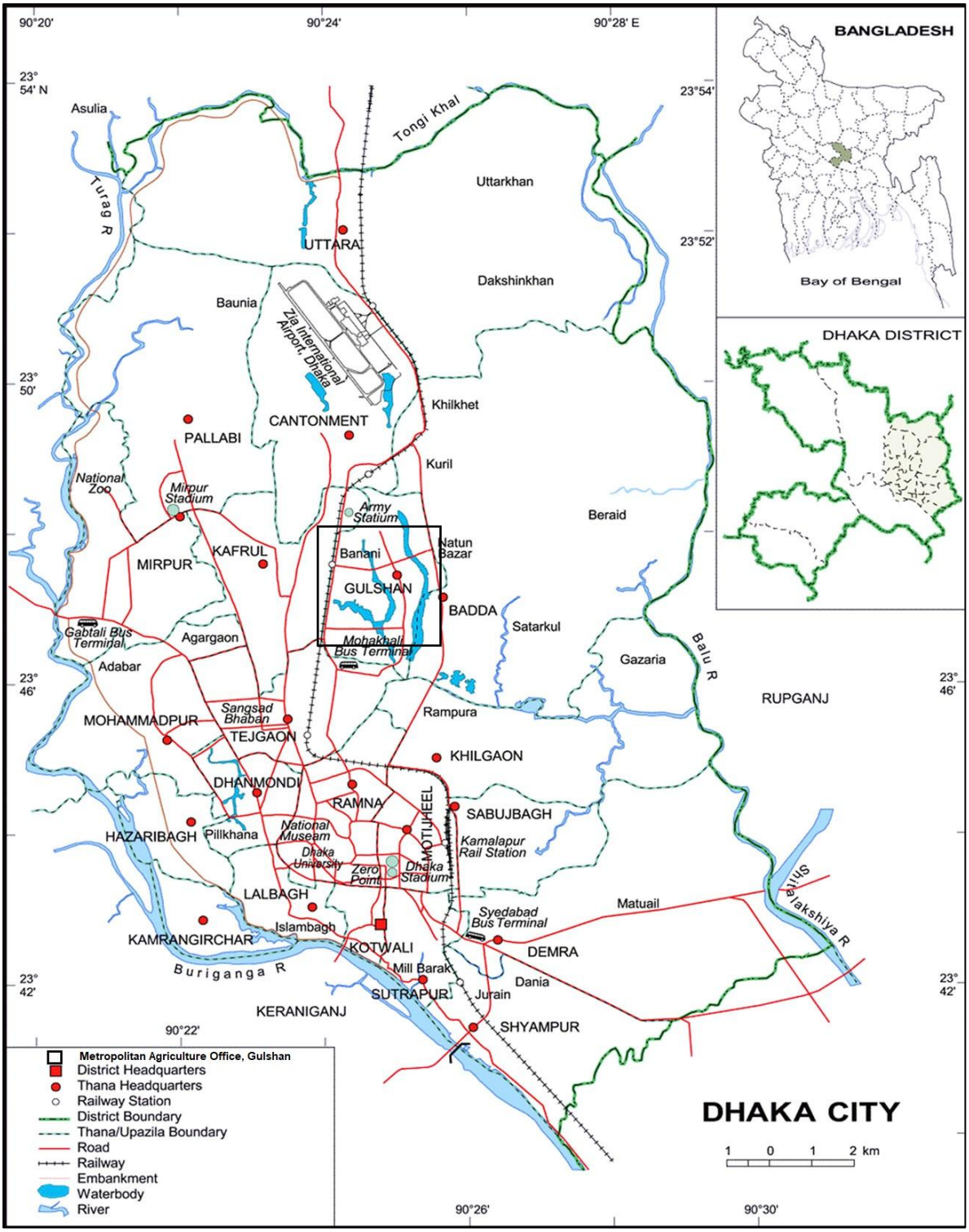

Figure 3.1: A map of Dhaka City locating locale of the study

Metropolitan Agriculture Office, Gulshan, Dhaka

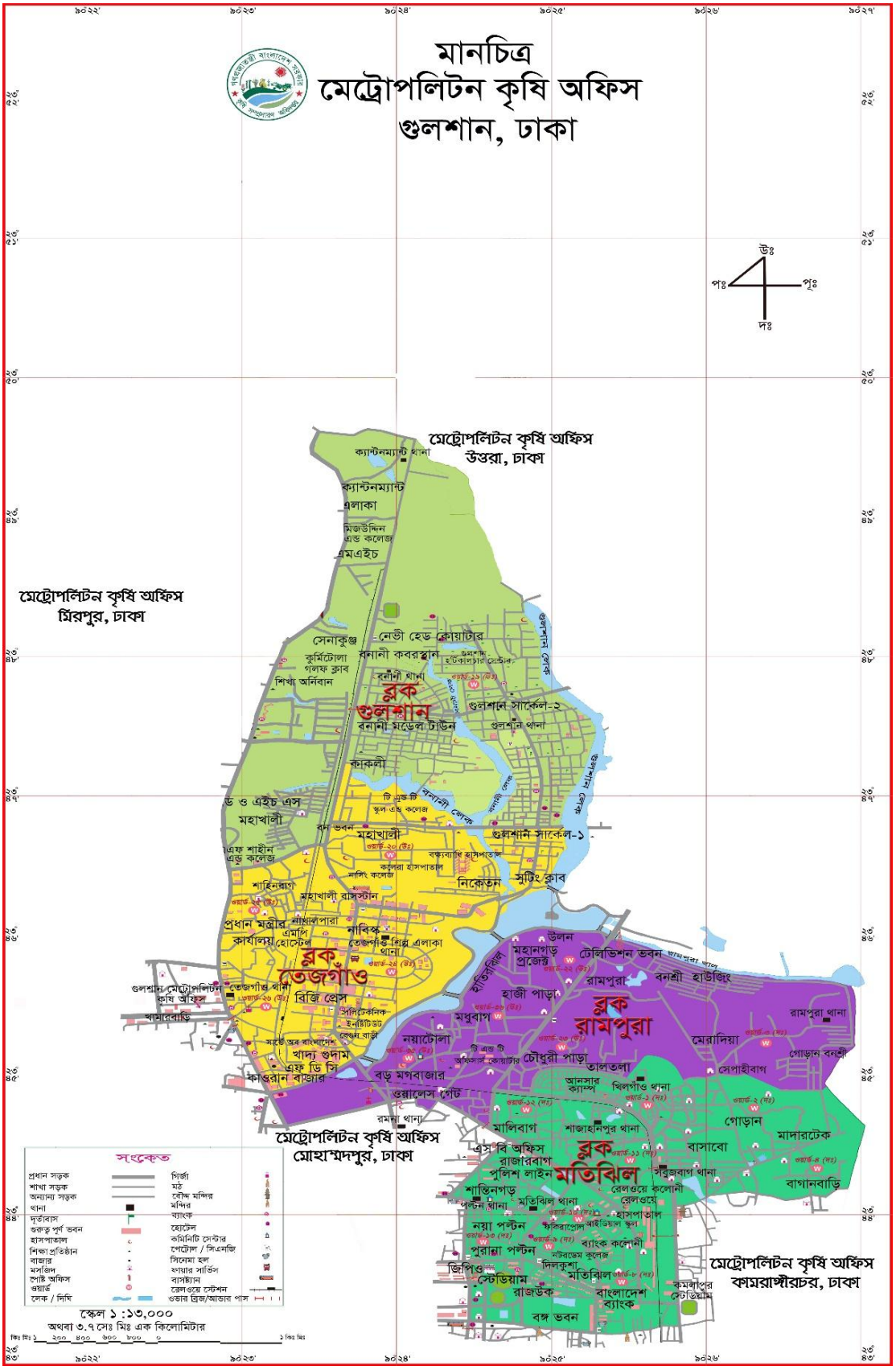

Figure 3.2: A map of the selected block of Metropolitan Agriculture Office, Gulshan, Dhaka

3.2. Population and Sample of the Study

People who permanently reside and the owner of the multi-storied building in the selected area constituted the active population of this study. However, representative sample from the population were taken for collection of data following percentage method. One rooftop gardener (who mainly operated the rooftop garden) from each of the families was considered as the respondent. Updated lists of all respondents who had own house of the selected area were prepared with the help of Urban Gardeners Society (UGS). A random sampling procedure was followed to select the respondents of the study area. The total number of rooftop gardener in the study area was 298; where 59 from Gulshan-1, 69 from Gulshan-2, 105 from Banani, 64 from Mohakhali. Thus, 298 rooftop gardeners constituted the population of the study which is shown in the following table 3.1.

Table 3.1 Population of the study area

Name of the City	Name of the Area	Name of the zone	Number of the Respondents
Dhaka Metropolitan City	Gulshan	Gulshan-1	59
		Gulshan-2	69
		Mohakhali DOHS	64
		Banani	105
Total			**298**

3.2.1. Determination of sample size

The population size was 298. As the size was relatively small, so to determine the sample size, it is better to follow a representative percentage rather than standard statistical formula. Considering time and other resources, thirty percent (30%) of population was considered as sample of the study by following proportionate random sampling. Thus, the sample size is 90.

3.2.2. Distribution of the population, sample size and reserve list

The respondents comprised of 90 gardeners. A reserve list of 9 gardeners (about ten percent of the sample size) were also prepared so that the gardeners of this list could be used for interview if those gardeners included in the original sample were not

available at the time of conduction of interview. The gardener of the area were selected for data collection by following proportionate sampling technique. The distribution of the population, the number of sample size and number of respondents along with the reserve list are given in the following Table 3.2.

Table 3.2 Distribution of those gardeners according to population and reserve list

Selected City	Selected Block	Selected Area	Population	Sample size	Reserve list
Dhaka Metropolitan City	Gulshan	Gulshan-1	59	18	2
		Gulshan-2	69	21	2
		Mohakhali	64	19	2
		Banani	105	32	3
Total			**298**	**90**	**9**

3.3. Data Collection Methods and Tool

3.3.1. Data collection methods

The survey method was used to collect quantitative and qualitative data that allow to answer the research questions framed and to gain an understanding of the determinants of respondents' use of media in receiving information. Individual interviews were used in the survey and were conducted in a face-to-face (Bryman, 2001) situation by the researcher. This method is useful to get unanticipated answers and to allow respondents to describe the world as they really see it rather than as the researcher does (Bryman, 2001).

3.3.2. Data collection tool

