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Factors affecting extension-education media effectiveness in agriculture information transmission to farmers in Tehran province

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Abstract: This study was conducted to find out factors affecting extension-education media effectiveness in agriculture information transmission to farmers. The method of the study was descriptive-correlative. The population of this study consisted of all agriculture experts in the Jihad-agriculture organization in Tehran province. According to the Cochran formula, 183 of them were chosen by stratified sampling. The main tool of this study was questionnaire. For determining the reliability of questionnaire, Cronbach alpha coefficient was calculated which was .80 to .92 for different parts of the questionnaire. Analysis of the data was done with SPSS software. The study found that the variable of age, desirability of the media content and suitability of the media have positive and significant relation with extension-education media effectiveness. The results of the regression analysis showed that these variables except age can totally explain 52.2 percent of changes of the dependent variable.

Key words: Mass media; Extension-education media; Agriculture information; Iran

1. Introduction

In recent decades, the application of mass media resulted in heightening the level of public knowledge in different fields (Nazari et al., 2009).In agriculture, the role of information cannot be over emphasized in enhancing the agricultural development. Information is crucial for increasing agricultural production and improving marketing & distribution strategies (Oladele, 2006).

Today, in the age of information and technology, the dissemination of information becomes much easier nevertheless more complex, this is because of information messages must be disseminated to the farmers in the manners and methods, which are appropriate, and best support its recipient (Cartmell et al., 2004).

According to Muhammad (2005) the sources of information can be divided into two main categories interpersonal and impersonal. Face-to-face exchange of information between individuals is regarded as interpersonal, whereas mass media sources are known as impersonal methods enabling one or a few persons to reach many addressees at a time.

Mass media channels are grouped into two major categories, namely, print and electronic media. The former include books, newspapers, newsletters, journals, bulletins, and other forms of publications; while the latter describe the use of radio, television, computer and related gadgets in information dissemination (Ifenkwe and Ikpekaogu, 2012).

The mass media have a vital role to play in the communication of agricultural information among the literate farmers. Increasing rate of literacy in the developing countries offers new promises and prospects for utilizing print medium as a means of mass communication. The print media widened the scope of communication. It is cheap and people can afford it and read them at their convenience (Mgbakor et al., 2013).

Social media as a form of mass media can be an effective vehicle for expanding the reach of Extension programming, and broadening audience access to materials. It can elevate content and programming to not only be a “go to” resource for the public, but also for fellow professionals, organizations, and groups. Popular forms of social media with potential for Extension Family and Consumer Scientists include 1) social networking sites such as Facebook, 2) microblogging or short bursts of information such as Twitter, 3) virtual pin boards for organizing web-based information such as Pinterest, 4) video sharing through sites such as YouTube and Vimeo, and 5) presentation sharing through Slide-Share. These social media forms have bulletin methods for evaluation which are described in Figure 1 and will be discussed throughout the article (Franzen-Castle and Henneman, 2012).

Early knowledge of agricultural practice was then a collection of experience verbally transmitted from farmer to farmer (Diamond, 2002). It is apparent that adequate and timely information is relevant for better understanding of the new programs. Therefore, one of the primary aims for stimulating agricultural development is through disseminating relevant information to farmers. Mass media constitute the main vehicle for wide and rapid transmission of information to farmers (Mgbakor et al., 2013).

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Many researchers and educators have tested the knowledge of farmers and other clients toward the delivery of educational information (Nazari and Hasbullah, 2008; Vandenabeele and Wildemeersch, 2012; Diaz-Pichardo et al., 2012). The outcomes of their studies indicated that different media and methods are used by Extension educators to communicate and emerging new technologies to farmers (Nazri et al., 2012).

A research by Isiaka (2007) was conducted to determine the effectiveness of video in comparison with selected instructional media for teaching primary school pupils Agriculture and Environmental Sciences. The study concludes that video is as effective as the traditional teacher in teaching Primary school children Agriculture and Environmental issues. This confirms the assertion of many researchers of the potential of using video as an instructional medium in teaching varying subjects to adults, youths and children in the formal school system. The advantages far outweigh the disadvantages.

Based on study by Ifenkwe & Ikpekaogu (2012), most extension print materials appear quite attractive, some fail to convey intended meaning or produce the desired effect on farmers because they are poorly edited, and so contain undesirable elements-noise.

