STAGEWISE USE OF MASS MEDIA IN ADOPTION OF BRRIdhan28 BY THE FARMERS OF GAZARIA UPAZILA UNDER MUNSHIGANJ DISTRICT

A THESIS

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CERTIFICATE

This is to certify that thesis entitled, ***"Stagewise use of Mass Media in Adoption of BRRI dhan28 by the Farmers of Gazaria Upazila Under Munshiganj District"*** *submitted to the Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka, in partial fulfillment of the requirements for the degree of* ***MASTER OF SCIENCE*** *in* ***Agricultural Extension and Information System*** *embodies the result of a piece of bonafide research work carried out by* ***Masuda Akter,*** *Registration No.* ***08-02760*** *under my supervision and guidance. No part of the thesis has been submitted elsewhere for any other degree or diploma.*

I further certify that such help or source of information, as has been availed of during the course of this investigation has duly been acknowledged.

Dated:
Place: Dhaka, Bangladesh

Prof. Mohammad Hossain Bhuiyan)
Supervisor

DEDICATED
TO MY
BELOVED PARENTS

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ABSTRACT

The main objectives of this study were to determine and describe the stagewise use of mass media by the farmers in adoption of BRRI dhan28 and the individual characteristics of the farmers and also to explore the relationship between stagewise use of mass media and selected characteristics. Data were collected from 90 farmers of five villages of Gazaria upazila under Munshiganj district, by using a structuredl interview schedule. Appropriate scales were developed in order to measure the concerned variables. A statistical software package named SPSS was used to analyze the data and Karl Pearson Product Moment Correlation Coefficient was used to test the relationship between the independent and dependent variables. Television was found to have more uses in every stage of innovation-decision process followed by radio, leaflet, poster and newspaper respectively by the farmers. The findings also revealed that age, education family size, farm size, , attitude towards BRRI dhan28, problems in using BRRI dhan28 had significant relationship with the knowledge stage of innovation decision process. Farm size, attitude towards BRRI dhan28, problems in using BRRI dhan28 had significant relationship with the persuasion stage of innovation-decision process. Farm size, annual income, attitude towards BRRI dhan28 and problems in using BRRI dhan28 had significant relationship with the decision stage of innovation-decision process. Age, education, innovativeness, farm size, annual income, attitude towards BRRI dhan28 and problems in using BRRI dhan28 had significant relationship with the implementation stage of innovation-decision process. Organizational participation, cosmopoliteness, farm size, annual income, attitude towards BRRI dhan28 and problems in using BRRI dhan28 had significant relationship with the confirmation stage of innovation-decision process.

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ABBREVIATIONS AND ACRONYMS

DAE	Department of Agricultural Extension
BBS	Bangladesh Bureau of Statistics
et al.	And others (at elli)
d.f.	Degrees of Freedom
etc.	Etcetera
e.g.	Example
ha	Hectare
i.e.	That is
viz.	Namely
NGO	Non-Government Organization
r	Pearson's Product Moment Correlation Co-efficient
BAU	Bangladesh Agricultural University
SAU	Sher-e-Bangla Agricultural University
SAAO	Sub Assistant Agriculture Officer
UAO	Upazila Agriculture Officer
%	Percent

CHAPTER I

INTRODUCTION

1.1 Background

Bangladesh is a developing country comprising of area of 147570 sq.km. with a population of 160 million. It is considered to be the most densely populated country in the world (BBS, 2013). Farming is the main occupation of majority of its people. Farmers produce crops, livestocks, fishes, plants and other people consume those. It plays vital role in creation of employment oppurtunity, poverty alleviation and standard of living and source of earning of foreign exchange. That is agriculture is the life blood of Bangladesh economy. It contributes to GDP 17.3% and accounts for employment of 45% (Wikipedia). Historically though Bangladesh is an agrarian country before independence food deficit was a common phenomenon, there was no modern agricultural technologies except a few IRRI rice varieties, no market facilities and no training for farmers and no status for farmers. Most of the farmers used to live hand to month, in a word farmers were in a meager condition. But after liberation agricultural scientists, extensionalists and academicians worked hard and developed hundreds of technologies for agricultural development during the last 43 years. Farmers have become development partners with the concerned authorities. They now know about HYV of different crops, biofertilizers, chemical fertilizers, agronomic practices, plant protection technologies, biotechnological technologies and many others. As a result Bangladesh could achieve food security particularly in respect of food production.

A number of agricultural research organizations namely BRRI, BINA, BARI and some private organizations also have involvement in technology generation such as East West Seed Company Ltd, BRAC etc to develop and produce quality seeds for enhancement of rice development. Academics of SAU, BAU, BSMRAU so far developed a number of technologies which farmers are practicing with confidence and satisfaction.

Research institutes, private companies and universities develop technologies for the farmers who are the ultimate users. Unless the technologies are used properly the agricultural development will go in vain. So, the technologies developed by the research institutes must be diffused to the ultimate users. Diffusion of innovation process is deployed including innovation-decision process through which the ultimate users learn, decide and adopt the agricultural technologies. Diffusion of innovation means diffusion of technological knowledge. More the farmers are equipped with technological knowledge more the socioeconomic development of the farming community. That is, knowledge and development go hand in hand.

Knowledge is the first step of innovation-decision process. In fact, individual knows only what his/her mind can reflect. Knowledge concerning with transfer of technology has three dimensions, these are awareness knowledge, how to knowledge and principle knowledge (Bhuiyan, 2012). It is evident that if an individual possesses knowledge all about a technology s/he can easily proceed toward next steps of innovation-decision process. Awareness is the initial stage of knowledge development. In this stage the potential users of technology know only the existence of technology with its beneficial and operational knowledge. Farmers want to be aware of such technology that has high production commitment, cheaper, easy operation and available. Soon after gaining knowledge about technology farmers develop attitude and acquire skill on it. Then they move towards adoption of technologies. It is worth of mention that if there is a gap in knowledge development diffusion of innovation might not occur in the social system.

Knowledge does not occur among the farmers of Bangladesh automatically. Farmers seek technology if they have felt need of it. On the other hand research institutes seek diffusion agencies to take their technologies at the door steps of farmers. Diffusion agencies receive technology through the collaboration system and seek client system where to be diffused a particular technology. In a simple word it can be said that research institutes develop technologies, diffusion agencies diffuse them among

farmers and farmers use them. In extension system of Bangladesh, Department of Agricultural Extension (DAE) organize communication system through which farmers gain knowledge about the use of technologies and gradually decide to adopt it and implement in the field. DAE has the accountability to reach the technological information among the farmers at right time. That is, right technology at the right time to the right farmers in the right ways to be reached. DAE reaches to the client system with technological information through mass media channels (MMC) and interpersonal channels (IPC). MMC plays vital roles in every stage of innovation-decision process. The mostly used MMC are television channels, radio, poster, leaflet, bulletin, and community radio. In the context of Bangladesh farmers initiative of seeking modern technology of rice is rare. They depend upon initiative taken by diffusion agencies. Anisuzzaman (2003) showed that among the mass media radio plays a vital role in communicating information. The next important media were progressive farmers, TV, Result demonstration for adoption of all the practices of rice production technologies. Nuruzzaman (2003) showed that television had been used more by the farmers in receiving information than any other media like radio, folk song, agricultural fair, poster, newspaper and leaflet or bulletin.

In most of the cases the effectiveness of extension educational programmes depends on the proper selection and use of mass media. Mass media shows better result to create awareness and increase knowledge and increase adoption with the audience of low knowledge, attitude and practice level (Adhikarya, 1994).

In 1994 Schramm in his study, entitled ‘Mass media and national development’ points out why radio and television should be particularly useful in rural development programme. According to him, it covers great distance and leaps all kinds of natural barriers; it is swift in reaching a listener. It is the cheapest of the major media in production and reception can also be inexpensive. In the USA use of radio as source of extension information has steadily increased, in 1950 the extension personnel made

143,000 broadcasts, in 1962 this figure had reached 413,755 (Hatch and Sanders, 1966).

Mass media provides necessary information for the farmers to help them change their way of cultivation from traditional to modern one. Increase of per unit area of any crop cannot be attained without a sound effective communication system. Mass media namely radio, television, magazine, newspaper, leaflet, booklet, publication, poster play an important role especially in the awareness and interest stages (Kashem, 1995). Message through mass media can motivate, stimulate, induce and change their basic attitudes of the people at all cultural and age levels.

The stagewise use of mass media in adoption of BRRI dhan28 is very much important. Awarness is the first step of knowledge development. Research institutes constantly developing technologies and mass media constantly spreading knowledge among farmers. But there is no sufficient empirical research to perceive the extent of stagewise use of mass media in adoption of BRRI dhan28.

In view of the importance and effect of stagewise use of mass media in Bangladesh and no research work has so far been undertaken in this aspect, the researcher became keenly interested and undertook a study entitled 'Stagewise use of mass media in adoption of BRRI dhan28 among farmers of Gazaria upazila under Munshiganj district.'

1.2 Statement of the problems

The success of any innovation depend on its dissemination among the potential users, which ultimately measured by the level of adoption of that technologies. It is anticipated that certain sustainable development can take place in Bangladesh if the relevant technologies can be transferred through right channels at the right time to the right people.

In view of the foregoing discussion, the framework of this study stems from ‘ mass communication media’ which is of great concern to national policymakers. By mass media, any messages can be diffused within a very short time. Mass media involves radio, television, magazine, newspaper, leaflet, booklet, publication, poster etc. From research point of view it is not possible to involve all the items in a single study. This research is therefore confined to few of them namely radio, television, newspaper, poster and leaflet. The purpose of the study is to ascertain the mode, nature and stagewise use of mass media in adoption of BRRI dhan28. The study is also aimed to have an understanding of the selected characteristics of the farmers and their relationship with the stagewise use of mass media by the farmers in adoption of BRRI dhan28. The purpose of the study was aimed to have answer the following questions:

1. What are the characteristics of the rice farmers?
2. To what extent stagewise mass media channels are used in innovation-decision process of BRRI dhan28?
3. What are the preferences of mass media at each stage of innovation-decision process?
4. What relationship exists between the selected characteristics of the farmers and stagewise use of mass media in adoption of BRRI dhan28?

1.3 Objectives of the study

The following specific objectives were formulated to run the research towards proper direction:

1. To identify and describe the characteristics of BRRI dhan28 adopters that influence them in use of mass media in innovation-decision process. The characteristics are:
   i. Age
   ii. Level of Education
   iii. Family size
   iv. Farm size

v. Annual income
vi. Organizational participation
vii. Innovativeness
viii. Cosmopoliteness
ix. Attitude towards BRRI dhan28
x. Problems in using BRRI dhan28

2. To determine and describe the stagewise use of mass media in adoption of BRRI dhan28 by farmers of Gazaria upazilla under Munshiganj district.
3. To compare preferences of use of mass media at different stages in adoption of BRRI dhan28?
4. To explore the relationship between the selected characteristics of the farmers and their stagewise use of mass media in adoption of BRRI dhan28.

1.4 Scope and Limitation of the study

The respondents of the study were exclusively selected from Gazaria upazila of Munshiganj district. But the findings could be applicable in other areas of Bangladesh where the physical, socio-economic, and cultural conditions are alike with those of the study area. Thus the findings of the study could be useful to the mass communication planners, extension personnel and field workers for successful dissemination of BRRI dhan28 and concerned technologies. However, in order to conduct the research in a meaningful and manageable way it became necessary to impose certain limitations in regard to certain aspects of the study, considering the time, money and necessary resources available to the researcher. The study has the following limitations:

i. The study was confined to the area of Gazaria Upazila of Munshiganj District.
ii. Population of the study was limited to the mass media users only.
iii. Farmers may use mass media in receiving information on different aspects, such as health, nutrition, family planning, mass education, agriculture, religious affairs etc. but this study was confined only to the adoption of BRRI dhan28 using mass media channel at stages of innovation-decision process.

iv. Farmers of Gazaria Upazila had many characteristics but in this study only ten characteristics were selected for investigation.

v. Data furnished by the respondent farmers were considered to be valid and reliable.

vi. Facts and figures collected by the investigator were related to the objective of the study.

vii. Reluctance of the farmers to provide information was overcome by establishing rapport.

1.5 Assumptions of the study

An assumptions is the supposition that an apparent fact or principle is true in the light of the available evidence (Goode and Hatt, 1945). That means the assumption was taken as a fact or belief to be true. The following assumptions were made in conducting study:

i. The respondents included in the sample were capable to satisfy the queries made by the researcher.

ii. Data provided by the respondents were reliable.

iii. As the respondent farmers were the representative sample, their views and opinions were also thought to be representative.

iv. As the study area and the respondents were known to the researcher the respondents furnished unbiased information with no hesitation.

v. The mass media included in the study were known to the respondents.

vi. The findings of the study were expected to be useful for planning and execution of various extension programmes and the process of transferring agricultural technologies.

