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S. Senthilkumar

Associate Professor, Department of Veterinary and Animal Husbandry Extension Education, Veterinary College and Research Institute, (Tamil Nadu Veterinary and Animal Sciences University), Tirunelveli, Tamil Nadu, India

Effectiveness of mobile app. in sheep and goat farming: a perception analysis

S Senthilkumar

Abstract

An innovative technology in the field of electronic medium was developed as “Mobile App. in sheep and goat farming” for the benefit of stakeholders like entrepreneurs, progressive farmers and farmers. Perception on the usefulness of developed android based mobile app. was studied among randomly selected 60 small ruminant farmers and 60 extension personnel who had android mobile phone that constituted a sample size of 120 for the present study. The responses on usefulness of mobile app. were recorded on a three point continuum i.e. most satisfied, satisfied and least satisfied with the score of 3, 2, and 1 respectively. The item wise perception score was calculated based on the mean. Based on the individual score, the perception index was calculated for each respondent. The results of the study showed that the overall perception of the extension personnel (perception score-4.1) and farmers (perception score-4.0) on the mobile app. ranged from most satisfactory to satisfactory level.

Keywords: Mobile App., usefulness, Small ruminant farming, perception level

Introduction

Presently, wide range of Information and Communication Technology (ICT) platforms are being used to access and share agriculture, veterinary and animal husbandry information. A situation assessment survey of farmers was done by the National Sample Survey Organization (NSSO) on access to modern technology for farming, which indicates that, only 5.1 percent of the households access information on animal husbandry against 40.4 percent for crop farming (NSSO, 2005) [5]. Thus, the present scenario necessitates the provision of systematic flow of information and knowledge to the livestock farmers for better decision making. Information adoption among farming community is widely acknowledged as one among the critical factors for effective agricultural decision making (Galloway and Mochire, 2005) [4]. It has been stressed that the use of Information and Communication Technology (ICT) has a great potential to boost the economy of livestock, agriculture, and rural artisans in India (Sasidhar and Sharma, 2006) [12].

Among various ICT tools, mobile phone has emerged as one of the widely accepted and adopted instruments in most parts of the world to ease the information communication process among farming communities (Hayrol *et al.*, 2009) [6], Mittal and Tripathi (2009) [9] reported the key role played by mobiles in lowering transaction costs and raising the income levels of farmers, by efficiently addressing agricultural information requirements, while Inigo *et al.*, (2014) [7] and Mittal *et al.*, (2010) [8] reported that mobile phones contribute greatly to agricultural and animal husbandry information dissemination.

Mobile telephony has emerged as the smart technology of choice of the majority of the urban and even the rural masses (Ansari and Pandey, 2013) [2]. As such, mobile phones have been regarded as the widely accessed tool among the farmers for communication and also accessing agriculture-related information. India is the second largest smart phone user country in the world having 220 million smart phone users base with 80 million users in rural India (Anonymous, 2016) [3]. Nowadays, the popularity of an android smart phone is increasing very fast. Smart phone has become the basic need of mostly every one. An android is one of the smart phone operating system which are available freely on an Android Market. An Android user easily and freely downloads android application.

Based on these facts, an innovative technology in the field of electronic medium was developed as “Mobile App. in sheep and goat farming” for the benefit of stakeholders like entrepreneurs, progressive farmers and farmers under National Bank for Agriculture and Rural Development (NABARD) sponsored research project on “Development of Mobile Based Technology Transfer Application System to Empower the Small Ruminant Farmers in

Corresponding Author:

S Senthilkumar

Associate Professor, Department of Veterinary and Animal Husbandry Extension Education, Veterinary College and Research Institute, (Tamil Nadu Veterinary and Animal Sciences University), Tirunelveli, Tamil Nadu, India

Tirunelveli District". The developed mobile app. was uploaded and is available in Google Play Store and TANUVAS Website which could be downloaded and installed to retrieve the information both in online and offline mode. This paper focused to study the perception on usefulness of developed Mobile App. among the small ruminant farmers and extension personnel.

Materials and Methods

Perception on the usefulness of developed Android based mobile app. On sheep and goat farming was studied among randomly selected 60 small ruminant farmers and 60 extension personnel who had android based mobile phone and constitute a sample size of 120 for the present study. To explore the perception level among them, an interview schedule was constructed in consultation with the experts and perception level of the Android App. were studied and analysed.

Perception was operationally defined as the opinion of extension personnel and sheep and goat farmers on the usefulness of mobile app. The schedule on the usefulness of the need based mobile app. contained 33 items on utility, technical component, information component and user attributes. The responses were recorded on a three point continuum i.e. most satisfied, satisfied and least satisfied with the score of 3, 2, and 1 respectively as followed by Anandaraja (2002) [1] Nisha (2008) [10] with modification in the continuum. The item wise perception score was calculated based on the mean and was presented for interpretation.

Based on the individual score, the perception index was calculated as given below to get perception index for each respondent.

$$\text{Perception Index} = \frac{\text{Individual respondent score}}{\text{Total score}} \times 100$$

Results and Discussion

In the present competitive era, information was considered as wealth or resource in addition to land, labour, capital, organization and time. Therefore, a systematic process was required involving researchers and extension specialists to develop high quality mobile app. content and design a better information dissemination system that will ensure information flow to the intended audience effectively. Hence the degree of usefulness of the developed mobile app. was assessed through the respondents' perception. Perception is the process by which one can be able to see, hear and understand the content. The perception of the developed mobile app. was measured based on the level of satisfaction derived from the various components of the mobile app.

The details of the mean perception of extension personnel and farmers were categorized item-wise under four topics namely utility, technical component, message component and user attributes. The results obtained are presented in table 1.