According to Nazri et al. (2012), mass media offer effective channels for communicating agricultural messages, which can increase knowledge and influence behavior of audience members. Broadcast media have the ability to disseminate information to large audiences efficiently, radio and television can be particularly important channel.

Mgbakor et al. (2013) belive that for effectiveness of mass media in agricultural information transfer, the following factors could be taken into consideration in programming and dissemination of such information:

- The farmers
- Their needs and interest
- Format in which information is desired
- Their believes and culture
- Which method of presentation will serve them better
- Justification of the cost of information

The results of a study conducted by Maksum, Buldansyah and Prawati (2008) showed that the effectiveness of digital information services tend to be determined by the level of user's demand and supply of accurate information, also the rapid and accuracy of the service mainly defined by access availability to the facilities. It also revealed that student group user visiting library more interested in complete article than bibliographical as a form of information.

Benunur (2006) in a study about effectiveness of instructional video in agricultural information dissemination suggested varies video instructional messages influenced farmer's knowledge improvement, as effective as farmer's habit in receiving information through consultant's demonstration.

According to Rehman et al. (2013), farmers' access to agricultural information is an important variable, which may be influenced positively or negatively by the socio-economic characteristics like age, education, farming experience, and the size of land holding.

The results of another research by Rehman et al. (2011) showed that the print media were major sources of information of the farmers. Some important factors which affected their effectiveness were quality of information, newness, farmers' interest, in time publication, easy access to print media, relevance of information, literacy level of farmers, comprehensiveness, and cost of print media.

Given the above observations, in the agricultural sector, it is expedient to focus attention on the concept of media effectiveness and it is important to identify the factors influencing. So the purpose of this study was to identify factors affecting extension-education media effectiveness in agriculture information transmission to farmers.

2. Materials and methods

The population of this descriptive correlational study consisted of all agriculture experts who are employed in the Jihad-agriculture organization in Tehran province. According to the Cochran formula, 183 of them were chosen by stratified sampling. The instrument used for data collection was a structured interview schedule/questionnaire for studied experts. The questionnaire was designed to elicit information on experts' perception of extension-education media effectiveness.

In this study experts were asked to indicate their level of agreement with statements regarding the extension-education media effectiveness, and the extent their skill in using the media, by using a Likert-type scale with five response categories ranging from strongly disagree to strongly agree. Cronbach's alpha was calculated to estimate the reliability of the scales. The resulting coefficients were .80 to .92 for different sections of questionnaire. All data were analyzed with the SPSS/19 software. Appropriate statistics for description were used, including frequencies, percent, means, and standard deviations, and correlation coefficients and regression analysis were used for inferential statistics.

3. Results

In this section for better understanding of the studied sample according to Table 1 a brief description of demographic information will be presented. The analysis of demographic information showed that the studied experts include 55.2% male and 44.8% female. The average age of experts being studied was 38.61 with a range of 25-52. Also the average of their job experience was 14.3 with

standard deviation of 6.6. Among respondents 54.6 percent with the highest frequency had Bachelor of Science, and only 6% had PhD.

Table 1: Personal characteristics of studied experts

Characteristics		n	percent
Age	25-33	29	15.8
	34-42	114	62.3
	43-52	40	21.9
Gender	male	101	55.2
	female	82	44.8
Job experience	3-8	50	27.3
	9-14	33	18.0
	15-20	69	37.7
	21-26	31	16.9
Education	Diploma	3	1.6
	Associate	22	12.0
	Degree		
	BSc	100	54.6
	MSc	52	28.4
	PhD	6	3.3

In this study, 10 different statements were used to assess the extension-education media effectiveness. The results of table 2 indicates that according to 60.7% of the surveyed experts, with the highest frequency, extension-education media effectiveness was described moderate, and 38.2% of respondents believed that the effectiveness is low or very low.

Table 2: The perception of respondents about extension-education media effectiveness

extension-education media effectiveness	Frequency	Percent	Cumulative Percent
Very low	7	3.8	3.8
Low	63	34.4	38.2
Moderate	111	60.7	98.9
High	2	1.1	100
Very high	—	—	100
total	183	100	—

Mode: Moderate, Scale: (10-17= very low, 18-25= low, 26-33= moderate, 34-41= high, 42-50= very high)

The results of this study indicate that the most important challenges for using extension-education media include: Lack of farmers' skill in using the media, Lack of farmers' interest in using the media, and Lack of trust in the media. While challenges such as High cost of training courses based on media and Lack of proper infrastructure are less important challenges (Table 3).