1.6 Statement of Hypothesis

A hypothesis is a proposition or a set of proposition set forth as an explanation for the concurrence of some specific group of phenomena either asserted merely as a provisional conjecture to guide some investigation or accepted as highly probly in the light of established fact (Kothari, 1994). Hypothesis may be divided into two categories-a) Research hypothesis (Hi) and b) Null hypothesis (Ho). The following null hypothesis were formulated to explore the relationship between the selected characteristics of the farmers and stagewise use of mass media.

1.6.1 Null Hypothesis

For testing the hypothesis statistically, the following null hypothesis were formulated- There is no relationship between age, education, family size, organizational participation, cosmopoliteness, innovativeness, farm size, annual income, attitude towards BRRI dhan28 and problems in using BRRI dhan28 of the farmers and their stagewise use of mass media in relation in adoption of BRRI dhan28.

1.4 Definition of the terms

A number of key terms have been used throughout the study. These were defined below to avoid confusion and misunderstanding.

Mass media

The mass media are the means of communication or instrument or apparatus through which messages are transmitted towards relatively large, heterogeneous and anonymous audience within a relatively short time from the source to the audience. Mass media included in the study were radio, television, newspaper, poster and leaflet.

Adoption

According to Rogers (1995) ‘Adoption is a decision to make full use of an innovation as the best source of action available’. Ray (1991) said ‘when an individual takes up a new idea as the best course of action and practices at the phenomenon is known as adoption’. However, adoption of production technologies refers to one’s use of

different practices of production technologies and the decision to continue their use in future. It is an individual decision making process.

BRRI Dhan28

It refers to a modem variety invented by Bangladesh Rice Research Institute (BRRI) in 1994 which possesses the quality for better performance in respect of yield, quality, insect and disease resistance and this is grown during October to November where seedling are raised in a seedbed and transplanted in the main field.

Radio

Radio, a powerful and popular audio media belongs to mass media. It conveys message from one station to all who listen radio programme. It makes things excitingly alive and believable. Furthermore, it can motivate, stimulate, induce belief, create and change basic and attitudes and it reaches to a large number of people inexpensively (Khandakar, 2007).

Television

Television is an electronic audio-visual medium, which provides pictorial messages with synchronized sound. Various educational programs, agriculture and rural development programs are displayed through different TV channels in Bangladesh. BTV broadcasts Mati-o-Manus, channel 'I' broadcasts Hridoye Mati-o-Manus etc. These Programmes support the effort of extension staff and also alarm about untoward situation. (Khandakar, 2007).

Newspaper

It refers to a bunch of loose printed papers properly folded. These contain news, views, advertisements, educational messages and agricultural message, published daily or weekly basis from the capital city and district town as well (Khandakar, 2007).

Poster

Poster is a placard displayed in a public place with the purpose of creating awareness amongst the people (Khandakar, 2007).

Leaflet

A leaflet is usually a single sheet of printed paper sometimes folded. The leaflet usually treats one job or one small problem. The best leaflet gives accurate or specific instructions on how to do a job (Supe, 1997).

Age

It refers to the period of time from his/her birth to the time of investigation. In this study the age of BRRI dhan28 growers was considered only.

Education

Education refers to the desirable change of human behavior, i.e. change in knowledge, skill and attitude of an individual through reading, writing and other related activities. In this study education status of BRRI dhan28 growers of Gazaria upazila was taken into consideration.

Family size

It refers to the total number of family members of the BRRI dhan28 growers of Gazaria Upazila.

Organizational participation

Organizational participation was referred to the involvement of persons in local organizations for recreation, sports, health and sanitation, agricultural development, religions performance etc. The type of organizational participation may be as ordinary member, executive member or executive officer. In this study the organizations which existed in the study area were considered only.

Cosmopoliteness

It refers to the degree or the frequency of movement of the farmers to outside places from his/her working place or society. In this study cosmopoliteness concerning of BRRI dhan28 was considered only.

Innovativeness

Innovativeness is the degree to which an individual or other unit of adoption is relatively earlier in adopting new ideas than other members of a social system (Rogers,1983).

Firm size

Farm size refers to the total area of a BRRI dhan28 grower on which family carry out farming operations. The area was estimated in terms of full benefit of the farmer's family.

Annual Income

It refers to the earning by the respondent himself/herself and other members of his family from agriculture and other sources during a year. It was expressed in taka.

Attitude towards BRRI dhan28

Attitude is more or less permanent feeling, thoughts and predisposition people have about certain aspects of their environment (Hawkins, Dunn and Cary, 1982). The attitude towards BRRI dhan28 was meant farmers' believes, feelings and actions toward the adoption of BRRI dhan28 in respect of its adoption in real situation.

Problem in using BRRI dhan28

It refers to the extent of problems faced by farmers in BRRI dhan28 cultivation. The possible problems faced by the farmer were mainly collected from previous researches particularly in respect of lack of quality seed, difficult to use recommended doses of fertilizer, difficult to use IPM practices, more insect attack, no source of supplementary irrigation, outbreak of diseases in the field of BRRI dhan28, seed treatment fungicide is

not available, excessive rain in harvesting and threshing time, market price of paddy/rice is low.

Innovation Decision Process

Innovation decision is the process through which an individual (or other decision making unit) passes from first knowledge of an innovation, to forming an attitude toward the innovation, to decision to adopt or reject, to implementation of the new idea, and to conformation of this decision (Rogers,1995). Innovation decision process consists of five distinct stages which are defined below:

i. **Knowledge stage**

   Occurs when an individual (or other decision-making unit) is exposed to the innovation existence and gains some understanding of how it functions.

ii. **Persuasion stage**

   Occurs when an individual (or other decision-making unit) forms a favorable or unfavorable attitude towards the innovation.

iii. **Decision stage**

   Occurs when an individual (or other decision-making unit) engages in activities that lead to a choice to adopt or reject the innovation.

iv. **Implementation stage**

   Occurs when an individual (or other decision-making unit) puts an innovation into use.

v. **Confirmation stage**

   Occurs when an individual (or other decision-making unit) seeks reinforcement of an innovation-decision already made, but he or she may reserve his/her previous decision if exposed to conflicting message about the innovation.

CHAPTER II

REVIEW OF LITERATURE

Mass media generally convey messages to a large group of audience irrespective of distant and acts as distance learning mode to the farming community in its simple form. The purpose of this chapter is to present a brief review of literature having relevance to the present investigation. In order to focus the pertinent reviews, this chapter has been divided into three sections. First section deals with the findings on the use and preference of mass media by the farmers, second one is devoted to a discussion on the findings of studies exploring relationships between the selected characteristics of the farmers and their use of mass media and the third section is conceptual framework of the study.

2.1 Use of Mass media

Lionberger (1951) found in a study of low-income Missouri farmers that compliance with each of the approved practices is positively associated with the number of personal, reading, and radio sources of information recognized by the households.

Wilkening (1956) observed that the low percentages giving the mass media for help in decision making and in the action stages of adopting changes does not mean that farmers do not obtain some help from them. The question elicits responses with respect to the most usual source for the different types of information and not with respect to the use of a source of information.

Copp, Sill and Brown (1958) concluded that the greatest thrust out from the knowledge stage was provided by the use of the mass media, while interpersonal channels were salient in moving individuals out of the persuasion stage. Using a communication channel that was inappropriate to a given stage in the innovation-decision process (such as an interpersonal channel at the knowledge stage) was associated with later adoption of the new idea by an individual because such a channel use delayed progress through the process.

Coughenour (1960) also found a positive correlation between the use of both institutionalized sources and print media and adoption of an innovation.

Nataraju and Channegowda (1985) found in a study that respondents used radio (54%), newspaper (46%), neighbors (23.3%), demonstrations (10.6%) and group meetings (6%) in receiving information on improved dairy management practices.

Mekabutra (1985) conducted a study in Thailand and reported that among the mass media that offered more knowledge in agriculture was radio, followed by television and newspaper respectively. Considering knowledge gained form mass media that were applicable to their work, farmers opined that television provided about 83.5 percent, radio 78 percent and newspaper 77 percent.

Sinha (1985) in a study in Bihar on mass media and rural development found that television has a very positive role to play in village development, but that it is essential to support it with appropriate development infrastructure and on site advisory officer.

Chidanandappa and Veerabhadraiah (1988) examined different mass media sources used by extension personnel and reported that extension personnel made use of the package of practices like booklets, extension folders, radio, newspaper and farm magazine to a large extent as media of information.

Talbbada (1988) in his study in Philippines found that radio vision was superior over radio, and the dialogue type broadcast was more effective than lecture type.

Van den Ban Hawkins (1988) reported that in industrialization countries people spend more time with television and radio than printed word. Radio is most important mass medium for farmers of less industrialization countries. The urban middle class in less industrialization countries now also spend considerable time watching television but it is not yet a very important medium in rural areas of this countries.

Dinampo (1989) conducted a study in philippines to determine communication need and preferences. He observed that farmers were found to prefer an interpersonal media

(extension agent) rather than mass media. Among mass media, first preference was radio followed by printed materials and audio visual sources. eas of this countries.

Reisner and Hays (1989) reported that the agricultural press is a vital link in transplanting information to US farmers.

De la Vega (1990) conducted a study in philippiens and found that in terms of availability of mass communication media channels, radio and TV were the most available. A great majority of the respondents listen the radio everyday and consider it is their main source of news. The communication channels they preferred as credible were radio, interpersonal source and TV.

Hoque (1990) in his paper concluded that mass media can perform a better role in technology diffusion that what those do today. Therefore, planned efforts to introduce more of mass media strategies that proven effective by experiments are highly recommended.

Sauquet (1990) based on the experience of Brazilian extension service reported that television plays an important role, where in every Sunday morning, an agricultural programme is watched by millions of farmers.

Kashem and Halim (1991) in a study found that the highest proportion of the farmers (34.89) used interpersonal contact media in the adoption of modem rice technologies. Almost equal proportion (32.52) of farmers had individual contacts. This was followed by mass contacts method. Farmers very often discuss or seek advice from their friends, relatives, neighbors and different input dealers regarding the use of modem practices in rice cultivation.

Malik (1991) in a study in Pakistan reported that radio was the only medium which broadcasted regular agricultural progammes for the farming community of Pakistan. The largest segment of population listened to radio programme. Radio solves the problems of inaccessibility of media and that of illiteracy of farmers.

Sianturi (1992) conducted a study in a rubber development project and observed that radio was the highest rated sources of agricultural information followed by television. Gunzales (1993) reported that among the mass media, radio was the most available and preferred source of development information.

Galindo (1994) in his study in Mexico on communication media used by farmers revealed that television and radio were the most widely used communication media and talks, demonstration and training courses were the preferred media for receiving information.

Khan and Paracha (1994) conducted a study in two villages in Pakistan, one innovative and other non-innovative, among the farmers of a cotton producing district and reported that the main channel of communication. The mass media were centrally organized and included radio, television and newspapers.

Ahmed *et al.* (1994) conducted that farmers received more amount of information from radio than TV. It may be due to the reason that farmers have more access exposure to radio because numbers of farm broadcasting programmes were more in radio than of TV.

Kabir and Bhattachargee (1994) conducted a study on the impact and television on rural people and found that the responses regarding the usefulness of TV programme were similar to responses regarding usefulness of radio broadcast. All of the telecasts were of average benefit to most of the male and female audiences. Among the need based telecast “Apnar Shastha” seems to be most effective programme for the male viewers. About 53% of the male respondent watched this programme. The next important one was “Mati-O-Manus” having 35.25%viewers.

Molinar *et al.* (1994) in their paper conducted that radio would remain the most significant medium in the pacific for some time because of the geographical nature of

the islands. Continued training radio, video and print are vital if they are to meet the spatial 14 dimension of the communication process.

Rogers and Shoemaker (1995) concluded that mass media channels are of relatively greater importance at the knowledge stage in both developing and developed countries, although there was a higher level of mass media channel usage in the developed nations, as we would expect. Mass media channels were used by 52 percent of the respondents in developed nations at the persuation stage and 18 percent at the decision stage

DAE (1995) in order to achieve the objectives of the extension programmers consider the following extension programmers consider the following extension methods and strategies:

- Media campaign including printed media, radio and television
- Thana and district fair
- Traditional and folk media
- Group meeting

Farmers training; motivational tour, farm walk, method demonstrations, field days, result demonstration, individual farm visit, etc. Printed media commonly used are bulletins, posters, leaflet, circular letters, newspaper and magazines.

