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Constraints of Using Information and Communication Technologies by Young Entrepreneurs for Farm Management

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Abstract

The main purpose of the study was to investigate the constraints of using Information and Communication Technologies (ICTs) by the young entrepreneurs in farm management. The study was conducted in four randomly selected villages of Trishal and Fulbaria upazila under Mymensingh district. Considering the other parts of the country young fish and poultry entrepreneurs were more prominent in this region. There were around 300 fish and 560 poultry entrepreneurs on the study area. Among the young entrepreneurs, a total of 90 respondents (31 fish and 59 poultry entrepreneurs) were randomly selected to have ultimate respondents for conducting the study which was 10.47 percent of the total population. A four point rating scale was used to measure the constraints faced by the young entrepreneurs. Data were collected during 20 September to 23 October 2018. Correlation test was used to ascertain the relationships between the selected variables of the young entrepreneurs and their constraints of usage of ICTs. The results revealed that around two-third (64.44 percent) of the young entrepreneurs had faced moderate constraints and 35.56 percent of the young entrepreneurs had faced high constraints for using ICTs in farm management. Among the 10 selected socio-economic characteristics of young entrepreneurs, two characteristics namely training received and extension media contact had negative significant relationship with the constraints of using ICTs by the young entrepreneurs in farm management. These two characteristics had major contributions about constraints faced by young entrepreneurs in using ICTs in farm management. Overall, the young entrepreneurs had faced moderate constraints of using ICTs in farm management. So attention should be given by the government and other concerned organizations providing IT services to minimize the constraints and make the ICTs easily accessible for the young entrepreneurs for sustainable agricultural development.

Keywords: *Constraints, information and communication technology (ICT), young entrepreneurs, farm management*

Introduction

Bangladesh is one of the most densely populated countries of the world with 139th place in Human Resource Development Index. Agriculture is the single largest sector of Bangladesh economy. It accounts for almost 14 percent of GDP and provides employment for 20 million of the labor force (BBS, 2017). The country constantly faces different problems like poverty, under employment, illiteracy, malnutrition and vulnerability to frequent natural disasters. In spite of these problems, sectors like industry, information technology and telecommunications are growing in a robust pace. Poverty alleviation and employment generation for the vast segments of the population, especially the young have hardly been a success (Mia, 2002). In the

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past, the mass media sources have played a significant role in modernizing agriculture. In future too, the agricultural extension works will depend much on the mass media sources for communicating the latest agricultural technologies to a large number of farmers in the shortest possible time. But, in the era of Information Technology (IT) revolution worldwide, the importance of IT as a powerful tool for revolutionizing the farm technology transfer has been aptly recognized by the Government. In the recent times, Bangladesh has entered in the Information Super Highway. Bangladesh's booming mobile phone industry has emerged as a key driver of the nation's economy, creating nearly about 2,50,000 jobs and adding 650 million dollars to GDP. Telecommunication sector contributes 3,100 million Tk. of revenue in Bangladesh (BBS, 2017). The mobile market since then has expanded faster than any other country in South Asia, virtually quite a revolution (mobile phone) has taken place, thousands of remote villages, including the people who had never seen a telephone set. They are now using mobile phones and talking not only to their relatives and friends but also doing their business more profitably than ever before. Bangladesh has witnessed explosive growth in mobile phone over the last few years. The total number of mobile phone subscribers has reached 150.33 million up to April 2018 in Bangladesh (BTRC, 2018). Access to information is a real wealth and it calls for frequent awareness of different information sources and channels on the part of client system. The awareness of information among farmers is an important aspect of their communication behavior. Thus, in order to accelerate, encourage and support the change in farming sector, there is a great need to understand communication behavior of the farmers. Several ICT initiatives were undertaken and the outputs of these were used for agricultural research, development and extension and disaster management. Services are being provided to the Ministry of Agriculture and other Ministries, various National Agricultural Research System (NARS) institutes, various extension agencies, Universities, International Organizations, and GOs and NGOs by catering to their needs (Saiful, 2013).