Structured interview schedule was prepared to reach the objectives of the study. A structured interview schedule was prepared containing open and closed from questions. The open questions allowed for the respondents to give answers using their own language and categories (Casley and Kumar, 1998). The questions in this schedule were formulated in a simple and unambiguous way and arranged in a logical order to make it more attractive and comprehensive.

The instruments were first developed in English and then translated into Bengali. The survey tools were initially constructed based on an extensive literature reviews and pre-tested. The schedule was pre-tested with 10 randomly selected respondents in the study area. The pre-test was helpful in identifying faulty questions and statements in the draft schedule. Thus, necessary additions, deletions, modifications and adjustments were made in the schedule on the basis of experiences gained from pre-test. The questionnaires were also checked for validity by supervisor, co-supervisor and educational experts at Sher-e-Bangla Agricultural University (SAU). Finally, based on background information, an expert appraisal and the pre-test, the interview schedule was finalized. Data was gathered by the researcher personally. During data collection, necessary cooperation was obtained from Agriculture Extension Officer (AEO), Metropolitan Agriculture Office, Gulshan, Dhaka and Urban Roof Gardeners Society (URGS) of Dhaka city, like Green Bangladesh, Sobuj Sena, Eso Bagan Kori etc. The primary data were collected from 01 April, 2019 to 05 April, 2019. Books, journals, thesis, reports and internet documents were used as secondary sources of data supporting or supplementing the empirical findings of the study. The final data were collected from 10 April, 2019 and completed at 10 May, 2019.

3.4. Variables and their Measurement Techniques

The variable is a characteristic, which can assume varying, or different values in successive individual cases. A research work usually contains at least two important variables viz. independent or causal and dependent or focus variables. A causal variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationship to an observed phenomenon. In the scientific research, the selection and measurement of variable constitute a significant task. Following this conception, the researcher reviewed literature to widen this understanding about the natures and scopes of the variables relevant to this research. At last the researcher had selected 10 causal variables and one focus variable. The causal variables were: age, level of education, family size, gardening experience, size of rooftop, types of plants for rooftop gardening, annual family income, annual income from house rent, time spent in gardening and knowledge on rooftop gardening. The focus variable of this study was the ‘Use of media in receiving information by the roof top gardeners’.

The methods and procedure in measuring variable of this study are presented below:

3.4.1. Measurement of causal variables

The 10 characteristics of the gardeners mentioned above constitute the causal variables of this study. The following procedures were followed for measuring the causal variables.

3.4.1.1. Age

The age of the gardeners was measured in terms of actual years from their birth to the time of the interview, which was found on the basis of the verbal response of the people (Rashid, 2014). A score of one (1) was assigned for each year of one's age. This variable appears in item number 1 in the interview schedule as presented in Appendix-I.