Rahman (1995) in his paper reported that the rural press can serve the farmers and families in the villages by providing timely information regarding farming and harvest. The rural press by proving up-to date market prices of agricultural products can help the local farmers.

Westoff and Rodriguer (1995) reported that in Kenya, about 15% women neither saw nor heard radio message. The population rose to 25% among those who have heard radio message, to 40% among those who were exposed to both radio and print message and to 50% among those to radio, print and television message of family planning

actively. It was opined this mass media can have an important effect on reproductive behavior.

Khan (1996) conducted a study on the use of information sources by the poor farmers and conducted that 75% of the respondents had medium use of various information sources for receiving agricultural information.

Halim and Miah (1996) conducted a study and found that the women of modern villages with higher socio-economic status used more cosmopolite media. Cosmopolite media included radio, television extension agents etc. Among the mass media, they used radio and television as a vital source of information. Radio was very frequently (69.7%) used by all category of farm women, while TV was used by less number of women (26.9%). Islam (1996) in study found that the highest proportion of the respondents (44.55) belonged to medium media exposure category and 38.18% belonged to low exposure and 17.27% belonged to high exposure group. He also found that among 15 media, radio ranked in 6, television 7, fair 8, agricultural publication 15, and the rank 1-5 was for individual media.

Wabhitkar *at al*. (1998) reported that contact with extension agencies and mass media exposure were found to be significantly related to adoption. Age and scientific orientation were significantly related to adoption.

Egbule and Njoku (2001) in their study on mass media for adult education in Nigeria found that mass media have performed poorly in disseminating requisite agricultural information to farmers, although there is a positive correlation between mass media usage and farm yield. Farmers' preference for television over other mass media channels.

Perianayagam and Arokiasamy (2002) conducted a study in the northern states in India and reported that women's education and exposure to the mass media are two important developmental indicators that bear a highly significant positive correlation with contraception and a negative relationship with fertility through all regions.

Nuruzzaman (2003) conducted a study in Mymensingh district and found that selected mass media like television had been used by the farmers in receiving agricultural information than other mass media like radio, folk song, agricultural fair, poster, newspaper and leaflet.

Mazher (2003) in a study in Pakistan reported that Pamphlets, Magazines and newspapers were suitable for dissemination of sugarcane production technologies in central Punjab-Pakistan.

Anisuzzaman (2003) found that radio seems to be a powerful media in the mass contact method. Progressive farmer and contact farmer frequently used communication media. TV, result demonstration and printed materials are also important media communicating agricultural information. But the least used media were newspaper and field tour.

Alam (2004) in his study observed that the highest extents of communication media were used by the farmers and found that TV (rank one) and it was followed by local leader (rank two), radio (rank three), result demonstration (rank four) and method demonstration (rank five) in receiving information on winter vegetables cultivation.

Mollah (2006) found that the highest extent of use of communication media by the farmers was found in contact with Sub-assistant Agricultural Extension Officer was followed by television in relation to rice production technologies.

Roy (2006) found that about 85% respondents opined that mass media had medium to highly effective in adoption of rice production technology in this study area.

Khandker (2007) Television was found to have more uses followed by agricultural fair, newspaper, radio and poster respectively by the farmers.

2.2 Relationship between Selected Characteristics of the Farmers and their use of Mass Media

2.2.1 Age

Chakraborty (1992) found that there was no significant relation with age of the farmer and radio listening habit.

Galindo (1994) found that the exposure to the communication media was closely related with the age of the farmers.

Sarker (1995) in his study concluded that age of the farmers had negative and insignificant effect on the use of communication media.

Islam (1998) found that the age of the farmers had negative and significant relation with the use of communication media.

Khan (1996) concluded that age of the farmers had a negative and insignificant effect on the use of information sources.

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

2.2.2 Level of education

Chakraborty (1992) showed that the education of the farmer had significant relationship with their time spend in listening to radio. However he found that the was no statistically significant relationship between their education and listening habit.

Islam (1998) found that the education of the farmers had positive and highly significant relationship with their use of communication media.

Sarker (1995) in his study conducted that education of the farmers had positive and significant relationship with their use of communication media.

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

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

Mollah (2006) observed in his study that the education of the farmers had significant positive relationship with the rice production technologies.

Roy (2006) in his study observed that education of the farmers had a highly significant and positive relationship.

2.2.3 Family size

Islam (1998) observed that there was no significant relationship between family size of the farmers and their opinion on the effectiveness of " Mati-o- Manush" TV program in disseminating agricultural information.

Sarker (1995) in his study conducted that family size of the farmers had no significant relationship with their use of communication media.

Nuruzzaman (2003) in his study observed that family size of the farmers had no positive relationship with their use of mass media.

2.2.4 Farm size

Bhuiyan (1988) found that the farm size of the farmers had positive and significant effect on the use of communication media.

Islam (1995) found that farm size of the farmers had a positive and significant relationship with their use of communication media.

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

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

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

2.2.5 Annual family income

Bhuiyan (1988) in his study observed that income of the farmers had no significant relationship on the use of communication media.

Hossain (1996) found that income of the farmers had positive and significant relationship with their use of television as agricultural information medium.

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

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

Rahman (2003) in his study conducted the annual income of the farmers had significant and positive relationship with the use of television.

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

2.2.6 Organizational participation

Bhuiyan (1988) in the study found that organizational participation of the farmers had no significant effect on the use of communication media.

Islam (1998) in his study on wheat growers found that organizational participation of the farmers had positive significant relationship with their use of communication media.

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

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

2.2.7 Innovativeness

Islam (1998) found that innovativeness of the farmers had positive and highly significant relationship with their use of communication media.

Hossain (1996) found that innovativeness of the farmers had positive and significant relationship with their use of television as an agricultural information medium.

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

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

2.2.8 Cosmopoliteness

Latif (1974) found that the relationship between cosmopoliteness and communication exposure was positively significant.

Bhuiyan (1988) in a study observed that the relationship between cosmopoliteness and the use of communication media was not significant.

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

2.2.9 Attitude towards BRRI dhan28

Sarker (1995) in his study conducted that attitude towards BRRI dhan28 of the farmers had a positive significant relationship with their use of communication media.

Islam (2005) in his study concluded attitude towards BRRI dhan28 of the respondents had no significant relationship with their use of printed materials.

Nuruzzaman (2003) in his study conducted that attitude towards BRRI dhan28 of the farmers had no significant relationship with their use of mass media.

Islam (1998) observed that there was positive significant relationship between attitude towards BRRI dhan28 of the farmers and their opinion on the effectiveness of " Mati-o-Manush" TV program in disseminating agricultural information.

2.3 The Conceptual Framework of the study

In scientific research, selection and measurement of variables constitute an important task. The hypothesis of a research while constructed properly contains at least two important elements i.e "a dependent variable" and "an independent variable." A dependent variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variables (Townsend, 1953). An independent variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationships to an observed phenomenon. A simple conceptual framework for the study is made on the basis of review of literature which is shown below:

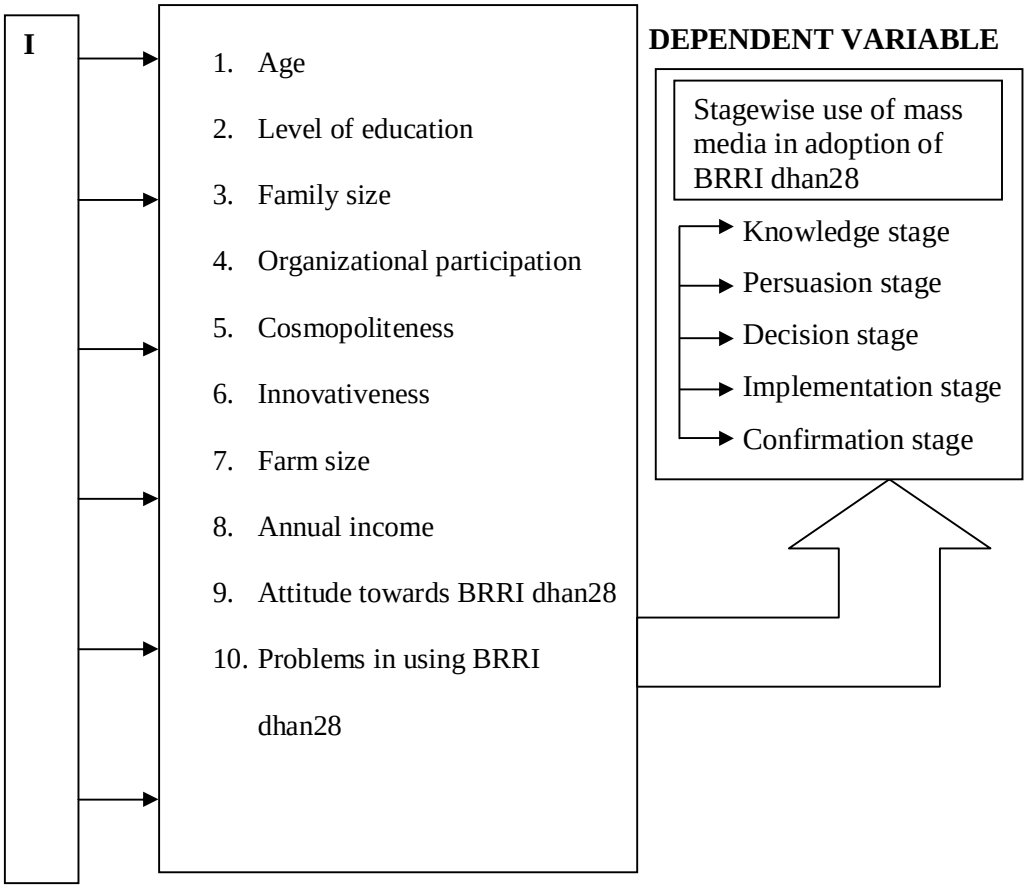

Fig. 2.4: A simple conceptual framework of the study

CHAPTER III

METHODOLOGY

Methodology consists of methods and procedure of data collection, data analysis and measurement of variables. More appropriate the methodology more accurate the research. The basis materials for conducting any research are needed unbiased information and facts. Methodology should be appropriate so that the researcher can construct data collection instrument properly, collect data smoothly and analyze them in an opposite way, which will help her/him arrive at collect decision. Construction of research methodology requires a vast knowledge, experience and skill. Keeping this in mind the researcher went through previous studies, obtained view from supervisors and experts regarding all aspects of this piece of the study. Finally, it was possible to construct a useful methodology that led the researcher in a right direction in order to accomplish the study.

3.1 Locale of the study

Gazaria upazila of Munshiganj district was selected purposively as the locale of the study. Gazaria upazila has 8 unions, out of which Imampur union was selected purposively. Imampur union has 16 villages out of which 5 villages were selected randomly. These five villages constituted local of the study and these 5 villages were Bagaiakandi, Joshtitola, Adharmanik, Sholoani and Rosulpur.

3.2 Population and sample of the study

The researcher herself with the help of local leaders and concerned Sub Assistant Agricultural Officer prepared an updated list of all the BRRI dhan28 growers of randomly selected villages. The total numbers of farm families in these villages were 900, which constituted the population of the study. Sample size was determined by using formula, which was estimated a sample size of 90 rice growers. In calculating sample size, 10% margin error was chosen from the following formula (Moral, 2011):

$n=\frac{N}{1+N(e)^2}$

where,

n=Sample size

N=Population size

e=margin of error

Ninety respondents were selected from the population following prortionate random sampling technique. Number of rice growers included in the reserve list were 9. The reserve list were used only when a respondent in the original list was not available. The distribution of the sample farmers and those in the reserve list from the villages is shown in Table 3.1.

Table 3.1. Distribution of the farmers according to population and sample size

Name of village	Population of rice growers	Number of rice growers included in the sample	Number of rice growers included in the reserve list
Bagaiakandi	224	22	2
Sholoani	180	18	1
Joshtitola	138	14	3
Adharmanik	258	26	1
Rosulpur	100	10	2
Total	900	90	9

3.3 Instruments for Data Collection

In order to collect relevant information, a structured interview schedule was prepared considering the objectives of the study. The schedule was prepared in both English and Bengali for clear understanding of the respondents. The schedule obtained both closed and open forms of questions. Appropriate scales were developed to measure selected characteristics of the farmers and the dependent variables.

A pre-test survey was undertaken before the actual collection of data. This survey provided an opportunity to examine the effectiveness of the schedule which revealed some unforeseen defects associated with it. Based on the pre-test experience, necessary correction, addition, alteration, rearrangements were made. Thus the interview schedule was prepared for the final use. The Bengali version of the interview schedule was multiplied as per requirement to collect data from the respondents. The English version of the interview schedule was enclosed in Appendix-A.