Table 3: Ranking of the challenges of using extension-education media

Challenges	Mean	SD	CV (%)	Rank
Lack of farmers' skill in using the media	3.98	0.45	11.30	1
Lack of farmers' interest in using the media	4.42	0.58	13.12	2
Lack of trust in the media	4.12	0.56	13.59	3
Farmers' fear in using technology	4.40	0.62	14.09	4
Lack of proper cultural context in using media	4.34	0.65	14.97	5
Lack of trained professionals in the field of media	4.20	0.69	16.42	6
not providing programs by professionals and experts	4.24	0.73	17.21	7
Non-use of local languages in preparing programs	3.03	0.55	18.15	8
Low literacy or illiteracy in farmers	3.45	0.63	18.26	9
High price of media	3.80	0.73	19.21	10
Lack of farmers' awareness about benefits of media	4.00	0.77	19.25	11
Lack of attention to educational needs of providing programs	3.54	0.95	26.83	12
Not performing educational programs at the appropriate time	3.61	0.98	27.14	13
Not using indigenous people in producing educational programs	3.46	0.99	28.61	14
High cost of training courses based on media	3.49	1.02	29.22	15
Lack of proper infrastructure	3.27	0.97	29.66	16

In this study to consider the relationship between independent and dependent variables Pierson and Spearman coefficients were used. The results of correlation analysis show that the variable of "age", "desirability of the media content" and "suitability of the media" have positive and significant relation with extension-education media effectiveness. The other variables had no significant relationship with dependent variable. The results of correlation analysis are shown in the Table 4.

According to the results of regression analysis, in first step "Desirability of the media content" was entered in the equation that the multiple regression coefficient (R) was 0.673 and determining coefficient was 0.453. It means that 45.3 percent of changes of media effectiveness are explained by this variable. In the next step, the variable "Suitability of the media" was entered in the equation. This variable increased the multiple regression coefficient of (R) to 0.722 and determining coefficient to 0.522 percent.

Actually, this variable can explain about 7 percent of changes of dependent variable (Table 5).

Table 4: Relationship between extension-education media effectiveness and independent variables

Variables	Correlation Coefficient	r	p
Age	Pearson	0.160*	0.030
Work experience	Pearson	0.053	0.482
Education	Spearman	0.058	0.475
Skills in using the media	Pearson	-0.030	0.685
Desirability of the media content	Pearson	0.507**	0.000
Suitability of the media	Pearson	0.673**	0.000
Attitudes toward using the media	Pearson	0.029	0.692
The challenge of using the media	Pearson	-0.002	0.974

** Significant in 0.01 level of probability; * Significant in 0.05 level of probability

Table 5: Determining coefficients of effective variables in extension-education media effectiveness

step	R	R^2	R^2Ad
1	0.673	0.453	0.450
2	0.722	0.522	0.516

Table 6: Effect rate of variables in extension-education media effectiveness

variables	B	*Beta*	t	Sig.
Constant coefficient	-0.132	—	-0.067	0.947
Desirability of the media content (X_1)	1.198	0.560	9.986	0.000
Suitability of the media (X_2)	0.725	0.285	5.080	0.000

The results of the regression analysis shows that after entrance of all independent variables which had significant correlation with dependent variable, only the variables of Desirability of the media content and Suitability of the media remained. These two variables can totally explain 52.2 percent of changes of the dependent variable. Of course, other changes are related to other elements which have not been studied in this research. So, According to the results, the linear equations of regression would be as follow (table 6):

- Equation based on B coefficient: $y=-0.132+1.198x_1+0.725x_2$
- Equation based on β coefficient: $y=0.560x_1+0.285x_2$

4. Conclusion

Access to information is very crucial to increase agricultural productivity by farmers. This study aimed to identify factors affecting extension-education media effectiveness in agriculture information transmission to farmers. The findings of study showed that the variable of "age", "desirability of the media content" and "suitability of the media" have positive and significant relation with extension-education media effectiveness. Also the results of the regression analysis showed that these variables except age can totally explain 52.2 percent of changes of the dependent variable.

Mass media agencies and the agricultural extension agency should always consider the above factors to ensure effective information dissemination to farmers. There is also the need for extension agents to increase the use of mass media in disseminating information on agricultural to farmers. This is necessitated by mass media will help in stimulating agricultural development. Rural farmers' education by the extension agency will also help the farmers appreciate the usefulness of the mass media system as sources of agricultural information.

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