3.4.1.2. Education

The education was measured by assigning score against successful years of schooling by a gardener. One score was given for passing each level in an educational institution (Rashid, 2014). For example, if a gardener passed the final examination of class five or equivalent examination, his/her education score has given five (5). Each gardener of can't read & write has given a score of zero (0). A person not knowing reading or writing but being able to sign only has given a score of 0.5. If a gardener did not go to school but took non-formal education, his educational status was determined as the equivalent to a formal school student. This variable appears in item number 2 in the interview schedule as presented in Appendix-I.

3.4.1.3. Family Size

Family size of a respondent was determined by the total number of members in his/her family including him/her, children and other dependents. The scoring was made by the actual number of family members expressed by the respondents. For example, if a respondent had five members in his/her family, his/her score was given as 5. This variable appears in item number 3 in the interview schedule as presented in Appendix-I.

3.4.1.4. Experience in rooftop gardening

Experience in gardening of the gardener was determined by the total number of year involved in rooftop gardener. A score of one (1) was assigned for each year rooftop

gardening. This variable appears in item number 4 in the interview schedule as presented in Appendix -I.

3.4.1.5. Size of rooftop

The area under rooftop garden was measured as the total area on which one's family carried out the gardening operation, the area being in term of full benefit to the family through rooftop gardening. It was expressed in square feet. This variable appears in item number 5 in the interview schedule as presented in Appendix-I.

3.4.1.6. Types of plants for rooftop garden

Types of plants in a rooftop garden was determined by plants' type the gardener currently growing in their rooftop garden. A score of one (1) was assigned for each type they have in their rooftop garden. This variable appears in item number 6 in the interview schedule as presented in Appendix-I.

3.4.1.7. Annual family income

The term annual family income refers to the annual gross income of rooftop gardeners and the members of his/her family from different sources. It was expressed in taka. In measuring this variable, total earning taka of an individual rooftop gardener was converted into score. A score of one was given for every one lac taka. This variable appears in item number 7 in the interview schedule as presented in Appendix-I.

3.4.1.8. Annual income from house rent

The term annual income from house rent refers to the annual gross income of rooftop gardeners from house rent. It was expressed in taka. In measuring this variable, total earning taka of an individual rooftop gardener was converted into score. A score of one was given for every one lac taka. This variable appears in item number 8 in the interview schedule as presented in Appendix-I.

3.4.1.9. Time spent for gardening

Time spent in gardening was determined by the total time (hrs) involved in gardening per week. A score of one (1) was assigned for each hour gardening activities. This variable appears in item number 9 in the interview schedule as presented in Appendix-I.

3.4.1.10. Knowledge on rooftop gardening

The knowledge of a gardener was measured by asking 10 questions related to different components of rooftop gardening. It was measured assigning weightage 2 marks for each question. So, the total assigned scores for all the questions became 20. The score was given according to response at the time of interview. Answering a question correctly an individual could obtain full score. While for wrong answer or no answer he obtained zero (0) score. Partial score was assigned for partially correct answer. Thus, the knowledge score of a gardener could range from zero (0) to twenty (20), where zero indicates no knowledge and twenty indicates highest knowledge on rooftop gardener. This variable appears in item number 10 in the interview schedule as presented in Appendix-l.

3.4.2. Measurement of focus variable

The focus variable of the study is the extent of use of media in receiving information by the rooftop gardeners

It was defined as one's extent of exposure to different communication media related to rooftop gardening. The extent of use of media of a rooftop gardener was measured by computing media contact score on the basis of their nature of use of media with selected ten media. The media are Facebook, Internet, Agri. Magazine/Newspaper, Friends/Relatives, Neighbours, Local govt. nursery, television, private nursery owner, Hand Books and Agri. fair/Tree fair. Each rooftop gardener was asked to indicate his nature of use of media with five alternative responses, like regularly, frequently, sometimes, rarely and not at all basis to each of the ten-selected media and score of 4, 3, 2, 1 and 0 were assigned for those alternative responses, respectively. Logical frequencies were assigned for each of the five alternative nature of use of media. The extent of use of media of the rooftop gardener was measured by adding the scores of ten selected media. Thus, the extent of use of media score of a rooftop gardener could range from 0 to 40, where zero indicated no use of media and forty indicated highest level of media use. This variable appears in item number 11 in the interview schedule as presented in Appendix-I.

3.5. Rank Order of Use of Media in Receiving Information

To ascertain the use of media in receiving information by the gardeners, Media Use Index (MUI) was computed for each media. Media Use Index (MUI) was computed by using the formula:

$$MUI = u_{rg} \times 4 + u_f \times 3 + u_s \times 2 + u_r \times 1 + u_n \times 0$$

Where,

MUI = Media Use Index

u_{rg} = No. of respondents used media regularly

u_f = No. of respondents used media frequently

u_s = No. of respondents used media occasionally

u_r = No. of respondents used media seldom

u_n = No. of respondents used media not at all

Media Use Index (MUI) for each media use could range from 0 to 360, where 0 indicating no media use and 360 indicating highest media use by the rooftop gardeners.

3.6. Hypothesis of the Study

According to Kerlinger (1973) a hypothesis is a conjectural statement of the relation between two or more variables. Hypothesis are always in declarative sentence form and they are related, either generally or specifically from variables to variables. In broad sense hypotheses are divided into two categories:

a) Research hypothesis

b) Null hypothesis.

3.6.1. Research hypothesis

Based on review of literature and development of conceptual framework, the following research hypothesis was formulated:

“Each of the ten selected characteristics (age, education, family size, experience in rooftop gardening, size of rooftop, types of plants for rooftop gardening, annual family income. annual income from house rent, time spent in gardening and

knowledge on rooftop gardening) of the gardeners has significant relationship with their use of media in receiving information."

3.6.2. Null hypothesis

A null hypothesis states that there is no relationship between the concerned variables. The following null hypothesis was formulated to explore the relationship of the selected characteristics with their use of media in receiving information. Hence, in order to conduct tests, the earlier research hypothesis was enlivened into null form as follows:

"There is no relationship of the selected characteristics (age, education, family size, experience in rooftop gardening, size of rooftop, types of plants for rooftop gardening, annual family income, annual income from house rent, time spent in gardening and knowledge on rooftop gardening) of rooftop gardeners with their use of media in receiving information."