3.4 Selection of variables

A variable is any characteristics which can assume varying or different values in successive individual cases (Ezekiel and Fox, 1959).An organized piece of research usually contains at least two important elements viz. independent and dependent variables. An independent variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationships to an observed phenomenon. A dependent variable is that factor which appears or varies as an effect of the independent variables (Townsend, 1953)

The successful selections of variables ensure the successful research. In appropriate and inconsistent selection of variables may lead to faulty results. The researcher employed adequate care in selecting the variables of the study. For selection of variables the researcher went through the past related literature as far as possible and had discussion with the faculty members, experts, researchers and related fields, considering personnel, economic, social and psychological factors of the rural community and time

and resources availability to researcher ten characteristics of the rice farmers were selected as independent variables like Age, Level of education, Family size, Organizational participation, Cosmopoliteness, Innovativeness, Farm size, Annual income, Attitude towards BRRI dhan28 and Problems in using BRRI dhan28. Use of mass media in adoption of BRRI dhan28 was the dependent variable.

3.5 Data collection

Data were collected by the researcher herself with the help of local leader, Sub-Assistant Agricultural Officer (SAAO) through interview schedule. To get valid and relevant information, the researcher made all possible efforts to explain the purpose of the study to rice farmers. Sub-Assistant Agricultural Officer and local opinion leaders helped the investigation in this regard. Appointments with the interviewees were made in advance with the help of the concerned Sub-Assistant Agricultural Officer. While starting interview with any respondent, the researcher took all possible care to establish rapport with her/him, so that the rice farmers did not feel hesitation to furnish proper data. In that way, data for this study were collected through personal interview by the researcher herself during 25 August to 27 September 2015.

A single interview was carried out with each respondent, and thus a great reliance was placed on the ability of farmers to recall the relevant information. The respondents were assured about the confidentiality of their information delivered to the researcher.

3.6 Processing of data

The collected raw data were examined thoroughly to detect errors and omission. As a matter of fact the researcher made a careful scrutiny while completing the interview schedule to make sure that the information were entered as completed as possible and well arranged to facilitate coding and tabulation. Minor mistakes were detected, which were corrected very promptly.

Having consulted with the research supervisor, a detailed coding plan was made. All the responses in the interview schedule were given numerical values. Local units were converted to the standard units. All the individual responses of the questions of the interview schedule were transferred to a master sheet to facilitate tabulation. In case of qualitative data, appropriate scoring technique was followed to convert them into quantitative forms. These were than tabulated.

3.7 Measurement of variables

In order to conduct a study in accordance with the objectives it was necessary to measure the variables. The procedures of measuring the variables have been described below.

3.7.1 Measurement of independent variables

3.7.1.1 Age

Age of the respondents was determined by the number of years from their birth to the time of data collection. A score of one (1) was assigned for each and every complete year of a respondent's age. If a farmers was at the age of 25 years his/her age score was assigned as 25.

3.7.1.2 Education

Education of a respondent was measured in term of classes passed by him in formal education system (i.e. school college and university) if a respondent pass the final examination of class V in the school, a score of 5 (five) was assigned for calculating his /her education score. A respondent who could sign only had education score of 0.5 (point five) and a respondent who did not know reading and writing had education score of 0 (zero). Based on the level of education the respondents were categorized into no education, primary education, secondary education, higher secondary education and higher education.

3.7.1.3 Family size

Family size of a respondent was determined in terms of a total number of members of each respondent family. The family members included respondent himself/herself spouse, sons, daughters and other dependents. The actual number of family members expressed by the respondents was considered as family size score. If a respondent had 5 members in his family, his/her family size score was 5 (five). Based on the family size score the respondents were categorized into small, medium and large.

3.7.1.4 Farm size

Land is the most important capital of a farmer and the farm size has s positive influence on many personal characteristics of a farmer. Farm size was estimated in terms of full benefit to the respondent. It was measured by using the following formula

Farm size=$a+b+\frac{1}{2}(c+d)+e$

Where,

a=Homestead area including garden, pond and fallow land

b=Own land under own cultivation

c=Land taken from others as share cropping

d=Land given to others as share cropping

e=Land taken from others on lease

Actual size of the farm was considered as the score of the farm size. For example, if any respondents had a farm of 0.02 ha, then his score was 02. Based on the achieved farm size score the respondents were categorized into marginal, small, medium and large (DAE, 1999).

3.7.1.5 Annual income

Income of a respondent was measured in term of taka. Family income of a respondent was computed on the basis of total yearly earning from agriculture and other sources (service, business, day labor etc.) by the respondent himself/herself and other family members. The value of all agricultural crops, livestock, Poultry, egg, fisheries, fruits,

vegetables etc. were taken into consideration. The income score was assigned as one (1) for each one thousand taka of income. If a farmer had annual income of Tk 20,000 her/his income score was assigned as 20.

3.7.1.6. Organizational participation

Organizational participation score of respondents was measured on the basis of his/her participation in different organizations related to agriculture and rural development in the past and present time. Organizational participation score of a respondent was measured by considering the nature of involvement and duration of involvement in different organizations. The respondents were asked about their nature of involvement and duration of participation in selected 10 (ten) organizations and the scoring were done in the following way:

Organizational participation score=$\sum P \times D$

Where,

P=Participation score

D=Duration (No. of years)

The score assigned against the difference level of participation stated below:

Level of participation	**Assigned Score**
a) No participation	0
b) As ordinary member	1
c) As executive member	2
d) As executive officer	3

If the individual is an executive committee member for four years his/her score of participation would be 4×2=8. Again, if a respondent had membership in two or more organization, his score was computed by adding the scores obtained from all organizational participation according to the categories of his membership.

3.7.1.7 Innovativeness

Innovativeness of a respondent was measured on the basis of adoption of 6 improved agricultural technologies by the respondents. Score was assigned on the basis of length of time a respondent was using the specific practices. The scoring was done in the following manner:

Adoption period	**Assigned score**
Within 1 years after hearing	4
Within >1-2 years after hearing	3
Within >2-3 years after hearing	2
After 3 years of hearing	1
No adoption	0

The innovativeness score of a respondent was obtained by adding scores for all the 6 items. Thus Innovativeness score of a respondent could range from 0 to 24 where 0 indicates no innovativeness and 24 indicates maximum innovativeness.

3.7.1.8 Cosmopoliteness

Cosmopoliteness of a respondent was measured by computing a cosmopoliteness score. The cosmopoliteness score was assigned on the basis of place and frequency of his/her visit external to and outside of his own social system. Cosmopoliteness score was computed based on 9 places in the following manner:

Frequency of visit	**Assigned score**
Regularly	3
Occasionally	2
Rarely	1
Not at all	0

Cosmopoliteness score of a respondent could range 0 to 27 where 0 indicates no cosmopoliteness and 27 indicates maximum cosmopoliteness.

3.7.1.9 Attitude towards BRRI dhan28

Attitude towards BRRI dhan28 of a respondent referred to his feeling, belief and action tendency towards BRRI dhan28. Likert-type scale was used to determine the attitude towards BRRI dhan28. The scale contained 10 statements out of which 5 statements were positive and 5 statement were negative. These positive and negative statements were arranged alternately. A statement was considered positive only when it reflected the idea of favorableness toward BRRI dhan28. The respondents were asked to express the opinion in the form of strongly agreed, agreed, no opinion, disagreed, strongly disagreed. Scores of 5, 4, 3, 2 and 1 were assigned respectively in case of strongly agreed, agreed, no opinion, disagreed, strongly disagreed for a positive statement. On the other hand, for negative statement reverse scoring method was followed.

Hence attitude towards BRRI dhan28 was determined by summing up the scores obtained by the respondents. Thus, possible attitude towards BRRI dhan28 of the respondents could range from 10-50, Where 10 indicate very unfavorable attitude and 50 indicate highly favorable attitude towards BRRI dhan28.

3.7.1.10 Problems in using BRRI dhan28

The extent of problem faced by the farmers in adoption BRRI dhan28 was another independent variable in this study. It was measured on different aspects of problem in adoption of BRRI dhan28. The possible problems faced by the respondents were collected from farmers during pretest. The problems were lack of quality seed, difficult to use recommended doses of fertilizer, difficult to use IPM practices, more insect attack, no source of supplementary irrigation, outbreak of diseases in the field of BRRI dhan28, seed treatment fungicide is not available, excessive rain in harvesting and threshing time, market price of paddy/rice is low of the study area prior to preparation of the interview schedule. Numerical values assigned to the scale were 3, 2, 1 and 0 for the answer of very high, high, medium and not at all respectively. Then problems score of a respondent was determined by summing up his/her response to all the items. Thus possible scores of problems in using BRRI dhan28 could range from 0-27.

3.7.2 Measurement of dependent variables

Innovation decision process comprised of 5 stages viz. a) knowledge stage, b) persuasion stage, c) decision stage, d) implementation stage and e) confirmation stage. Use of mass media at each stage was the dependent variables of the study. To measure use of mass media at each stage five mass media namely radio, television, newspaper, poster and leaflet were selected and a 5 point (0-4) rating scale was used. Numerical values assigned to the scale were 4, 3, 2, 1 and 0 for high, medium, low, very low use and no use of mass media respectively.

Five mass media were used different purposes at each stage. The purposes of use of mass media and their possible range of scores for an individual at each stage were summarized below:

Stages	Purposes of use of mass media		No. of mass media	Rating scale	Possible range of scores
Knowledge stage	Existence knowledge of BRRI dhan28		5	0-4	0-60
	Operational knowledge of BRRI dhan28		5	0-4	
	Beneficial knowledge of BRRI dhan28		5	0-4	
Persuasion stage	Creation of interest toward BRRIdhan28		5	0-4	0-40
	Evaluation of BRRI dhan28		5	0-4	
Decision stage	Trial of BRRI dhan28		5	0-4	0-20
Implementation stage	Full use of BRRI dhan28		5	0-4	0-40
	Solving operational problems		5	0-4	
Confirmation stage	Adoption	Continuance	5	0-4	0-80
		Discontinuance	5	0-4	
	Rejection	Replacement	5	0-4	
		Later adoption	5	0-4	

Thus, the mass media use scores of a respondent could range in knowledge stage from 0 to 60, in persuasion stage from 0 to 40, in decision stage from 0 to 20, in implementation stage from 0 to 40 and in confirmation stage from 0-80. Zero (0) indicates no use and highest score indicates high use of mass media.

To compare preferences of use of mass media at each stage, media use index (MUI) for each mass media for each stage was also calculated. A total of 90 respondents gave their opinion on a 5 point (0-4) rating scale. Thus, the media use index (MUI) of a particular media at knowledge stage could range from 0 to 1080 {90 respondents × 3 purposes × (0-4) rating scale}, at persuasion stage from 0 to 720 {90 respondents × 2

purposes × (0-4) rating scale}, at decision stage from 0 to 360 {90 respondents × 1 purposes × (0-4) rating scale}, at implementation stage from 0 to 720 {90 respondents × 2 purposes × (0-4) rating scale} and confirmation stage from 0 to 1440 {90 respondents × 4 purposes × (0-4) rating scale}.

CHAPTER IV

RESULTS AND DISCUSSION

Results and discussion is the focal point of whole research work. The quality of research exclusively depends upon how well the findings of the research are discussed and interpreted. So to make the results and discussion meaningful, acceptable and universal the collected data were coded, categorized, tabulated, analyzed and statistically tested in accordance with the objectives of the study. The results have been discussed in four sections such as (i) selected characteristics of the farmers, (ii) stagewise use of mass media in adoption of BRRI dhan28. (iii) preferences of use of mass media at different stages in adoption of BRRI dhan28 and (iv) relationship between independent and dependent variables.

4.1 Selected Characteristics of the farmers

Farmers use those modern technologies and finally adopt which are suitable in their own socio-economic setup and agro-economics settings. Moreover, farmer's individual characteristics and personal make-up play a vital role in adopting any agricultural practices in the overall technology transfer process. A particular technology might be proved beneficial or suitable for a farmer but s/he may not be in a position to accept it due to his unfavorable attitude and situation factors. The individual characteristics of the farmers may greatly vary and have a great impact on the use of mass media, particularly radio, television and printed materials.

In this section the selected characteristics of the farmers such as i) age, ii) education, iii) family size, iv) organizational participation, v) innovativeness, vi) cosmopoliteness, vii) farm size, viii) annual income, ix) attitude towards BRRI dhan 28, x) problems in using BRRI dhan 28 have been discussed.