Current ICT related initiatives are establishing Agriculture Information and Communication Centre; Fisheries Information and Communication Centre; Web-based price information dissemination by Department of Agricultural Marketing; Web-based Information Repository by Department of Agriculture Extension; Web-based soil testing database by Soil Resources Development Institute; Mobile accessible agriculture helpline run by private mobile operators (Karim, 2010). About one third of the total population of Bangladesh is youth and young people. Generally young people are ready to adopt new technologies easily. This is why researcher has interest to conduct study with young people. These huge numbers of population are using different ICT devices on their daily life. Moreover, they are contributing a significant portion on our national economy. Keeping all this in background, the present investigation was conducted with the following specific objectives:

- To determine the constraints faced by the young entrepreneurs of using ICTs for farm management
- To explore the relationships between the selected characteristics of the young entrepreneurs and the constraints of using ICTs facilities for farm management

Methodology

Locale of the Study

The study was conducted in Trishal and Fulbaria upazila under Mymensingh district. The villages namely Ujanvatipara and Bawaliapara under Dhanikhola union of Trishal and the villages namely Suaitpur and Dulma under Enayetpur union of Fulbaria were selected as the specific study area. The villages were selected by the researcher because young fish and poultry entrepreneurs were available in these four villages. Thus, the number of total population was 860 (fish entrepreneurs- 325 & poultry entrepreneurs- 535).Among the young entrepreneurs, a total of 90 respondents (31 fish and 59 poultry entrepreneurs) were sampled using stratified random sampling technique which was about 10.50 percent of the total population. Data were collected from the respondents by the researcher using structured interview schedule from the period of September to October 2018.

Measurement of Variables

Constraints of using ICTs by the young entrepreneurs was the focus variable of the study. For measuring the constraints of using ICTs by the respondents, a 4 point rating scale was used. 12 items were identified to measure the constraints of using ICTs by young entrepreneurs. Each respondent was asked each item to indicate his own extent of constraints of using ICTs along with a 4 point rating scale: high, medium, low and not at all. Weights assigned to these responses were 3, 2, 1 and 0 respectively (Ullah *et al*, 2011; Ghosh and Hasan, 2013). The total score of a respondent was determined by summing up the weights for responses against all 12 statements.

CFI = HX3+MX2+LX1+NAX0

Where,

CFI = Constraints Faced Index

H = Total number of respondents expressed their opinion as 'high' for the statement

M =Total number of respondents expressed their opinion as 'medium' for the statement

L =Total number of respondents expressed their opinion as 'low' for the statement

NA =Total number of respondents expressed their opinion as 'not at all' for the statement

Thus, the constraints faced index of a respondent could be ranged from 0 to 36 where 0 indicates no constraints of using ICTs and 36 indicates high constraints of using ICTs by the young entrepreneurs in farm management.

Data Processing and Analysis

The collected data were properly edited and coded before final analysis. The Statistical Package for Social Sciences (SPSS) was used for data management. Mainly descriptive statistical techniques such as percentage, frequency, mean, standard deviation and correlation were used in data interpretation.

Results and Discussion

Socio-economic characteristics of young entrepreneurs

Data presented in Table 1 reveal that highest proportion (100%) all of the respondents were in middle aged with an average of 29.09 years. Among the respondents 34.44% had higher secondary level of education followed by secondary

(34.44%), primary (15.56%) and no schooling (15.56%) with an average score 8.52 years of schooling. Most of the respondents had medium sized family (54.44%) followed by small sized family (36.56) and large sized family (10%) with a mean of 4.96. Most of the respondents had small sized farm (74.44%) followed by marginal farm (13.33), medium sized farm (12.22%) with a mean of 0.62 ha. Most of the respondents (60%) had medium level of annual income followed by high income (31.11%) and low income (8.89%) with an average of Tk. 1406.60 thousand. Most of the respondents had medium level of farming experience (47.78%) followed by low level of farming experience (33.33%) and high level of farming experience (18.89 %) with a mean of 5.97 years. Most of the respondents (73.33%) had low level of organizational participation followed by medium level of organizational participation (24.44%) and high level of organizational participation (2.22 %) with an average of 1.84. Most of the respondents (47.78%) had low social participation followed by medium social participation (44.44 %) and low social participation (7.78 %) with an average 6.47.