The farmers and extension personnel were most satisfied with the utility of the mobile app. The farmers had most satisfaction than the extension personnel in the areas namely provided information in less time, most suited to get the required information and better retention of the message. The farmers felt that the mobile app. module had more advantage than other teaching aids. As the module was developed based on the needs of the farmers, the farmers felt that it was most useful.

The extension personnel were more satisfied, whereas the farmers were less satisfied. Easiness to learn, operate and navigate, the extension personnel perceived it as more satisfactory and farmers perceived it as less satisfaction. This was due to the fact that extension personnel know how to use a computer and the farmers were illiterate in term of computer knowledge and lacked skill in operating it.

Table 1: Perception on the usefulness of mobile app.

S. No.	Characteristics	Mean Perception Score	
		Extension personnel (n = 60)	Farmers (n = 60)
I	Utility		
1	Usefulness	4.2	4.2
2	Saves time	4.3	4.5
3	Saves money	4.0	4.0
4	Suitable to get the required information	4.0	4.2
5	Retention of the message	3.9	4.4
6	Advantage over other teaching aid	3.4	4.1
7	Simple to operate	4.2	1.7
8	Easy to navigate	4.0	2.1
9	Easy to learn	4.3	2.1
	Sub-total	4.0	4.0
III	Technical component		
1	Layout	3.7	3.6
2	Order of the content	4.0	4.2
3	Readability	4.0	4.0
4	Illustration	4.0	4.0
5	Voice	3.9	3.9
6	Text	4.0	4.2
7	Colour combination	3.8	3.8
8	Video clippings	3.9	4.3
9	Less errors	3.9	4.3
10	Visual impact	3.9	4.2
	Sub-total	3.9	4.1
IV	Information component		
1	Relevancy of the message	3.9	4.3
2	Completeness of the information	3.9	4.6

3	Credibility of the message	3.8	4.2
4	Clarity of the message	4.1	4.5
5	Accuracy of the message	3.9	4.3
6	Simple Language	4.2	4.1
7	Use of clippings	4.4	3.8
8	Appropriateness of the message	3.8	4.4
	Sub-total	4.0	4.3
V	User attributes		
1	Improves self confidence	3.9	3.5
2	Creates interest	3.8	3.9
3	Favorable attitude towards computer	3.8	3.7
4	Helps in decision making	3.8	3.6
5	Motivate in improving the farm	3.9	4.1
6	Motivate to learn mobile	4.0	4.2
	Sub-total	3.9	3.8
	Overall perception score	4.1	4.0

The study showed that the farmers and extension personnel were most satisfied with the technical components of the mobile app in sheep and goat farming. Farmers and extension personnel had same perception on the illustration, readability, colour combination and readability. The farmers had better perception than the extension personnel in the order of the content, text, less errors, video clippings and visual impact.

The extension personnel had better perception than the farmers, in the areas of layout. Since the aid is new to the farmers, they were more convinced on the multimedia due to its ability to attract and provide need based information. Farmers felt that the contents were organized better which would help them to retrieve the required material easily.

The farmers had better perception on the information component of the module than the extension personnel. In the area of relevancy, completeness, credibility, clarity and accuracy, the farmers had better perception than the extension personnel. The extension personnel found that the logical presentation of the message and use of illustrations and clippings to be most satisfactory than the farmers. On the simplicity of the language, extension personnel were most satisfied than the farmers. The reason for better perception among the farmers is due to the fact that the farmers had received information either orally, or through pictures previously and when the need based messages was presented in a multimedia form as an Mobile app. in sheep and goat farming, their level of understanding and usage increased due to involvement of more number of sense organs which had enhanced their learning ability.

The farmers and the extension workers had the same perception on the user attributes. The farmers had it so because the mobile app. created interest in the subject and motivated them to improve their farm conditions by learning mobile. The extension personnel felt that the module would improve their self-confidence and create favorable attitude towards mobile, which eventually helped in easy technology dissemination and promote better decision making among the farmers.

The overall perception showed that the farmers and the extension personnel's perception ranged from satisfied to more satisfied. The technical and information components were most satisfactory for the farmers than the extension personnel, while they had equal level of satisfaction in utility of mobile app. Positive perception indicated that Mobile app. can be effectively used for extension teaching among farmers and there is a scope for overall improvement of the Mobile app. module as when needed.

The overall perception of the extension personnel (4.1) and

farmers (4.0) on the mobile app. ranged from most satisfactory to satisfactory. These findings also in agreement with results of Nisha (2008) ^[10] who reported that the overall perception of farmers (perception score-3.8) and the extension personnel (perception score-3.9) on the dairy advisory system ranged from satisfactory to more satisfactory. Pavan Belakeri *et al.*, (2016) ^[11] also reported that the result proves that this mode of information dissemination through app. is satisfactory where majority of respondents opined the relevance of contents as more relevant (56.66%), preciseness of content as very precise (72.50 %), very simple (61.66 %) in understanding of information.

Conclusions

The overall perception of the sheep and goat farmers and the extension personnel on the mobile app. ranged from satisfactory to more satisfactory. The technical and message component were more satisfactory for the farmers than the extension personnel, whereas user attributes of the mobile app. was more satisfactory for the extension personnel than the farmers. It can be used by end users anytime and from anywhere which will ultimately save money, time and effort in reaching a larger population. This software will help to impart the scientific knowledge of diseases that affect small ruminants to farmers in local languages and at the farmer's level of understanding to reduce economic losses due to diseases. This application are built to break the literacy barrier and deliver the information. Android app. which works offline can be effectively used as intervention tool for overcoming information asymmetry existing among the group of farmers by leveraging the Smartphone penetration in rural areas.

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