Table 4.1 Salient features of the respondents selected characteristics

The salient features of individual characteristics of the farmers are shown in table 4.1.

Characteristics	Measuring units	Possible scores	Observed scores		Mean	Standard deviation
			Minimum	Maximum		
Age	Years	-	25	60	41.01	8.91
Education	Years of schooling	-	0	12	6.51	3.95
Family size	Number	-	2	14	5.00	2.28
Farm size	Hectare	-	0.14	2.27	0.80	0.48
Annual income	'000' taka	-	32.50	255	91.64	47.95
Organizational participation	Scores	-	0	20	5.26	3.77
Innovativeness	Scores	0-24	2	22	11.78	4.99
Cosmopoliteness	Scores	0-27	4	20	9.57	3.67
Attitude towards BRRI dhan28	Scores	10-50	17	37	25.78	5.99
Problems in using BRRI dhan28	Scores	0-27	3	15	6.42	2.60

4.1.1 Age

The age score of the farmers ranged from 25 to 60 with an average of 41.01 and the standard deviation of 8.91. On the basis of age score the farmers of the study area were classified into three categories, viz. young, middle and old aged. Distribution of the farmers according to their age has been shown in the table 4. 1.1.

Table 4.1.1. Distribution of the respondents according to their age

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Young (upto 35 yrs)	29	32.2	41.01	8.91
Middle (36-50 yrs)	51	56.7		
Old (51 and above)	10	11.1		
Total	90	100		

Data presented in Table 4.1.1. indicate that the highest proportion (56.7percent) were middle aged farmers compared to 32.2 percent young and 11.1 percent old aged. It appears that overwhelming majority (88.9%) of the respondents in the study area ranged from young to middle aged. Young and middle aged people are generally more receptive to new idea and practices. In rural settings of Bangladesh, they are usually the decision makers in farming, business and social affairs as well. Hussen (2001), Islam (2002) and Hossain (2003) also found the similar findings in their studies.

4.1.2 Education

The education score of the farmers ranged from 0 to 12 with an average of 6.51 and standard deviation 3.95. On the basis of the education score the farmers were categorized into 4 categories viz. no education, primary education, secondary education and above secondary education. (Table 4.1.2)

Table 4.1.2. Distribution of the respondents according to their level of education

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Illiterate (0)	9	10	6.51	3.95
Primary education (1-5)	29	32.2		
Secondary education (6-10)	27	30		
Above secondary (11-16)	25	27.8		
Total	90	100		

The data shown in Table 4.1.2. reveal that 10% of the farmers were illiterate or had no formal education. Very few of them could sign only. But 90% respondents had meaningful literacy comprised of primary, secondary and above secondary level of education. Some of them possess graduate and postgraduate degrees. From this table it was quite evident that the educational status of the farmers was found to be higher than that of national average of 65.5% (Anonymous, 2003). So, farmers of the study area were found to be innovative, inquisitive and inclined to newness. Respondents of the area not only adopted BRRI dhan28 but also they adopted other improved agricultural technologies recommended by the research institutes and extension service as well.

4.1.3 Family size

Family size of the farmers ranged from 2 to 14 with an average of 5.0 and standard deviation 2.28. On the basis of the family size the farmers were categorized into 3 categories, such as small, medium and large family (Table 4.1.3).

Table 4.1.3. Distribution of the respondents according to their family size

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Small (2-4)	44	48.9	5.0	2.28
Medium (5-7)	40	44.4		
Large (Above 7)	6	6.7		
Total	90	100		

Data presented in the Table 4.1.3 show that the highest proportion (48.9%) of the farmers belong to the small family size category. Almost equal proportion (44.4%) of the farmers had fallen under medium family size. Only a small portion of the respondents (6.7%) had large family size with above 7 members. The average family size being 5.0 a little higher than national average of 4.9 (BBS, 2013). The smallest is the beautiful. In nucleus family people feel more secured and economically solvent which helps to take important decision as well as risk oriented activities. It was also observed that small sized family send their children to school and madrasa for education.

4.1.4. Farm size

The farm size score of the farmers of the study area ranged from 0.14 to 2.27 with average 0.8 and the standard deviation 0.48. According to the farm size the farmers were categorized into 4 categories viz. marginal, small, medium and large farmer as proposed by DAE (1999) as shown in Table 4.1.4.

Table 4.1.4 Distribution of the respondents according to their farm size

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Marginal (≤ 0.2ha)	3	3.3	0.80	.48
Small (>0.2-1 ha)	60	66.7		
Medium (>1-2.05 ha)	23	25.6		
Large (>2.05 ha)	4	4.4		
Total	90	100		

Farmers are known in their areas on the basis of farm size. Some are landless, some are marginal and some are small, medium and large. From the Table 4.1.7. it was quite clear that a bulky proportion (92.3%) of the farmers of the study area had small to medium farm owing 0.2-2.05 ha of land. The average farm size of Bangladesh is 0.81 ha which is resemble to this study (0.8 ha). Farm size of the respondents plays a vital role in adopting BRRI dhan 28. Hossain (1999) and Farhad (2003) also found the similar findings in their studies.

4.1.5. Annual family income

The annual income score of the farmers of this study ranged from 32 to 255 thousand taka with an average of 91.6 and the standard deviation of 47.95. On the basis of the annual income scores the respondents were classified into 3 categories namely, low income, medium income and high income categories (Table 4.1.5).

Table 4.1.5. Distribution of the respondents according to their annual family income

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Low income (Upto 75)	34	37.8	91.6	47.95
Medium income (75-150)	45	50		
High income (more than 150)	11	12.2		
Total	90	100		

Data from the above table reveal that the highest proportion of the farmers (50%) had medium income, while 37.8 percent had low income and only 12.2 percent had high income. In fact the majority proportion (87.8%) of the farmers of the study area constitute low to medium categories of income. Income of a farmer could be increased if s/he cultivate commercially, if s/he produces consumer demand crops and if s/he gets reasonable market price. Income of a farmer is associated with many economic activities, such as agriculture, business, job etc. Most of the rice farmers are deprived of reasonable prices for their commodities.

4.1.6 Organizational Participation

Organizational participation of the farmers ranged from 0 to 20. According to the observed scores of organizational participation the farmers were classified into no participation, low participation, medium participation and high participation categories with an average of 5.2 and standard deviation of 3.77 (Table 4.1.6)

Table 4.1.6 Distribution of the respondents according to their organizational participation

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
No participation (0)	19	21.1	5.2	3.77
Low participation (upto 6)	40	44.4		
Medium participation (7-12)	30	33.3		
High participation (Above 12)	1	1.1		
Total	90	100		

Data furnished in the Table 4.1.6. show that 21.1% farmers of the study area had no organizational participation and remaining 77.7% of the farmers had low to medium participation. Data continued in the table reveal that farmers of the study area were not enough social and community development concerned. Why so? During data collection it was observed that NGOs were busy with their money investment and recovery; government organizations were also confined to their assigned work. There was no agency to inspire them for social and community development work. More organizational participation develops extrovert mentality and establishes coordination capability and capacity to cause more mass media. Conclusion could be drawn that there were favorable condition for organizational participation in the study area.

4.1.7.Innovativeness

Innovativeness scores of the farmers ranged from 2 to 22 against possible score ranged from 0-24. The men score was 11.7 and standard deviation 4.99. On the basis of innovativeness scores, the respondents were classified into three categories as shown in table 4.1.7

Table 4.1.7. Distribution of the respondents according to their innovativeness

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Low innovativeness (2-8)	32	35.6	11.7	4.99
Medium innovativeness (9-15)	35	38.9		
High innovativeness (Above 15)	23	25.6		
Total	90	100		

Data presented in Table 4.1.7. indicate that the highest proportion (38.9%) of the farmers had medium innovativeness compared to 35.6% had low innovativeness and 25.6% had high innovativeness. Table also revealed that two thirds of the respondents had either medium or high innovativeness. This data also indicate that all the farmers of the study area were innovative. The degree of innovativeness largely depend upon their need, effort and capacity. A farmer may be high innovative for a particular innovation and low innovative for other. For example the farmer of serial number 10 was high innovative for supplementary irrigation and low innovative for Integrated pest management. It means farmers adopt innovation according to their need, effort and capacity. Hence, it may be necessary to increase the innovativeness of the mass media user farmers through providing agricultural knowledge and increasing their skills and efficiencies. Chowdhury (1997) and Podder (1999) also observed that similar findings in their study.

4.1.8. Cosmopoliteness

Cosmopoliteness scores of the respondent ranged from 4 to 20 against the possible range 0-27 with an average of 9.5 and standard deviation of 3.67. Based on their cosmopoliteness scores, the farmers were classified into three categories (Table 4.1.8.).

Table 4.1.8 Distribution of the respondents according to their cosmopoliteness

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Low (<7)	14	15.6	9.5	3.67
Medium (7-13)	66	73.3		
High (>13)	10	11.1		
Total	90	100		

Data furnished in Table 4.1.8. reveal that highest proportion 73.3% of the respondents had medium cosmopoliteness compared to 15.6% low cosmopoliteness and 11.1% high cosmopoliteness. Cosmopolite people always keep up to date information of their profession and occupation. Crop cultivation keep information from outsource places about crop production technology including HYV, IPM, Gutee urea etc. Similarly livestock keepers seek information about livestock technology. Cosmopolite farmers are more educated, more innovative and more venturesomeand more communicative (Rogers, 1983). It is therefore likely that cosmopoliteness might have favorable effect on the use of mass media in adoption of BRRI dhan 28.

4.1.9. Attitude towards BRRI dhan28

The score of attitude of the farmers towards BRRI dhan28 ranged from 17 to 37 against possible range 10-50. The average was 25.7 and standard deviation was 5.99. According to the attitude towards BRRI dhan28 scores farmers were classified into three categories such as unfavorable, neutral and favorable (Table 4.1.9). The classification was made on the basis of neutral score 30. The respondents who obtained below 30 they were confident to be unfavorable. The respondents who obtained 30 considered to be neutral and who obtained above 30 were considered to be favorable.

Table 4.1.9. Distribution of the respondents according to their attitude towards BRRI dhan28

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Unfavorable (below 30)	64	71.1	25.7	5.99
Neutral (30)	9	10		
Favorable (above 30)	17	18.9		
Total	90	100		

Obtained scores of attitude toward BRRI dhan28 indicate that the respondent farmers of the study area had some different opinion about the quality of BRRI dhan28. An overwhelming majority (71.1%) were not favorable toward BRRI dhan28. Because they found that (i) modern varieties of rice is more productive than local variety (ii) modern rice variety is more disease and insect susceptible (iii) application of gutee urea is difficult etc. One tenth of the respondents were found to be neutral toward BRRI dhan28. They were neither favorable nor unfavorable. However, about one fifth (18.9%) of the respondents were favorable. In fact the respondents whether they were favorable, unfavorable and neutral all of them were the BRRI dhan28 growers.

4.1.10. Problems in using BRRI dhan28

Problems score in using BRRI dhan28 perceived by the farmers ranged from 3-15. The farmers were classified into three categories based on their obtained scores considering mean and standard deviation of 6.4 and 2.60 respectively (Table 4.1.10.).

Table 4.1.10. Distribution of the respondents according to their problems in using BRRI dhan28

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Low problem (3-6)	36	40	6.4	2.60
Medium problem (7-10)	49	54.4		
Severe problem (>11)	5	5.6		
Total	90	100		

The data presented in Table 4.1.10. show that the highest proportion of the farmers (54.4%) faced medium severity, 40% of the farmers faced low and 5.6% of the farmers faced high severity on BRRI dhan28 cultivation. It was observed that farmers face high severity for the problems of (i) lack of quality seed (ii) no source of supplementary irrigation (iii) low market price of rice is low and medium severity for the problems of (i) more insect attack (ii) difficult to use recommended doses of fertilizer (iii) difficult to use IPM practices and low severity for the problems of (i) outbreak of diseases in the field of BRRI dhan28 (ii) unfavorable of fungicide for seed treatment (iii) excessive rain in harvesting and threshing time. On the basis of prioritization above mentioned problems could be solved.

4.2. Stage wise use of mass media in adoption of BRRI dhan28

Stage wise use of mass media in adoption of BRRI dhan28 was the main focus of the study. The use of mass media for each respondent for each stage was calculated. Based on their mass media use scores respondents were categorized stage wise which are given below:

4.2.1. **Use of mass media at knowledge stage in adoption of BRRI dhan28**

The computed use of mass media at knowledge stage score of the respondents ranged from 4 to 32 against the possible range 0-60. The mean and standard deviation were 19.52 and 5.81 respectively. Considering the use of mass media at knowledge stage score of the respondents, they were classified into three categories such as low use, medium use and high use were presented in table 4.2.1.