Maximum of the respondents (43.33%) had medium duration training followed by short duration training (14.44%) and long duration training (5.56%) with an average of 6.73 days. Majority of the respondents (65.56 %) had medium extension media contact, while 33.33% had low extension media contact and 1.11% had high extension media contact with a mean of 14.38. Majority of the respondents (64.44%) had medium extent of ICTs use, while 34.44% of the respondents had high extent of ICTs use and only 1.12% of the respondents had low extent of ICTs use.

Table 1 Socio-economic characteristics of the respondents (n = 90)

Characteristics	Measuring unit	Observed range	Categories	Respondents Percentage	Mean	SD
Age	Actual year	17-35	Young (18-35)	100	29.09	5.26
			Middle Aged (36-55)	0		
			Old (>55)	0		
Education	Year of Schooling	0-18	No schooling (0)	15.56	8.52	5.12
			Primary (1-5)	15.56		
			Secondary (6-10)	34.44		
			Higher secondary (>10)	34.44		
Household Size	No. of members	3-8	Small (up to 4)	35.56	4.96	1.23
			Medium(5-6)	54.44		
			Large(>6)	10		
Farm size	Hectares	0.08-2.7	Marginal (0.02-0.2)	13.33	0.62	0.43
			Small (0.21-1)	74.44		
			Medium (1.01-3.0)	12.22		
			Large (>3.0)	0		
Annual income	'000' TK	100-7864	Low (up to 400)	8.89	1406.60	1366.26
			Medium (400- 1500)	60		
			High (>1500)	31.11		

Table 1 Contd.

Characteristics	Measuring unit	Observed range	Categories	Respondents Percentage	Mean	SD
Farming experience	Years	2-12	Low (up to 4)	33.33		
			Medium (5-8)	47.78	5.97	2.37
			High (>8)	18.89		
Organizational participation	Scores	0-4	No participation (0)	2.22		
			Low(1-2)	73.33	1.84	0.87
			Medium(3-4)	24.44		
			High (>4)	0		
Social participation	0-18	3-11	Low (3-6)	47.78		
			Medium (7-8)	44.44	6.47	1.53
			High (>8)	7.78		
Training	Days	0-94	No training	36.67		
			Short training (1-2)	14.44	6.73	20.75
			Medium training (3-4)	43.33		
			Long training	5.56		
Extension media contact	0-36	8-25	Low (up to 12)	33.33		
			Medium (13-24)	65.56	14.38	4.03
			High (>24)	1.11		
Extent of ICTs use	0-36	9-31	Low (up to 12)	1.12		
			Medium (13-24)	64.44	22.38	4.50
			High (>24)	34.44		

**SD= Standard Deviation*

Constraints Faced by the Young Entrepreneurs in using ICTs for Farm Management

Constraints faced by the young entrepreneurs in using ICTs by the respondents in farm management was the focus variable of the study. Overall constraints faced score of the respondents varied from 18 to 28 against the possible range of 0 to 36 with a mean of 23.46 and standard deviation 2.26. Based on the observed overall constraints faced score the respondents were classified into three categories as shown in Table 2.

Table 2 Distribution of the respondents according to their overall constraints faced score for using ICTs in farm management (n = 90)

Categories	Respondents		Mean	Standard Deviation
	No.	Percent		
Low (up to12)	0	0		
Medium (13-24)	58	64.44		
High (above 24)	32	35.56	23.46	2.26
Total	90	100		

Data presented in above Table 2 indicates that the majority (64.44 %) of the young entrepreneurs had faced medium constraints for using ICTs compared to 35.56 % had faced high constraints for using ICTs and none of the entrepreneurs had faced low constraints for using ICTs in farm management. The findings indicated that all of the respondents had faced medium to high constraints for using ICTs in farm

management. Asif *et al*. (2017) found that 97.1% of the farmers faced medium problems and 2.9% of the farmers faced high problems in using mobile phone in receiving information on vegetable cultivation.

It is evident from Table 3 that the majority of the entrepreneurs thought "Network problem" is a great problem in using ICT devices, consequently it ranked first. Most of the entrepreneurs had secondary level of education. As a result they had an enough knowledge ICT devices problems and facilities. Majority of the respondents used mobile phone internet for this reason they have mention this problem rank one. Internet speed are very much slow in the rural area of the whole country, whereas of the district of the country are now under coverage of 3G internet. So, the entrepreneurs thought that "Insufficiency of necessary apps" and "Unavailability of broadband connection" were one of the biggest problems for them and ranked them 2nd and 3rd in position respectively.