3.7. Compilation of Data

After completion of survey data recorded in the interview schedules were coded, compiled, tabulated and analyzed in accordance with the objectives of the study. In this process, all the responses in the interview schedule were given numerical coded values. All the collected data were checked and cross checked before transplanting to the Microsoft Excel. All collected data were carefully entered in Microsoft Excel. After exporting, errors were detected and necessary corrections were made accordingly. At last, data were exported from the program Microsoft Excel to SPSS version 24.0, which offered statistical tools applied to social sciences.

3.8. Statistical Analysis

As outlined before, there are wide ranges of structures and methods that can be utilized to analyze both quantitative and qualitative data as per the objectives of the study. Both descriptive and analytical methods were utilized in order to analyze the data. Descriptive techniques have been used to illustrate current circumstances, depict wide range of variables separately and construct tables presented in results. These included: frequency distribution, percentage, range, mean and standard deviation.

Analytical techniques have been utilized to investigate the relationship of the selected characteristics of the gardeners with their use of media in receiving information.

Pearson's Product Moment Coefficient of Correlation (r) was used in order to explore the relationships between each of the selected characteristics of the gardeners and their use of media in receiving information. Five percent (0.05) level of probability was the basis for rejecting any null hypothesis throughout the study. The SPSS computer package version 24.0 was used to perform all these process.

CHAPTER IV

RESULTS AND DISCUSSION

The recorded observations in accordance with the objectives of the study were presented and probable discussion was made of the findings with probable justifiable and relevant interpretation under this Chapter. The findings of the study and their interpretation have been presented in this Chapter. These are illustrated in four sections according to the objective of the study. The first section deals with selected characteristics of the rooftop gardeners, while the second section deals with the extent of use of media in receiving information by the rooftop gardeners. The third section deals in the rank order of the selected media in receiving information by the rooftop gardeners. The fourth section deals in the relationship of the rooftop gardeners‟ selected characteristics with their use of media in receiving information.

4.1. Characteristics of the Respondents

Behaviours of an individual is determined to a large extent by one's personal characteristics. There were various characteristics of rooftop gardeners that might have influence in rooftop gardening but in this study, ten characteristics of them were selected as causal variables, which included their age, level of education, family size, gardening experience, size of rooftop, types of plants for rooftop gardening, annual family income, annual income from house rent, , time spent in gardening, gardening and knowledge on rooftop gardening that might be greatly influenced the use of media in receiving information on rooftop gardening are presented below-

4.1.1. Age

The age of the respondents has been varied from 30 to 66 years with a mean and standard deviation of 45.44 and 8.93 respectively. Considering the recorded age, the respondents were classified into three categories namely 'young', 'middle' and 'old' aged. The distribution of the respondents in accordance of their age is presented in Table 4.1.

Table 4.1 Distribution of the respondents according to their age

Category	Range (years)		Respondents		Mean	SD
	Year	Observed	Number	Percent		
Young aged	Up to 35	30-66	10	11.1	45.44	8.93
Middle aged	36-50		44	48.9		
Old aged	Above 50		36	40.0		
Total			90	100.0		

From Table 4.1 it was revealed that the middle-aged respondents comprised the highest proportion (48.9 percent) followed by old-aged category 40.0 percent) and lowest proportion is young aged category (11.1 percent). Data indicates that regardless their age more or less every age-group were involved in gardening. Research also found that now a day's middle aged people are green conscious and found gardening as relief of their monotonous busy life. The old aged respondents fond of spending leisure time to do rooftop gardening for their recreational activity.

4.1.2. Level of education

The level of educational scores of the respondents ranged from 10 to 18 with a mean and standard deviation of 14.32 and 2.86 respectively. Based on the educational scores, the respondents were classified into five categories. The distributions of respondents according to their level of education are presented in Table 4.2.

Table 4.2 Distribution of the respondents according to their level of education

Category	Range (years)		Respondents		Mean	SD
	Score	Observed	Number	Percent		
Up to Secondary	10	10 to 18	19	21.11	14.32	2.86
Higher Secondary	12		21	27.78		
Graduate or Degree	15		37	41.11		
Above Graduate	18		9	10		
Total			90	100		

Table 4.2 shows that respondents from "Graduate or Degree" education category constitutes the highest proportion (41.11 percent). On the other hand, the lowest proportion (10 percent) from "Above Graduate" education category. In Dhaka city most gardeners are rich so that they get more opportunity to obtain higher education. Education increases one's knowledge and experience.

4.1.3. Family Size

Family size of the respondents ranged from 2 to 8 with the mean and standard deviation of 4.54 and 1.26 respectively. According to family size the respondents were classified into three categories (Mean ± Standard Deviation) namely 'small', 'medium' and 'large' family. The distribution of the respondents according to their family size is presented in Table 4.3.

Table 4.3 Distribution of the respondents according to their family size

Category	Range (Number)		Respondents		Mean	SD
	Score	Observed	Number	Percent		
Small family	Up to 3	2-8	13	14.4%	4.54	1.26
Medium family	4-6		70	77.8%		
Large family	>6		7	7.8%		
Total			90	100%		

Data in Table 4.3 indicate that the medium size family constitute the highest proportion (77.8 percent) followed by the small size family (14.4 percent). Lowest 7.8 percent respondents had large family size. Such finding is quite normal as per the situation of Bangladesh. The findings from Table 4.3 indicated that in this study area the average family size was smaller than the national average which is 4.85 (BBS, 2014). The trend of nuclear family has been rising in the study area and subsequently the family member becoming smaller than the extended family.

4.1.4. Experience in rooftop gardening

Score of experience in rooftop gardening ranged from 1 to 20 with mean and standard deviation of 11.19 and 4.78 respectively. On the basis of experience scores, gardeners were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' experience in gardening. The distribution of rooftop gardeners according to their experience is given in Table 4.4.

Table 4.4 Distribution of the gardeners according to their experience

Category	Range (Number)		Respondents		Mean	SD
	Score	Observed	Number	Percent		
Low experience	Up to 7	1-20	71	78.9	11.19	4.78
Medium experience	8-15		14	15.5		
High experience	>15		5	5.6		
Total			90	100		

Table 4.4 reveals that the majority (78.9 %) of rooftop gardening fell in low experience category, whereas only 5.5 percent in high experience category followed by 15.5 percent in medium experience category. With increasing activity of media, the gardener found gardening as easy and interesting hobby. So a new trend of gardening is booming in the study area.