Table 4.2.1. Distribution of the respondents according to their use of mass media at knowledge stage in adoption of BRRI dhan28

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Low use (4-13)	15	16.7	19.52	5.81
Medium use (14-23)	55	61.1		
High use (24-32)	20	22.2		
Total	90	100		

Data continued in the table 4.2.1 reveal that a large proportion of the farmers (61.1%) belonged to medium mass media use category. Thus it is observed from the data that can overwhelming majority (83.3%) of the farmers used mass media at knowledge stage ranged from medium to high. In fact it is universally true that mass media have the best capacity to increase knowledge about an innovation like BRRI dhan28 among the farmers. So, it could be concluded that farmers of the study area used mass media at knowledge stage effectively and became interested about BRRI dhan28.

4.2.2. **Use of mass media at persuasion stage in adoption of BRRI dhan28**

The computed use of mass media at persuasion stage score of the respondents ranged from 2 to 24 against the possible range 0-40. The mean and standard deviation were 11.17 and 4.16 respectively. Considering the use of mass media at persuasion stage score of the respondents, they were classified into three categories such as low use, medium use and high use were presented as table 4.2.2.

Table 4.2.2. Distribution of the respondents according to their use of mass media at persuasion stage in adoption of BRRI Dhan28

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Low use (2-9)	30	33.3	11.17	4.16
Medium use (10-17)	56	62.2		
High use (18-25)	4	4.4		
Total	90	100		

Data continued in the table 4.2.2. reveal that a large proportion of the farmers (62.2%) belonged to medium mass media use category. Thus it is observed from the data that can overwhelming majority (About 66.6%) of the farmers used mass media at persuasion stage ranged from medium to high category. In fact it is universally true that mass media have the best capacity to persuade about an innovation like BRRI dhan28 among the farmers. So, it could be concluded that farmers of the study area used mass media at persuasion stage effectively and became interested about BRRI dhan28.

4.2.3. **Use of mass media at decision stage in adoption of BRRI dhan28**

The computed use of mass media at decision stage score of the respondents ranged from 2 to 18 against the possible range 0-20. The mean and standard deviation were 6.89 and 2.89 respectively. Considering the use of mass media at decision stage score of the respondents, they were classified into three categories such as low use, medium use and high use were presented as table 4.2.3.

Table 4.2.3. Distribution of the respondents according to their use of mass media at decision stage in adoption of BRRI Dhan28

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Low use (2-7)	64	71.1	6.89	2.89
Medium use (8-13)	22	24.4		
High use (14-19)	4	4.4		
Total	90	100		

Data continued in the table 4.2.3. indicate that almost all the respondents (95.5%) were low user to medium user of mass media channels at decision stage. At decision stage innovation adoption rely up on many sources to make innovation-decision. At this stage they can give trial technology see the television and can have a vicarious trial by seeing the result of trial of early adoption. It can be concluded that the respondents of the study are achieved decision making idea from the trial of early adopters.

4.2.4. **Use of mass media at implementation stage in adoption of BRRI dhan28**

The computed use of mass media at implementation stage score of the respondents ranged from 1 to 21 against the possible range 0-40. The mean and standard deviation were 10.23 and 4.27 respectively. Considering the use of mass media at implementation stage score of the respondents, they were classified into three categories such as low use, medium use and high use were presented as table 4.2.4.

Table 4.2.4. Distribution of the respondents according to their use of mass media at implementation stage in adoption of BRRI Dhan28

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Low use (1-7)	22	24.4	10.23	4.27
Medium use (8-14)	56	62.2		
High use (15-21)	12	13.3		
Total	90	100		

Data continued in the table 4.2.4. reveal that a large proportion of the farmers (62.2%) belonged to medium mass media use category. Thus it is observed from the data that can overwhelming majority (86.6%) of the farmers used mass media at implementation stage ranged from low to medium category. At implementation stage farmers need operational information and problem solving information. Conclusion could be drawn that the respondents could obtain operational information and problem solving information from early adopters.

4.2.5. **Use of mass media at confirmation stage in adoption of BRRI dhan28**

The computed use of mass media at confirmation stage score of the respondents ranged from 1 to 27 against the possible range 0-80. The mean and standard deviation were 8.48 and 5.18 respectively. Considering the use of mass media at confirmation stage score of the respondents, they were classified into three categories such as low use, medium use and high use were presented as table 4.2.5

Table 4.2.5. Distribution of the respondents according to their use of mass media at confirmation stage in adoption of BRRI Dhan28

Categories	Farmers		Mean	Standard deviation
	Number	Percent		
Low use (1-9)	65	72.2	8.48	5.18
Medium use (10-18)	22	24.4		
High use (19-27)	3	3.3		
Total	90	100		

Data continued in the table 4.2.5. revealed that more than three fifths of the respondents were low user of mass media channels at confirmation stage. The remaining two-fifths respondents were medium to high user. Confirmation stage is a complete stage where adopters of innovation can continue the innovation or discontinue it. Discontinuance can be occurred by replacement. Finally later adoption can occur who rejected at decision stage. Normally the high and medium user of mass media channels are supposed to be early majority and low users are late majority. Early majority use mass media channels at confirmation stage more than late majority. Late majority depends upon early majority to confirm the innovation-decision.

4.3. Preferences of Use of Mass Media at different Stages in Adoption of BRRI dhan28.

To compare preferences of use of mass at each stage in adoption of BRRI Dhan28, media use index (MUI) for each media at each stage were computed. The media use index (MUI) of a particular media at knowledge stage could range from 0 to 1080, at persuasion stage from 0 to 720, at decision stage from 0 to 360, at implementation stage from 0 to 720 and confirmation stage from 0 to 1440. The five mass media used at different stages in adoption of BRRI Dhan28 have arranged in rank order in Table 4.3.1 on the basis of their respective MUI.

Table 4.3.1: Rank order of mass media used by the farmers at five stages in adoption of BRRI dhan28

Mass media	Knowledge stage		Persuasion stage		Decision stage		Implementation stage		Confirmation stage	
	Score (MUI)	Rank order	Score (MUI)	Rank order	Score (MUI)	Rank order	Score (MUI)	Rank order	Score (MUI)	Rank order
Television	897	1	534	1	289	1	454	1	373	1
Radio	563	2	346	2	198	2	273	2	215	2
Leaflet	157	3	86	3	43	3	72	3	54	3
Poster	119	4	66	4	30	4	66	4	48	4
Newspaper	64	5	38	5	16	5	25	5	35	5

Rank order of mass media channels in table 4.3.1. reveal the preferences of use of mass media channels by the respondents of the study. Clearly it is evident that the adoption of BRRI dhan 28 preferred most television at all the five stages of innovation decision process and secured first position, which was followed by radio (2), leaflet (3), poster (4) and newspaper (5) respectively. The result maintains the similarities with the present extension of DAE.

4.4 Relationship between independent and dependent variables

As mentioned earlier, ten characteristics of the farmers were the independent variables of this study. The variables were age, education, family size, organizational participation, cosmopoliteness, innovativeness, farm size, annual income, attitude towards BRRI dhan28 and problems in using BRRI dhan28. Each of these characteristics of the farmers constituted independent variables while use of mass media at each stage in adoption of BRRI dhan28 was the dependent variables in this study.

The purpose of this section is to examine the relationship of each of the independent variables with each of the dependent variables. Pearson's product-moment correlation co-efficient 'r' was computed to determine the relationship between two concerned variables as shown in Table 4.4.

Table 4.4 Co-efficient of correlation between each of the selected characteristics of the farmers and their use of mass media at different stages in adoption of BRRI Dhan28

Independent variables	Correlation Co-efficient with use of mass media at					Tabulated value of 'r' with 88 df	
	Knowledge stage	Persuasion stage	Decision stage	Implementation stage	Confirmation stage	0.05 level	0.01 level
Age	0.385**	0.199^{NS}	0.107^{NS}	0.355**	0.075^{NS}	0.2072	0.2702
Education	-0.310**	-0.116^{NS}	-0.099^{NS}	-0.222*	-0.191^{NS}		
Family size	0.226*	-0.123^{NS}	0.066^{NS}	0.261*	-0.009^{NS}		
Organizational participation	-0.189^{NS}	-0.116^{NS}	0.041^{NS}	-0.116^{NS}	-0.232*		
Cosmopoliteness	0.197^{NS}	0.015^{NS}	0.046^{NS}	0.082^{NS}	0.209*		
Innovativeness	-0.052^{NS}	-0.202^{NS}	-0.017^{NS}	-0.279**	-0.068^{NS}		
Farm size	0.462**	0.294**	0.335**	0.281**	0.474**		
Annual income	0.112^{NS}	0.049^{NS}	0.327**	0.139^{NS}	0.255*		
Attitude towards BRRI dhan28	-0.627**	-0.340**	-0.373**	-0.476**	-0.339**		
Problems in using BRRI dhan28	-0.583**	-0.333**	-0.475**	-0.600**	-0.367**		

** Significant at 0.01 level of probability

* Significant at 0.05 level of probability

NS Non Significant

4.4.1. Relationship between selected characteristics of the farmers and use of mass media by the farmers at knowledge stage

Relationship between each of ten independent variables and use of mass media at knowledge stage was determined by Pearson Product Moment Correlation Coefficient. The coefficient of correlation between concerned variables was presented in table 4.4. Based on the findings on the table out of 10 selected characteristics of the respondents only 3 namely age, family size, farm size of the farmers had significant positive relationship with their use of mass media. Possible reason might be age, family size, farm size induce and facilitate individuals to use mass media in knowledge stage which helps individuals to increase his/her knowledge about BRRI dhan28. Education, attitude towards BRRI dhan28 and problems in using BRRI dhan28 of the farmers had significant negative relationship with mass media used by the farmers at knowledge stage in adoption of BRRI dhan28 which indicates that with increase in the education, attitude towards BRRI dhan28, problems in using BRRI dhan28 of the farmers, their use of mass media at knowledge stage is decreased. This reason may be that with the increase of education, attitude towards BRRI dhan28, problems in using BRRI dhan28 of the farmers they become more experienced and gather lot of information. On the other hand, organizational participation, Innovativeness, Cosmopoliteness and annual income had no relationship with mass media in knowledge stage in adoption of BRRI dhan28.

4.4.2. Relationship between selected characteristics of the farmers and use of mass media by the farmers at persuasion stage

Relationship between each of ten independent variables and use of mass media at persuasion stage was determined by Pearson Product Moment Correlation Coefficient. The coefficient of correlation between concerned variables was presented in table 4.4. Out of 10 selected characteristics of the respondents only 1 namely farm size had significant positive relationship. Possible reason might be farm size induce and facilitate individuals to use mass media in persuasion stage. Attitude towards BRRI

dhan28, problems in using BRRI dhan28 had significant negative relationship at 0.01 levels with mass media used by the farmers at persuasion stage in adoption of BRRI dhan28 which indicates that with increase in the attitude towards BRRI dhan28, problems in using BRRI dhan28 of the farmers, their use of mass media at persuasion stage is decreased. This reason may be that with the increase of attitude towards BRRI dhan28, problems in using BRRI dhan28 of the farmers they become more experienced and gather lot of information. . On the other hand, age, education, family size, organizational participation, cosmopoliteness, innovativeness and annual income had no relationship with mass media at persuasion stage in adoption of BRRI dhan28.

4.4.3. Relationship between selected characteristics of the farmers and use of mass media by the farmers at decision stage

Relationship between each of ten independent variables and use of mass media at decision stage was determined by Pearson Product Moment Correlation Coefficient. The coefficient of correlation between concerned variables was presented in table 4.4. Based on the findings out of 10 selected characteristics of the respondents only 2 namely farm size, annual income had significant positive relationship. Possible reason might be farm size and annual income induce and facilitate individuals to use mass media at decision stage. Attitude towards BRRI dhan28 and problems in using BRRI dhan28 had significant negative relationship at 0.01 levels with mass media used by the farmers at decision stage in adoption of BRRI dhan28 which indicates that with increase in the attitude towards BRRI dhan28 and problems in using BRRI dhan28 of the farmers, their use of mass media at decision stage is decreased. This reason may be that with the increase of attitude towards BRRI dhan28, problems in using BRRI dhan28 of the farmers they become more experienced and gather lot of information. On the other hand, age, education, family size, organizational participation, cosmopoliteness and innovativeness had no relationship with mass media at decision stage in adoption of BRRI dhan28.