Table 3 Item wise constraints of using ICTs in different purposes by the young entrepreneurs (n = 90)

Constraints	No. of Respondents				CFI	Mean	Rank order
	H	M	L	N			
Network problem	79	11	0	0	259	2.88	1
Insufficiency of necessary apps, software	68	21	1	0	247	2.74	2
Unavailability of broadband connection	57	25	5	3	226	2.51	3
Expensive	36	53	1	0	215	2.39	4
Poor economic ability	39	44	7	0	212	2.36	5
Lack of authentic information	8	52	28	2	156	1.73	6
Week awareness	6	50	33	1	151	1.68	7
Lack of repairing of device	6	47	33	4	145	1.61	8
Technical problems of different devices	17	27	34	12	139	1.54	9
Misuse of devices	11	25	50	4	133	1.48	10
Device operating problem	11	30	35	14	128	1.42	11
Poor social media activity	3	26	39	22	100	1.11	12

H= High, M= Medium, L= Low, NA= Not at all; CFI= Constraints Faced Index

The entrepreneurs are mostly educated at least secondary level. As result they are using the smarter devices with more awareness. So they feel the necessity of few entrepreneur or agriculture related mobile apps, computer software to make easier their farm management. Now a day the world becomes the more faster on networking and internet. The speed of internet has become an issue. As a result the respondents mark "Availability of broadband connection" as a third important constraint. The respondents mark "Device operating problem" at next to bottom line problem. On the other hand, entrepreneurs of the study area treated "Poor social media activity" as minor problem which was ranked twelfth. The bottom line constraints like misuse of devices, device operating

problem and poor social media activity by the young people has already solved.

Relationship between the Selected Characteristics of the Young Entrepreneurs and their Constraints of using ICTs for Farm Management

The purpose of this section is to examine the relationships of each of the selected characteristics of young entrepreneurs and their constraints of using ICTs in farm management. There were ten selected characteristics of the young entrepreneurs such as age, education, household size, farm size, annual income, farming experience, organizational participation, training received, extension media contact and extent of ICTs use. All these considered as explanatory variables, while constraints of using ICTs by young entrepreneurs in farm management was the focus variable. Pearson's product moment coefficient of correlation (r) was used to reject a null hypothesis relating to the relationships between the variables concerned. These computed r' were compared with relevant tabulated values for 88 degrees of freedom at the designed level of probability in order to determine whether the relationships between concerned variables were significant or not. The results of correlation analysis between the concerned variables have been presented in Table 4.

Table 4 Results of correlation showing relationship between selected characteristics of young entrepreneurs and their constraints of usage of ICTs in farm management (n = 90)

Focus Variable	Characteristics of young entrepreneurs	Correlation Co-efficients (r) with 88 *df*
Constraints of using ICTs in farm management	Age	0.003
	Education	0.021
	Household size	0.101
	Farm size	-0.043
	Annual income	0.065
	Farming experience	-0.037
	Organizational participation	0.133
	Training received	-0.298**
	Extension media contact	-0.277**
	Extent of ICTs use	-0.160

*df= 88; *Significant at 0.05 level of probability (2-tailed) **Significant at 0.01 level of probability (2-tailed)*

Training received of the respondents was found significant and showed a negative trend (-0.298**) with constraints of using ICTs in farm management. The findings indicate that the training experience on using ICTs had a negative significant relationship with constraints faced by young entrepreneurs of using ICTs in farm management. That means if the young entrepreneurs had high training experience they would face less constraints in using ICTs than the young entrepreneurs who had less training experience. It might be due to the reason that the young entrepreneurs having high training experience were more concerned about using ICTs in farm management than the young entrepreneurs who had less training experience. Alam (2008) and Akanda (2005) found similar results in their respective studies. Extension media contact of the respondents was found significant and showed a negative trend (-0.277**) with constraints of using ICTs by the young entrepreneurs. The findings

reveal that greater extension media contact cause downward extent of facing constraints in using ICTs. The reason behind this might be extension media contact of the young entrepreneurs change their attitude towards the use of ICTs for farm management. As a result constraints faced by them in using ICTs for farm management become less. Alam (2008) and Rahman (2008) found significant negative relationship in their respective studies. But, Hasan (2005) found no significant relationship in his study. Thus, it could be said that extension media contact of the young entrepreneurs could play a significant role in using ICTs for farm management.