4.1.5. Size of rooftop

Rooftop garden area score of the respondents ranged from 1500 to 4000 square feet. The mean and standard deviation were 26.20 and 5.67 respectively. Based on rooftop area, the respondents were categorized into three classes' (Mean ± Standard Deviation) namely low, medium and high rooftop area. Distribution of the respondents according to their rooftop area is presented in Table 4.5

Table 4.5 Distribution of the respondents according to their rooftop area

Category	Range ('00' sq. ft.)		Respondents		Mean	SD
	Score	Observed	Number	Percent		
Small area	Up to 22	15-40	22	24.4	26.20	5.67
Medium area	22 to 32		33	36.7		
Large area	Above 32		35	38.9		
Total			90	100		

The observed data shows that most of the respondents (38.9 percent) had large rooftop area while 24.4 and 36.7 percent of them had small and medium rooftop area respectively (Table-4.6). Overwhelming majority (75.6 percent) of the respondents have medium to high rooftop area for gardening.

4.1.6. Types of plants for rooftop gardening

Score of types of plants in rooftop gardening ranged from 7 to 35 with mean and standard deviation of 20.14 and 5.12 respectively. On the basis of plants' type was classified into three categories (Mean ± Standard Deviation) namely 'Few', 'Moderate' and 'Many' type in gardening. The distribution of rooftop gardeners according to their types of plants is given in Table 4.6.

Table 4.6 Distribution of the gardeners according to their types of plants for rooftop gardening

Category	Range (Types)		Respondents		Mean	SD
	Score	Observed	Number	Percent		
Few type	Up to 15	7-35	15	16.7	20.14	5.12
Moderate type	16 to 25		58	64.4		
Many type	Above 25		17	18.9		
Total			90	100		

Table 4.6 reveals that the majority (64.4 %) of rooftop gardening fell in moderate category, whereas only 16.7 percent in few type category followed by 18.9 percent in Many type category. Gardening is flourishing around the city with high intensity of communication media exposer. Most of gardeners are limited to raising Bottle gourd, Tomato, Country bean, Mango, Lemon, Rose, Marigold etc. New gardener easily cope up moderate variety of plants but due to lack of knowledge, maintenance and logistic support cannot expand to many variety.

4.1.7. Annual family income

The score of annual family income of the rooftop gardeners ranged from 9 to 20 lakh (BDT) with a mean and standard deviation of 14.58 and 2.44 respectively. On the basis of annual income, the rooftop gardeners were classified into three categories (Mean ± Standard Deviation) namely 'low', 'medium' and 'high' annual family income. The distribution of the rooftop gardeners according to their annual family income is presented in Table 4.7.

Table 4.7 Distribution of the respondents according to their annual family income

Category	Range (Income in "Lakh")		Respondents		Mean	SD
	Score	Observed	Number	Percent		
Low income	Up to 12	9-20	31	34.4	14.58	2.44
Medium income	13 to 16		47	52.3		
High income	Above 16		12	13.3		
Total			90	100		

Data reveals that the rooftop gardeners having medium annual family income constitute the highest proportion (52.3 percent), while the lowest proportion in high family income (13.3 percent). The low family income category constituted with 34.4 percent respondents. Overwhelming majority (86.7 percent) rooftop gardeners have low to medium level annual family income.

4.1.8. Income from house rent

Annual income from house rent of the respondents ranged from Tk.7 to Tk.22 lakh (BDT) with a mean and standard deviation of 14.54 and 2.92 respectively. On the basis of annual income from house rent, the respondents were classified into three categories (Mean ± Standard Deviation) viz. low, medium and high annual income from house rent. The distribution of the respondents according to their annual income from house rent is presented in Table 4.8.

Table 4.8 Distribution of the respondents according to annual income from house rent

Category	Range (rent in "Lakh")		Respondents		Mean	SD
	Score	Observed	Number	Percent		
Low income	Up to 11	7-22	21	23.4	14.54	2.92
Medium income	12 to 17		49	54.4		
High income	Above 17		20	22.2		
Total			90	100		

Data reveals that rooftop gardeners having medium annual income from house rent constitutes the highest proportion (54.4 percent), while the lowest proportion in high annual income from house rent (22.2 percent). The low annual income from house

rent category constituted with 23.4 percent respondents. Overwhelming majority (77.8 percent) respondents have medium to low annual income from house rent. These results expressed due the higher house rent than other cities in Bangladesh.

4.1.9. Time spent in rooftop gardening

Time spent in rooftop gardening ranged from 5 to 12 with a mean and standard deviation of 8.65 and 2.63 respectively. Based on the time spent in gardening score, the gardeners were classified into three categories namely minimum, average and maximum time spent in gardening. The distribution of gardeners according to their time spent in gardening is presented in Table 4.9.

Table 4.9 Distribution of the gardeners according to their time spent in gardening

Category	Range (Number)		Respondents		Mean	SD
	Score	Observed	Number	Percent		
Minimum time spent	Up to 6	5-12	11	12.2	8.65	2.63
Average time spent	7 to 10		51	56.7		
Maximum time spent	Above 10		28	31.1		
Total			90	100		

Table 4.9 indicates that the highest proportion (56.7 %) of the gardeners had average time spent compared to 12.2 percent in minimum time spent and 31.1 percent gardeners in maximum time spent category, respectively. The researcher thinks that this result might have due to positive attitude towards gardening.

4.1.10. Knowledge on rooftop gardening

Rooftop gardening knowledge scores of the respondents ranged from 10 to 19 against possible score of 0 to 20. The average score and standard deviation were 13.73 and 2.17 respectively. Based on the rooftop gardening knowledge scores, the respondents were classified into three categories (Mean ± Standard Deviation) namely Low knowledge, Medium knowledge and High knowledge on rooftop gardening (Table 4.10).

Table 4.10 Distribution of the respondents according to their knowledge on rooftop gardening

Category	Range (Number)		Respondents		Mean	SD
	Score	Observed	Number	Percent		
Low knowledge	Up to 12	10-19	32	35.6	13.73	2.17
Medium Knowledge	13 to 16		46	51.1		
High Knowledge	Above 16		12	13.3		
Total			90	100		

Data presented in the Table 4.11 reveals that 51.1 percent of the respondents had medium rooftop gardening knowledge, 35.6 percent had low knowledge and 13.3 percent had high knowledge on rooftop gardening. Thus, an overwhelming majority (86.7 percent) of the respondents had low to medium knowledge on gardening. This lead to understanding that urban rooftop gardener most of the time consider gardening as their recreational activity. So lack of interest in depth study, most gardener achieve low to medium knowledge.

4.2. Use of Media in Receiving Information by the Rooftop Gardeners

The observed score of use of media in receiving information by the rooftop gardener ranged from 14 to 26 against a possible range of 0 to 40. The average score of the rooftop gardener use of media in receiving information was 17.53 with a standard deviation 3.87 (Table 4.12). The rooftop gardener were classified into three categories on the basis of their media use scores as (Mean ± Standard Deviation) namely “low”, “medium” and “high” use of media and presented in table 4.11.