4.4.4. Relationship between selected characteristics of the farmers and use of mass media by the farmers at implementation stage

Relationship between each of ten independent variables and use of mass media at implementation stage was determined by Pearson Product Moment Correlation Coefficient. The coefficient of correlation between concerned variables was presented in table 4.4. Based on the findings out of 10 selected characteristics of the respondents only 3 namely age, family size and farm size had significant positive relationship. Possible reason might be age, family size and farm size induce and facilitate individuals to use mass media at implementation stage. Education, innovativeness, attitude towards BRRI dhan28 and problems in using BRRI dhan28 had significant negative relationship at 0.01 levels with mass media used by the farmers at implementation stage in adoption of BRRI dhan28 which indicates that with increase in the education, innovativeness, attitude towards BRRI dhan28 and problems in using BRRI dhan28 of the farmers, their use of mass media at implementation stage is decreased. This reason may be that with the increase of education, innovativeness, attitude towards BRRI dhan28 and problems in using BRRI dhan28 of the farmers they become more experienced and gather lot of information. On the other hand, organizational participation, cosmopoliteness and annual income had no relationship with mass media at implementation stage in adoption of BRRI dhan28.

4.4.5. Relationship between selected characteristics of the farmers and use of mass media by the farmers at confirmation stage

Relationship between each of ten independent variables and use of mass media at confirmation stage was determined by Pearson Product Moment Correlation Coefficient. The coefficient of correlation between concerned variables was presented in table 4.4. Out of 10 selected characteristics of the respondents only 2 namely family size and farm size had significant positive relationship. Possible reason might be family size and farm size induce and facilitate individuals to use mass media at confirmation stage. Organizational participation, cosmopoliteness, attitude towards BRRI dhan28

and problems in using BRRI dhan28 had significant negative relationship at 0.01 levels with mass media used by the farmers at confirmation stage in adoption of BRRI dhan28 which indicates that with increase in the organizational participation, cosmopoliteness, attitude towards BRRI dhan28 and problems in using BRRI dhan28 of the farmers, their use of mass media at confirmation stage is decreased. This reason may be that with the increase of organizational participation, cosmopoliteness, attitude towards BRRI dhan28 and problems in using BRRI dhan28 of the farmers they become more experienced and gather lot of information. On the other hand, age, education, family size and innovativeness had no relationship with mass media at confirmation stage in adoption of BRRI dhan28.

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of findings

The findings of the study and interpretation of the results have been presented elaborately in chapter iv. The findings of the study are summarized below.

5.1.1 Characteristics of the farmers

Age

Among 90 respondents, 56.7 percent were middle aged, 32.2 percent were young aged, 11.1 percent were old aged.

Education

The highest proportion of the respondents (32.2%) had primary education, 30 percent had secondary education and 27.8 percent had above secondary education and 10 percent had no education.

Family size

The highest proportion (48.9 percent) of the respondents had small family compared to 44.4 percent had medium family and 6.7 percent had large family.

Organizational participation

About 44.4 percent had low participation, 33.31 percent had medium participation, 21.1 percent had no participation and 1.1 percent had high participation.

Cosmopoliteness

The highest proportion (73.3 percent) of the respondents had medium cosmopoliteness compared to 15.6 percent had low and 11.1 percent had high cosmopoliteness.

Innovativeness:

The highest proportion of the respondents (38.9%) were medium innovative, compared to 35.6 percent had low and 25.6 percent had high innovativeness.

Farm size

The highest proportion (66.7 percent) of the respondents had small farm size, 25.6 percent had medium, 4.4 percent had large and 3.3 percent had marginal farm size.

Annual income

Among the respondents, 37.8 percent had low income, 50 percent had medium income and12.2 percent had high income.

Attitude towards BRRI dhan 28

About 43.3 percent had favorable, 37.8 percent had less favorable and 18.9 percent had highly favorable attitude towards BRRI dhan 28.

Problems in using BRRI dhan28

Majority (54.4 percent) of the farmers faced medium problem compared to 40 percent had low problem and 5.6 percent had severe problem.

Use of mass media at knowledge stage in adoption of BRRI dhan28

Majority (61.1%) of the farmers had medium mass media use compared to 22.2 percent had high use and 16.7 percent had low use of mass media.

Use of mass media at persuasion stage in adoption of BRRI dhan28

Majority (62.2%) of the farmers had medium mass media use compared to 33.3 percent had low use and 4.4 percent had high use of mass media.

Use of mass media at decision stage in adoption of BRRI dhan28

Majority (71.1%) of the farmers had low mass media use compared to 24.4 percent had medium use and 4.4 percent had high use of mass media.

Use of mass media at implementation stage in adoption of BRRI dhan28

Majority (62.2%) of the farmers had medium mass media use compared to 24.4 percent had low use and 13.3 percent had high use of mass media.

Use of mass media at confirmation stage in adoption of BRRI dhan28

Majority (72.2%) of the farmers had low mass media use compared to 24.4 percent had medium use and 3.3 percent had high use of mass media.

Preferences of Use of Mass Media at different Stages in Adoption of BRRI dhan28

Among use of mass media television secured first position at all the five stages of innovation decision process in adoption of BRRI dhan28 which was followed by radio (2), leaflet (3), poster (4) and newspaper (5) respectively.

5.1.2 Test of hypothesis

The null hypothesis were tested to examine the relationship of ten selected characteristics of the farmers with their use of mass media in adoption of BRRI dhan 28. The results of hypothesis testing are briefly presented below:

Relationship between each of the selected characteristics of the farmers with their use of mass media at knowledge stage:

Age, family size, farm size had significant positive relationship. Education, attitude towards BRRI dhan 28, problems in using BRRI dhan 28 had significant negative relationship. Organizational participation, innovativeness, cosmopoliteness and annual income had no relationship with use of mass media at knowledge stage in adoption of BRRI dhan 28.

Relationship between each of the selected characteristics of the farmers with their use of mass media at persuasion stage:

Farm size had significant positive relationship. Attitude towards BRRI dhan 28, problems in using BRRI dhan 28 had significant negative relationship. Age, education, family size, organizational participation, cosmopoliteness, innovativeness and annual income had no relationship with use of mass media at persuasion stage in adoption of BRRI dhan 28.

Relationship between each of the selected characteristics of the farmers with their use of mass media at decision stage:

Farm size, annual income had significant positive relationship. Attitude towards BRRI dhan 28 and problems in using BRRI dhan 28 had significant negative relationship

Age, education, family size, organizational participation, cosmopoliteness and innovativeness had no relationship.

Relationship between each of the selected characteristics of the farmers with their use of mass media at implementation stage:

Age, family size and farm size had significant positive relationship. Education, innovativeness, attitude towards BRRI dhan 28 and problems in using BRRI dhan 28 had significant negative relationship. Organizational participation, cosmopoliteness and annual income had no relationship with use of mass media at implementation stage in adoption of BRRI dhan 28.

Relationship between each of the selected characteristics of the farmers with their use of mass media at confirmation stage:

Family size and farm size had significant positive relationship. Organizational participation, cosmopoliteness, attitude towards BRRI dhan 28 and problems in using BRRI dhan 28 had significant negative relationship. Age, education, family size and innovativeness had no relationship with use of mass media at confirmation stage in adoption of BRRI dhan 28.

5.2. Conclusions

" A conclusion present the statements based on major findings of the study and these statements mostly confirm to the objectives of the research in the shortest form. It presents the direct answers of the research objectives, or it relates to the hypothesis" (Labon and Schefter, 1990).

Based on the findings of the study, following conclusions were made:

1. At knowledge stage family size and farm size had significant positive relationships. From this view point conclusion could be drawn that in a large family some members tune the radio or tv, some other do not use. But as they belong to the same family they share information each other. So large family had significant relationship with knowledge stage. Similarly the respondents belongs to

his farm size had opportunity to use radio, tv, printing materials etc. When there is an interaction between the respondents of small farm and big farm they exchange views and increase innovational knowledge.

2. At persuasion stage farm size had significant positive relationship. From this view point conclusion could be drawn that the attitude of big farm or small farm member influence the other farmers attitude.
3. At decision stage farm size, annual income had significant positive relationship. From this view point conclusion could be drawn that big farm and small farm size farmers decision in adoption of BRRI dhan28 influenced by mass media very effectively. The income of the farmers may not be big but if the farmers income is big then the use of mass media is more.
4. At implementation stage age, family size and farm size had significant positive relationship. Possible reason might be age, family size and farm size induce and facilitate individuals to use mass media in implementation stage. From this view point conclusion could be drawn that the member of one family helps other members of their family to implement their decision in adoption of BRRI dhan28 and they use mass media to implement their decision.
5. At confirmation stage family size and farm size had significant positive relationship. From this view point conclusion could be drawn that if member of a big farm size or small farm size form favorable attitude toward BRRI dhan28.It is possible that s/he can influence to form favorable attitude of other member of big farm or small farm.

5.3 Recommendations

Recommendations have been divided into two sub sections, viz. recommendations for policy implication and recommendation for further study.

5.3.1 Recommendations for policy implications

Based on the findings and conclusions of the study the following recommendations are made:

1. There is an urgent need for a sound communication media system for providing adequate innovative information to the farmers in order to adopt BRRI dhan28.
2. The Department of Agricultural Extension (DAE), GOs and NGOs need to pay more attention to ensure the use of mass media effectively. For some mass media specially electronic and print media to have great impact in the diffusion of BRRI dhan 28.
3. Local leaders should be strengthening in disseminating different technologies as it creates more confidence among the farmers through practical observation. So that the farmers will come to know about the new technologies frequently.
4. Farmers having more agricultural knowledge were more likely to have more adoption. It is recommended that the farmers' agricultural knowledge should be increased.
5. As a large number of farmers were illiterate arrangement should be made to provide non-formal education to the farmers. This will help to change knowledge, skill and general abilities, attitude as well as outlook of the farmers. This may be through (i) establishing mass literacy schools at each and every village (ii) affording regular literacy programmes from the radio, television and (iii) compulsory literacy programmes for members working in various societies/clubs working under the government and different Non-government (NGOs).
6. Policy formulation is needed for improvement of the programmes broadcasted through television, radio and other mass media. Technologies specified area based and traditional folk based presentation style should be considered.
7. Agricultural booklets, leaflets, magazines, poster, bulletins, feature in newspaper should be well circulated among the farmers. Sub- Assistant Agricultural Officer (SAAO), Opinion leader, Extension agents may take responsibility to distribute the farm publications to the farmers since a great percentage of the farmers were illiterate.

8. Technical appropriateness is not only the criteria of technologies for what it is designed.It should also be socially appropriate and economically accessible so that it can be used and maintained in the local environment without causing any damage. It is necessary to give more emphasis to prepare effective action plan at the remote areas of Bangladesh.

5.3.2 Recommendations for future study

A small and limited research work conducted in a particular area cannot provide unique and universal information related to actual impact of providing socio-economic status of the rural farmers. Further studies may undertaken covering a large area with similar socioeconomic parameters for comparison between their findings for generalization.

1. As far as literature reviewed by the author, there is no evidence of any study so far has been conducted in this area. Further study should be undertaken converting more activities of the farmers and farmer's opinion regarding the use of mass media.
2. Research should be undertaken to evolve principles and procedures for effectively focusing the information, activities and other matters about BRRI dhan28 in the socio-cultural aspect of the country.
3. In the present study family size, cosmopoliteness and innovativeness had no significant relationship with the use of mass media. In this connection, further verification is necessary.
4. Research was limited on only 5 mass media, but mass media are more and varied, so further research may be conducted including other mass media.
5. The use of mass media in getting farm information was conducted in 5 selected villages of Gazaria upazila in Munshiganj district. Findings of the study need verification by similar research in other parts of Bangladesh.
6. More research should be conducted to investigate the comparative stagewise use of different mass media in adoption of BRRI dhan28.

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APPENDIX-A

English version of the interview schedule
Department of Agricultural extension and Information System
Sher-e-Bangla Agricultural University, Dhaka-1207

An interview schedule on the study of
Stagewise Use of Mass Media in Adoption of BRRI dhan28 Among Farmers of Gazaria Upazila Under Munshiganj District

Date:…… **Respondents**
No:……

Name of the respondent :
Village: Union:
Upazila: District:

Please answer the following questions:

1. Age :
How old are you ? ……years.

2. Level of Education :
Please mention your level of education :

a) I cannot read and write (……)
b) I can sign only (……)
c) I studied up to class (……)

3.Family Size:

Your family have……members (With self)

4. Farm Size :

Please mention the area of your land according to use :

Sl No	Type of land Use	Area of land	
		Local Unit (Decimal/Bigha)	Hectare
a.	Homestead area including garden, pond and fallow land		
b.	Own land under own cultivation		
c.	Land taken from others as share cropping		
d.	Land given to others as share cropping		
e.	Land taken from others on lease		

Total Farm Size =a+b+1/2(c+d)+e
=

5. Annual income :

Please mention your last year annual income from the following sources:

A) Income from agricultural crops :

SL NO	Name of crops	Land size	Production	Price/unit	Income(Tk)
1.	Rice				
2.	Wheat				
3.	Jute				
4.	Mustard				
5.	Pulse				
6.	Vegetables				
7.	Fruits				
8.	Potato				
9	Others (if any)				
	Sub total				

(B) Income from domestic animals and fisheries :

SL NO	Source of income	Production (no./kg)	Price	Income(Tk)
1.	Livestock			
2.	Poultry			
3.	Egg			
4	Fisheries			
	Sub-total			

(C) Income from Non-agricultural source :

SL NO	Source of income	Income (Tk)
1.	Service	
2.	Business	
3.	Day Labor	
4.	Other Family Members	
	Sub total	

Total annual Gross income = (A+B+C)
=……Taka

6. Organizational Participation:

Please indicate the nature of participation in the following organizations for last five years.