The correlation coefficient among age, education, household size, farm size, annual income, farming experience, organizational participation and constraints of using ICTs by the young entrepreneurs did not find any significant relationship between the concerned variables.

Conclusions

The study concludes that most of the young entrepreneurs faced moderate constraints of using ICTs for farm management. But the extent of usage of ICTs by young entrepreneurs is increasing day by day as most of the young entrepreneurs were moderate users of ICTs. A number of constraints were faced by the young entrepreneurs during the use of ICTs for farm management. This may occur due to less developed IT sector in Bangladesh, lack of technical knowledge of young entrepreneurs, poor socio-economic condition of the young entrepreneurs, lack of government initiatives etc. Among the 10 selected characteristics of young entrepreneurs two characteristics namely training received and extension media contact showed significant negative relationship with the constraints of using ICTs by young entrepreneurs in farm management. These two characteristics seem to have major contributions on constraints of using ICTs by young entrepreneurs in farm management.

Considering the findings of the study some essential policy recommendations have been made which are: development of IT sector, making the ICTs services available to the young entrepreneurs, create awareness and interest among the young entrepreneurs about the usage of ICTs through mass media such as newspaper, poster, leaflet, television etc. provide satisfied network; and make ICT devices cheap and easily accessible to remove the constraints of using ICTs by the young entrepreneurs for better farm management.

References

Akanda, M.G.R. 2005. Technological Gap in Modern Rice Production at farmers' level. PhD. Thesis. Department of Agricultural Extension Education, Bangladesh Agricultural University Mymensingh.

Alam, A.Q.M. S. 2008. Constraints Analysis in Adoption of IPM Practices in Rice Cultivation by the farmers of Savar Upazila under Dhaka District. MS Thesis. Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka.

Asif, A.S., M.N. Uddin, D.S. Dev and M.A.M. Miah. 2017. Factors affecting

mobile phone usage by the farmers in receiving information on vegetable cultivation in Bangladesh. *Journal of Agricultural Informatics*, 8(2):33-43.

BBS. 2017. Statistical Year Book of Bangladesh. Bangladesh Bureau of Statistics Division, Ministry of Planning, Govt. Republic of Bangladesh, Dhaka.

BTRC. 2018. Bangladesh Telecommunication Regulatory Commission. Retrieved on 16 September, 2018 from http://www.btrc.gov.bd/content/mobile-phone-subscribers-bangladesh-april-2018.

Ghosh, M.K. and S.S. Hasan. 2013. Farmers' Attitude towards Sustainable Agricultural Practices. *Bangladesh Research Publications Journal*, 8(4): 227-234.

Hasan, A. N.M. 2005. Problem Confrontation of the Farmers in Crop production Activities in Two Selected Villages of Atrai Upazila in Naogaon District. MS Thesis. Department of Agricultural Extension Education, Bangladesh Agricultural University Mymensingh.

Karim, M. A. 2010. Digital Bangladesh for Good governance. Prime Minister's Office, Dhaka.

Mia, M.S.A. 2002. Role of Small and Medium Enterprises in the Bangladesh Economy. Contemporary Issues in Development. BUP, 33, Road 4; Dhanmondi R.A., Dhaka 1205 pp. 188-200.

Rahman, M.S. 2008. Agricultural Problem Confrontation by the Charland Farmers of Jamuna River. MS Thesis. Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Dhaka.

Saiful. 2013. Use of ICTs in the Agriculture of Bangladesh. Retrieved in August 17, 2018 from https://www.agriculture and farming. wordpress. com/2013/10/05/use-of-icts-in-the-agriculture-of-bangladesh.

Ullah, S.M.A., M.G. Farouque and M.Z. Rahman. 2011. Farmers' Perception of One House One Farm Approach. Bangladesh Journal of Extension Education, 23 (1 &2): 75-82.