Table 4.11 Distribution of the rooftop gardener according to their use of media in receiving information

Category	Range (Number)		Respondents		Mean	SD
	Score	Observed	Number	Percent		
Low use	Up to 14	14-26	16	17.8	17.53	3.87
Medium use	15 to 22		57	63.3		
High use	Above 22		17	18.9		
Total			90	100		

Data shows that the highest proportion (63.3%) of the gardeners had medium use of media in receiving information and 18.9 percent of the gardeners had high use of media in receiving information and 17.8 percent fell in low use of media in receiving information (Table 4.11).

Apart from the assessment of media use level, the researcher make a rank order of the media used by the farmer which is described below:

4.3. Rank Order by Uses of Media in Receiving Information

Rank order of the selected ten media in receiving information by the rooftop gardener is presented in Table 4.13. As per descending order of the Media Use Index (MUI), Facebook ranked the 1st and Hand Books ranked as last position.

The use of media in receiving information by the rooftop gardeners according to descending order of MUI: Facebook ranked first followed by Private Nursery Owner, Internet, Friends or relatives, Agri. Fair or Tree Fair, Television, Neighbours, Agri. Magazine or Newspaper, Local Government Nursery and Hand Books (Table 4.12).

Table 4.12 Rank order of use of media in receiving information

Name of media	MUI	Rank
Facebook	288	1st
Private Nursery Owner	237	2nd
Internet	234	3rd
Friends or Relatives	148	4th
Agri. Fair or Tree Fair	146	5th
Television	129	6th
Neighbours	124	7th
Agri. Magazine or Newspaper	104	8th
Local Government Nursery	90	9th
Hand Books	78	10th

The highest use of media in receiving information by the rooftop gardeners was Facebook. Urban people cannot imagine their life without smart phone and Facebook.

So they easily get influence from Facebook activities like events, photos, videos and sharing of knowledge.

The lowest use of media in receiving information by the rooftop gardeners was Hand Books. Hand Books are find in special events like fair or workshop and often in government and NGO's. People also give up habits of reading paper printed letters.

4.4. Relationships between Selected Characteristics of the Rooftop Gardeners and their Use of Media in Receiving Information

This section deals with exploring the relationships between the causal and focus variables of the study. The causal variables were age, level of education, family size, gardening experience, size of rooftop, types of plants for rooftop gardening, annual family income, annual income from house rent, time spent in gardening and knowledge on rooftop gardening. Use of media in receiving information by the rooftop gardener was focus variable.

Pearson's Product Moment Co-efficient of Correlation (r) was used to test the null hypothesis concerning the relationships between each of the selected characteristics of the rooftop gardeners with their use of media in receiving information. Five percent (0.05) level of probability was used as the basis for acceptance or rejecting the null hypothesis at (90-2) =88 degrees of freedom. The results of correlation of coefficient (r) between the causal and focus variables have been shown in Table 4.13. The details of inter correlation among all the variables have been shown in Appendix-II.

Table 4.13 Co-efficient of correlation between each of the selected characteristics of the rooftop gardeners and their use of media in receiving information (n=90)

Focus variable	Causal variables	Correlations co-efficient values (r)	Tabulated value of 'r' with 88 *df*	
			0.05	0.01
Use of media in receiving information by the rooftop gardeners	Age	0.237*	0.194	0.259
	Education	0.326**		
	Family size	0.160^{NS}		
	Experience in rooftop gardening	0.330**		
	Size of rooftop	0.132 ^{NS}		
	Types of plants for rooftop garden	0.190 ^{NS}		
	Annual family income	0.158 ^{NS}		
	Annual Income from house rent	0.075 ^{NS}		
	Time spent for gardening	0.154 ^{NS}		
	Knowledge on rooftop gardening	0.315**		

NS Not Significant

** Significant at 0.01 level (1 percent)

* Significant at 0.05 level (5 percent)

The Table showed that out of ten causal variables four named Age, Education, Experience and knowledge on rooftop gardening had significant relationship with their use of media. A description of the result is given below:

4.4.1. Relationship between education of rooftop gardeners and their use of media in receiving information

The following observations were recorded regarding relationship between education of the rooftop gardeners and their use of media in receiving information on basis of correlation coefficient:

i. The computed value of "r" (0.326) was found to be higher than the tabulated value (0.259) with 88 degrees of freedom at 0.01 level of probability as shown in Table 4.13.

ii. The relationship between the concerned variables was significant at 0.01 level of probability and showed a positive trend.

iii. The null hypothesis was rejected.

Based on the above findings, it can be said that education of the rooftop gardeners was an important factor for use of media in receiving information. This means that education of the rooftop gardeners and their use of media in receiving information was not independent to each other. Level of education has effect in receiving information. It is rational that a higher educated people has more capability of receiving information which they need.

4.4.2. Relationship between experience of rooftop gardeners and their use of media in receiving information

The following observations were recorded regarding relationship between experience of rooftop gardeners and their use of media in receiving information on basis of correlation coefficient:

i. The computed value of "r" (0.330) was found to be higher than the tabulated value (0.259) with 88 degrees of freedom at 0.01 level of probability as shown in Table 4.13.

ii. The relationship between the concerned variables was significant at 0.01 level of probability and showed a positive trend.

iii. The null hypothesis was rejected.

Based on the above findings, it can be said that experience of rooftop gardener was an important factor for use of media in receiving information. This means that experience of rooftop gardener and their use of media in receiving information was not independent to each other. It means that use of media in receiving information were found more among those rooftop gardeners who had more experience than the rooftop gardeners who had less experience in rooftop gardening.

4.4.3. Relationship between knowledge of rooftop gardeners and their use of media in receiving information

The following observations were recorded regarding relationship between knowledge on rooftop gardening and their use of media in receiving information on basis of correlation coefficient:

i. The computed value of "r" (0.315) was found to be higher than the tabulated value (0.259) with 88 degrees of freedom at 0.01 level of probability as shown in Table 4.13.

ii. The relationship between the concerned variables was significant at 0.01 level of probability and showed a positive trend.

iii. The null hypothesis was rejected.

Based on the above findings, it can be said that knowledge on rooftop gardening was an important factor for use of media in receiving information. This means that knowledge on rooftop gardening of the rooftop gardeners and their use of media in receiving information was not independent to each other. It means that use of media in receiving information were found more among those rooftop gardeners who had more knowledge on rooftop gardening than the rooftop gardeners with less knowledge on rooftop gardening.