Sl No.	Name of Organization	No Participation (0)	Nature of Involvement			Duration (Year)
			As ordinary member (1)	As executive member (2)	As executive officer (3)	
1.	NGO co-operative society					
2.	krishak Samabay Somity					
3.	Village Development Committee					
4.	Irrigation Committee					
5.	Mosque/ Madrasa committee					
6.	Union Parishad committee					
7.	Youth Club					
8	Bazar Committee					
9	School committee					
10	Others (if any)					

7. Innovativeness:

Indicate adoption period of following technologies:

Sl No.	Name of Technologies	Adoption Period				
		Within 1-2 yrs after hearing (4)	Within >1-2 yrs after hearing (3)	Within >2-3 yrs after hearing (2)	After 3 yrs of hearing (1)	No Adoption (0)
1.	Seedling growing method of BRRI dhan 28					
2.	Recommended seedling age of BRRI dhan 28					
3.	Line transplanting					
4.	Recommended balance fertilizer dose (Urea,TSP,MP etc.)					
5.	Supplementary irrigation					
6.	Integrated Pest Management					

8. Cosmopoliteness

Please mention the frequency of communication of the following places. (Please tick mark in right place)

Sl No.	Visiting Place	Frequency of visit			
		Regularly (3)	**Occasionally (2)**	**Rarely (1)**	**Not at all (0)**
1.	Other farmer's successful farm in own village	>6 times/ month( )	4-6times/ month ( )	1-3 times/ month ( )	
2.	Attending Result demonstration meeting in neighboring village	>6 times/ year ( )	4-6 times/ year ( )	1-3 time/ year ( )	
3.	Motivation tour to neighboring unions	>4 times/ year ( )	3-4times/ year ( )	1-2 times/ year ( )	
4.	Farmers field School	>4 times/ month ( )	3-4times/ month ( )	1-2 times/ month ( )	
5.	Local leader house	> 4 times/ month( )	3-4times/ month ( )	1-2 times/ month ( )	
6.	Upazila Agricultural office	>4times/ year ( )	3-4 times/ year ( )	1-2times/ year ( )	
7.	Participation in method demonstration meeting	>4 times/ year ( )	3-4 times/ year ( )	1-2 times/ year ( )	
8.	Agricultural fair of neighboring upazila	>5-6 times/ year ( )	3-4 times/ year ( )	1-2 times/ year ( )	
9.	Office of the Deputy Director of DAE	>3times/ year ( )	2-3 times/ year ( )	1-2 times/ year ( )	

9.Attitude towards BRRI dhan 28 :
Please indicate your opinion against the following statements

Sl No	Statements	Degree of attitude				
		Strongly agree	Agree	No opinion	Disagree	Srongly disagree
1(+)	Modern variety of rice is more productive than local variety					
2(-)	Modern rice variety is more disease and insect susceptible					
3(+)	It is necessary to use proper dose of fertilizer to get more yield					
4(-)	IPM is not better than chemical control					
5(+)	Gutee urea use is profitable than granular urea					
6(-)	Application of gutee urea is difficult					
7(+)	Organic fertilizer helps to preserve soil properties					
8(-)	Over use of fertilizer and insecticide is not harmful for the environment					
9(+)	Line sowing of seeds is better than broadcast method to get more yield					
10(-)	Line sowing is labor intensive					

10.Problems in using BRRI dhan 28:

Sl No	Name of agricultural technology	Severity of problem			
		Very high	High	Medium	Not at all
1	Lack of quality seed				
2	Difficult to use recommended doses of fertilizer				
3	Difficult to use IPM practices				
4	More insect attack				
5	No source of supplementary irrigation				
6	Outbreak of diseases in the field of BRRI dhan 28				
7	Seed treatment fungicide is not available				
8	Excessive rain in harvesting and threshing time				
9	Market price of paddy/rice is low				

11. USE OF MASS MEDIA IN ADOPTION STAGES:

a. Knowledge stage：

Sl No	Itemwise question	Mass media	Degee of use of mass media				
			High	Medium	Low	Very low	No use
1	**Existence knowledge of BRRI dhan28**(Which mass media at what extent helped you to know about BRRI dhan 28?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					
2	**Operational knowledge of BRRI dhan 28** (Which mass media at what extent helped you to know cultivation procedure of BRRI dhan 28?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					
3	**Beneficial knowledge of BRRI dhan 28** (Which mass media at what extent helped you to know about the benefits of BRRI dhan 28?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					

b.Persuasion stage:

Sl No	Items	Mass Media	Degee of use of mass media				
			High	**Medium**	**Low**	**Very low**	**No use**
1	**Creation of interest toward BRRI dhan28** (Which mass media at what extent created interest in you about BRRI dhan28?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					
2	**Evaluation of BRRI dhan28** (Which mass media at what extent helped you to understand the relative advantage of BRRI dhan28?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					

c. Decision stage

Sl No	Items	Mass Media	Degee of use of mass media				
			High	Medium	Low	Very low	No use
1	**Trial of BRRI dhan28** (Which mass media at what extent helped you to watch?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					

d. Implementation stage
(Mention your decision for adoption or rejection of BRRI dhan 28

adoption ☐ **or rejection** ☐

Sl No	Items	Mass media	Degee of use of mass media				
			High	Medium	Low	Very low	No use
1	**Full use of BRRI dhan28** (Which mass media at what extent helped you to use of BRRI dhan28 at full scale?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					
2	**Solving operational problems** (Which mass media at what extent helped you to solve problem during cultivation of BRRI dhan28?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					

e. Confirmation stage:

e(i) Have you confirmed to continue to cultivate BRRI dhan28?

Yes ☐ No ☐

Sl No	Items	Mass Media	Degree of use of mass media				
			High	Medium	Low	Very low	No use
1	**Continuance** (If yes,which mass media at what extent helped you to continue the use of BRRI dhan28?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					
2	**Discontinuance** (If no,which mass media at what extent helped you to discontinue the use of BRRI dhan28?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					

e(ii) Have you replaced BRRI dhan 28 by other varieties?

Yes ☐ **No** ☐

Sl No	Items	Mass Media	Degree of use of mass media				
			High	**Medium**	**Low**	**Very low**	**No use**
1	**Replacement** (If yes,which mass media at what extent helped you to replace by what?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					
2	**Later adoption** (If you rejected BRRI dhan 28 in the beginning which mass media at what extent helped you to use BRRI dhan 28 later?)	Radio					
		Television					
		Newspaper					
		Poster					
		Leaflet					

Thanks for your cooperation

……
Signature of the interviewer
Date

APPENDIX-B

Correlation Matrix of the Independent and Dependent Variables (N=90)

Correlations

	Knowledge	Age	Education	Family	Organization	Cosmopolite	Innovative	Farm	Income	Attitude	Problem
Knowledge	1										
Age	.385(**)	1									
	.		.								
Education	-.310(**)	-.531(**)	1								
Family	.226(*)	.732(**)	-.651(**)	1							
Organization	-.189	-.496(**)	.631(**)	-.533(**)	1						
Cosmopolite	.197	.389(**)	-.517(**)	.234(*)	-.312(**)	1					
Innovative	-.052	-.004	.163	-.102	.094	-.177	1				
Farm	.462(**)	.266(*)	-.119	.011	-.066	.208(*)	.179	1			
Income	.112	-.020	.028	.005	-.013	-.069	-.023	.308(**)	1		
Attitude	-.627(**)	-.417(**)	.401(**)	-.264(*)	.282(**)	-.100	.078	-.497(**)	-.327(**)	1	
Problem	-.583(**)	-.175	.100	-.045	.015	-.028	-.136	-.513(**)	-.226(*)	.571(**)	1

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

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

Correlations

	Persuasion	Age	Education	Family	Organization	Cosmopolite	Innovative	Farm	Income	Attitude	Problem
Persuasion	1										
Age	.199	1									
Education	-.116	-.531(**)	1								
Family	.123	.732(**)	-.651(**)	1							
Organization	-.116	-.496(**)	.631(**)	-.533(**)	1						
Cosmopolite	.015	.389(**)	-.517(**)	.234(*)	-.312(**)	1					
Innovative	-.202	-.004	.163	-.102	.094	-.177	1				
Farm	.294(**)	.266(*)	-.119	.011	-.066	.208(*)	.179	1			
Income	.049	-.020	.028	.005	-.013	-.069	-.023	.308(**)	1		
Attitude	-.340(**)	-.417(**)	.401(**)	-.264(*)	.282(**)	-.100	.078	-.497(**)	-.327(**)	1	
Problem	-.333(**)	-.175	.100	-.045	.015	-.028	-.136	-.513(**)	-.226(*)	.571(**)	1

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

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

Correlations

	Decision	Age	Education	Family	Organization	Cosmopolite	Innovative	Farm	Income	Attitude	Problem
Decision	1										
Age	.107	1									
Education	-.099	-.531(**)	1								
Family	.066	.732(**)	-.651(**)	1							
Organization	.041	-.496(**)	.631(**)	-.533(**)	1						
Cosmopolite	.046	.389(**)	-.517(**)	.234(*)	-.312(**)	1					
Innovative	-.017	-.004	.163	-.102	.094	-.177	1				
Farm	.335(**)	.266(*)	-.119	.011	-.066	.208(*)	.179	1			
Income	.327(**)	-.020	.028	.005	-.013	-.069	-.023	.308(**)	1		
Attitude	-.373(**)	-.417(**)	.401(**)	-.264(*)	.282(**)	-.100	.078	-.497(**)	-.327(**)	1	
Problem	-.475(**)	-.175	.100	-.045	.015	-.028	-.136	-.513(**)	-.226(*)	.571(**)	1

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

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

Correlations

	Implement	Age	Education	Family	Organization	Cosmopolite	Innovative	Farm	Income	Attitude	Problem
Implement	1										
Age	.355(**)	1									
Education	-.222(*)	-.531(**)	1								
Family	.261(*)	.732(**)	-.651(**)	1							
Organization	-.116	-.496(**)	.631(**)	-.533(**)	1						
Cosmopolite	.082	.389(**)	-.517(**)	.234(*)	-.312(**)	1					
Innovative	-.279(**)	-.004	.163	-.102	.094	-.177	1				
Farm	.281(**)	.266(*)	-.119	.011	-.066	.208(*)	.179	1			
Income	.139	-.020	.028	.005	-.013	-.069	-.023	.308(**)	1		
Attitude	-.476(**)	-.417(**)	.401(**)	-.264(*)	.282(**)	-.100	.078	-.497(**)	-.327(**)	1	
Problem	-.600(**)	-.175	.100	-.045	.015	-.028	-.136	-.513(**)	-.226(*)	.571(**)	1

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

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

Correlations

	confirmation	Age	Education	Family	Organization	Cosmopolite	Innovative	Farm	Income	Attitude	Problem
confirmation	1										
Age	.075	1									
Education	-.191	-.531(**)	1								
Family	-.009	.732(**)	-.651(**)	1							
Organization	-.232(*)	-.496(**)	.631(**)	-.533(**)	1						
Cosmopolite	.209(*)	.389(**)	-.517(**)	.234(*)	-.312(**)	1					
Innovative	-.068	-.004	.163	-.102	.094	-.177	1				
Farm	.474(**)	.266(*)	-.119	.011	-.066	.208(*)	.179	1			
Income	.255(*)	-.020	.028	.005	-.013	-.069	-.023	.308(**)	1		
Attitude	-.339(**)	-.417(**)	.401(**)	-.264(*)	.282(**)	-.100	.078	-.497(**)	-.327(**)	1	
Problem	-.367(**)	-.175	.100	-.045	.015	-.028	-.136	-.513(**)	-.226(*)	.571(**)	1

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

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