4.4.4. Relationship between age of rooftop gardeners and their use of media in receiving information

The following observations were recorded regarding relationship between age of rooftop gardener and their use of media in receiving information on basis of correlation coefficient:

i. The computed value of "r" (0.237) was found to be higher than the tabulated value (0.194) but lower than the tabulated value (0.259) with 88 degrees of freedom at 0.05 level of probability as shown in Table 4.13.

ii. The relationship between the concerned variables was significant at 0.05 level of probability and showed a positive trend.

iii. The null hypothesis was rejected.

Based on the above findings, it can be said that age of the rooftop gardeners was an important factor for use of media in receiving information. This means that age of the rooftop gardeners and their use of media in receiving information was not independent to each other. It is more likely to be a gardener who is old then a younger people. So the tendency of media use more than the young.

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The study was conducted in the selected area at Gulshan block of Metropolitan Agriculture Office in Dhaka to find out the use of media in receiving information by the rooftop gardeners. Total 298 rooftop gardeners were selected from the study area as the population and according to representative percentage, the respondents comprised of 90 rooftop gardeners constituted the sample of the study. A well-structured interview schedule was developed based on objectives of the study for collecting information. The causal variables were: age, level of education, family size, experience in rooftop gardening, size of rooftop, types of plants for rooftop gardening, annual family income, annual income from house rent, time spent in rooftop gardening and knowledge on rooftop gardening. Data collection was started in 10 April, 2019 and completed in 10 May, 2019. Various statistical measures such as frequency counts, percentage distribution, average, and standard deviation were used in describing data. In order to explore the relationship of the selected characteristics of rooftop gardeners with their use of media in receiving information on rooftop gardening, Pearson's Product Moment Coefficient of Correlation (r) was used. The major findings of the study are summarized below:

5.1. Major Findings

5.1.1. Selected characteristics of the rooftop gardeners

Age: The middle-aged rooftop gardeners comprised the highest proportion (48.9 %) and the lowest proportion by the young aged category (11.1 %).

Level of education: "Graduate or degree" constituted the highest proportion (41.11%) and the lowest 10 percent in "Above Graduate" education category.

Family Size: The highest proportion (77.8 %) of the rooftop gardeners were medium size family and the lowest 7.8 percent in large family size category.

Experience in rooftop gardening: The experience in rooftop gardening constituted the highest proportion (78.9%) in low experience category, whereas the lowest 5.6 percent in high experience category.

Size of rooftop: The highest proportion (38.9 %) of the rooftop gardeners had large size of rooftop and the lowest 24.4 percent in small size of rooftop category.

Types of plants for rooftop gardening: The highest proportion (64.4 %) of the rooftop gardeners had moderate types of plants for rooftop gardening and the lowest 16.7 percent in few types of plants category.

Annual family income: The medium annual family income constituted the highest proportion (52.3 %), while the lowest proportion in high annual family income production (13.3 %) category.

Annual income from house rent: The medium annual income from house rent constituted the highest proportion (54.4 %), while the lowest proportion (22.2 %) in high annual income from house rent category.

Time spent in rooftop gardening: The highest proportion (56.7 %) of the rooftop gardeners had average time and the lowest 12.2 percent rooftop gardeners in minimum time spent category.

Knowledge on rooftop gardening: The 51.1 percent of the rooftop gardeners had medium knowledge on rooftop gardening, 35.6 percent had low knowledge and 13.3 percent had high knowledge on rooftop gardening.

5.1.2. Use of media in receiving information by the rooftop gardeners

The highest proportion (63.3 %) of the rooftop gardeners had medium use of media in receiving information and 18.9 percent of the rooftop gardeners had high use of media in receiving information and 17.8 percent felt in low use of media in receiving information.

5.1.3. Rank order of the use of media in receiving information

As per Media Use Index (MUI), Facebook ranked the 1st and Hand Books ranked as last position.

5.2. Conclusions

The findings and relevant facts of research work prompted the researcher to draw following conclusions.

i. The findings revealed that maximum 82.2 percent of the respondents had medium to high use of media in receiving information. It is concluded that the

integrated use of media in receiving information needs to maximize and sustain to sustainable rooftop gardening.

ii. Education of the rooftop gardeners shows significant relationship with their use of media in receiving information. This means that high literacy and educational level among the rooftop gardeners might have influence to enhance the use of media in receiving information in rooftop gardening.

iii. Knowledge on rooftop gardening of the rooftop gardener had significant relationship with their use of media in receiving information. Through rooftop gardening knowledge of an individual gardener gets aware of the information on the various aspects of selected gardening practices. Consequently, they were motivated to media use in receiving information.

iv. Experience on rooftop gardening of the rooftop gardener had significant relationship with their use of media in receiving information. Experienced people easily understand and become interested to earn information from media. So experience is a vital motivational factor in receiving information by the gardeners.

v. Age on rooftop gardening of the rooftop gardener had significant relationship with their use of media in receiving information. It is assumed that aged people has more contact with information sources like nursery, relatives, office, etc. So, they easily get lots of information and motivation from the media.

vi. Facebook ranked the 1st and Hand Books ranked as last position as per Media Use Index (MUI) which led to the conclustion that the use of Facebook in receiving information needs to sustain for sustainable rooftop gardening and simultaneously government and non-government organizations should emphasis on production and distribution of Hand Books as it has a very impressive effect on users mind.

5.3. Recommendations

5.3.1. Recommendations for policy

On the basis of observation and conclusions drawn from the findings of the study following recommendations are made:

i. Various step should be taken by the Department of Agricultural Extension (DAE), Metropolitan Agriculture Office and Non-Government Organizations (NGOs) to increase the use of media by the gardeners in receiving information to a higher degree.

ii. Education of the rooftop gardeners had significant relationship with their use of media in receiving information. It indicates the importance of education for increasing the use of media by the gardeners in receiving information. It may be recommended that arrangement should be made by DAE, Metropolitan Agriculture Office, other NGO's should arrange motivational campaign and other events where educated society meets them it would be easier to convince people.

iii. Majority (51.1 percent) of the rooftop gardeners having medium knowledge on rooftop gardening technologies. It should be selected on priority basis for any motivational training by Department of Agricultural Extension (DAE) and NGOs for gaining sustainable rooftop gardening as well as to enhance the use of media in receiving information.

iv. Experience on rooftop gardening of the rooftop gardener had significant relationship with their use of media in receiving information. Respondents by this time have earned long experience in rooftop gardening. The DAE and other agricultural organizations should introduce and focus their information in such a way that a low experienced novice gardener or interested people get easily influenced for more habitual gardening.

v. Age on rooftop gardening of the rooftop gardeners had significant relationship with their use of media in receiving information. It is assumed that aged people has more contact with different information sources like nursery, relatives, office, etc. It is recommended that the government organizations like DAE along with private organizations like private

nursery owner should introduce program and represent information more strongly to attract young and middle aged people according to their interest through their community where they can go for rooftop gardening and receive information to get motivation.

vi. The Hand Book ranked last position as per media use index (MUI) though it has positive effects on gardeners. People like to feel what they see and a Hand Books has this feature. So government and nongovernment organization who wants to promote gardening should emphasis on Hand Books printing and distribution. Again Facebook which is ranked first position as per media use index is very important key factor in dissemination of rooftop gardening information. The stakeholder of rooftop gardening needs to updated change of Facebook to keep the high intensity of motivation for rooftop gardening.

5.3.2. Recommendations for further study

On the basis of scope and limitations of the present study and observation made by the researcher, the following recommendations are made for future study.

i. The present study was conducted in Gulshan block of Metropolitan Agriculture Office, Dhaka. It is recommended that similar studies should be conducted in other areas of Dhaka city.

ii. This study investigated the relationship of ten characteristics of the rooftop gardeners with their use of media in receiving information as focus variables. Therefore, it is recommended that further study should be conducted with other characteristics of the rooftop gardeners with their use of media in receiving information in rooftop gardening.

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APPENDIX

APPENDIX-I

ENGLISH VERSION OF THE INTERVIEW SCHEDULE

Department of Agricultural Extension and Information System
Sher-e-Bangla Agricultural University
Dhaka-1207

Interview schedule for data collection for the research on

"USE OF MEDIA IN RECEIVING INFORMATION BY THE ROOFTOP GARDENERS"

(The interview schedule is entitled for a research study)

Name of the respondent	
Address	**House** …… **Road / Area** …… …… **Ward** …… **Thana** ……

Please answer the following questions. Your privacy will be strictly maintained and anonymously presented in report.

1. **Age**

   How old are you?

   Age…….years

2. **Education**

   Please mention your educational status

   - Can't read and write…….
   - Can sign only……..…..
   - I have studied upto …… class

- Others (specify) …….……

3. **Family size**

   Please mention number of your family members (*Including you*)

   Male …… Female ……. Total ……

4. **Gardening Experience**

   How many years you are engaged in Rooftop gardening?

   ..... Years

5. **Size of Rooftop**

   How much area you allocated on your rooftop for gardening?

   …….. Square feet.

6. **Types of plants for rooftop gardening**

   How many type of plants you cultivate in your roof?

   Approx. ……. Types

7. **Annual Family Income**

   Would you please share information about your annual family income?

   Please state your annual income from different sources:

Sl.	Sources of Income	Amount of annual income (TK.)
1.	Jobs/Services	
2.	Business	
3.	Others	

8. **Income from House Rent**

   How much money do you get from tenure?

   …… Tk/ Year

9. **Time spent for gardening**

   How much time you spend for gardening?

   …….. hours/week

10. **Knowledge on roof top gardening**

Please answer the following questions:

Sl	Questions	Full marks	Marks obtained
1.	What are the principles of Roof top gardening?	2	
2.	What plants / vegetables / fruits / flowers are suitable for roof top gardening? Why?	2	
3.	How do you make soil for your roof top garden?	2	
4.	How do you maintain plant nutrition of your RTG?	2	
5.	When de-potting is necessary?	2	
6.	What type of fertilizers do you use and at what rate?	2	
7.	How do you understand need of irrigation in your RTG?	2	
8.	Do you think roof top gardening could be an earning source? How?	2	
9.	Name one disease of each of your planted flowers & Vegetables.	2	
10.	Name one major Insects of each of your planted flowers & Vegetables	2	
11.	Name some Propagating materials?	2	

11. **Extent of use of media in receiving information by the rooftop gardener**

Please answer the following questions:

Sl.	Informant of Information	Regularly (4)	Frequently (3)	Occasionally (2)	Seldom (1)	Never Use (0)
1.	Facebook	more than 15 times /month	11-15 times /month	6-10 times /month	1-5 times /month	0 times /month
2.	Internet	16-20 times /month	11-15 times /month	6-10 times /month	1-5 times /month	0 times /month
3.	Agri. Magazine or Newspaper	More than 6 times /year	5-6 times /year	3-4 times /year	1-2 times /year	0 times /year
4.	Friends or Relatives	10 or more /month	6 -9 /month	4-5 /month	1-3 /month	0 times /month
5.	Neighbors	10 or more /month	7 -9 /month	4-6 /month	1-3 /month	0 times /month
6.	Local Govt. Nursery	10 or more /year	7-9 /year	4-6 /year	1-3 /year	0 times /year
7.	Television	10 or more /month	7-9 /month	4-6 /month	1-9 /month	0 times /month
8.	Private Nursery Owner	7 or more /year	5-6 /year	3-4 /year	1-2 /year	0 times /year
9.	Hand Books	7 or more /year	5-6 /year	3-4 /year	1-2 /year	0 times /year
10.	Agri Fair or Tree fair	6 or more time /year	5-6 time /year	3-4 times /year	1-2 /year	0 times /month

Thanks for your kind co-operation.

DATE: Signature of interviewer

APPENDIX-II

Correlations matrix among the selected characteristics of the rooftop gardeners and their use of media in receiving information.

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

* Correlation is significant at the 0.05 level (2-tailed).

	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	Y
X_1	-										
X_2	.055	-									
X_3	.008	.144	-								
X_4	.176	.243*	.176	-							
X_5	.179	.333**	.257*	.269*	-						
X_6	.063	.143	.238*	.519**	.438**	-					
X_7	.020	.268*	.135	.192	.384**	.263*	-				
X_8	.114	.247*	.186	.152	.461**	.164	.361**	-			
X_9	.140	.085	.250*	.525**	.312**	.558**	.263*	.284**	-		
X_{10}	.215*	.186	-.058	.122	.171	.252*	.160	-.076	.155	-	
Y	.237*	.326**	.160	.394**	.132	.190	.158	.075	.154	.315**	-

X_1 = Age, X_2= Level of education, X_3= Family size, X_4= Experience in rooftop gardening, X_5= Size of rooftop, X_6= Types of plants for rooftop gardening, X_7= Annual family income, X_8= Annual income from house rent, X_9= Time spent in rooftop gardening, X_{10}= Knowledge on rooftop gardening;

Y= Use of media in receiving information by the rooftop gardeners;