

Influence of Newspaper Information Dissemination Platform on the Adoption of Ecologically Sustainable Agricultural Farming Methods in Embu County, Kenya

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Abstract: *Development conscious organizations are embracing the use of communication and feedback to measure the impact various communications channels used for intervening to an identified cause have on the lives of the target audiences. Such feedback is an integral part of the informed decision by the donors and other funding agencies on the direction of funding on the dissemination of research results to influence the lives of the target audience positively. The purpose of the study was to assess the influence Newspaper as print media information dissemination platforms on the adoption of ecologically sustainable agricultural farming methods in Embu County. The study used mixed research methods (quantitative and qualitative) to build upon the synergy and strength that exists between quantitative and qualitative methods to fully understand a given phenomenon than is possible using either quantitative or qualitative methods alone. A descriptive research design for the collection and analysis of quantitative and qualitative data was embraced. The target population of the study was smallholder farmers of Embu North Sub-County who are registered members in three (3) main community-based organizations: Burugo, Karungi and Karamuki. A sample of 98 respondents including smallholder farmers and available respondents of 10 agricultural extension officers and five (5) media representatives were used in the study. The study used a stratified random sampling procedure and purposive sampling procedure to select the key informant. Both the questionnaire and interview guides were used in the study. Quantitative data were analysed using a scientific package for social sciences (SPSS) version 21, Multiple regression model was also used. The results were analysed and presented using frequencies, percentages, graphs, figures and tables. Qualitative data was organized into themes and summarized using narratives and it was observed that these platforms play a key role in boosting the ecologically sustainable agricultural farming methods and recommend that language used in the print platforms be simplified English, use of diagrams and illustrations to demonstrate the application of the various ecologically sustainable farming methods for ease of the farmers' understanding. Also, due to the long shelf life of the print platforms, the distribution of the print materials need to be broadened to reach many interested farmers. For example, the brochure platform doesn't reach many farmers although the information published is relevant to them.*

Keywords: Newspaper, information dissemination platform, adoption of ecologically sustainable agricultural farming methods and Embu County

1. Introduction

Enhanced access to and use of ecologically sustainable farming knowledge and information is essential if present-day global problems such as food insecurity, climate change, sustainable and more effective use of natural resources and biodiversity are to be addressed, (CIARD, 2011). A leading role of disseminating ecologically sustainable farming knowledge and information using relevant communication tools best understood by the target audience is a key factor to achieve Zero Hunger, Good Health and Well-being, Affordable and Clean Energy, Industrial, Innovation and Infrastructure, Climate Action, Life on Land which are Sustainable Development Goals 2,3,6, 7, 9 and 13 leading to the change and progress in the African continent and beyond. Agriculture has wide-ranging global impacts which extend to economic growth, poverty reduction, food security, livelihoods, rural development and environment management (World Bank, 2007). According to Chemutai, Wanyama, Rono, Mutoko, and Macosore (2012), agricultural sector forms the backbone of the global economy and serves as the means of revenue of about 50% of the world's population. Kenya is not an exception. Communication is a very important tool for dissemination of information to smallholder farmers. The information,

however, has to be timely, packaged in ways easily understood by the target readers and responsive to their farming needs. Most importantly, it is a vital partner in initiatives that involve a voluntary change in the farming behaviour of the targeted group. The change of behaviour should be as a result of information received and should be passed back to the source for the communication to be complete (Adebayo, 2015). Age et al. (2012) indicate that information dissemination channels can be grouped into various categories. For instance, physical channels which involve direct contact, this may include seminars, exhibitions while non-physical channels, may include television, radio, phone calls, newspapers and other print media channels (Padel, 2011).

A study conducted by Shahid, Sher, Khalid and Ijaz (2007) on the role of print media in the dissemination of agricultural information among farmers in Pakistan established that the most used form of print media for agricultural information was pamphlets followed by posters, newspapers, book/booklets, magazines and journals. In the same vein, FAO (2004) asserted that farmers required to develop skills by acquiring knowledge and attaining good standards in respect of quality and productivity as per demand from the end-users for internal consumption and for export in the agricultural sector (Dadi, Burton & Ozanne,

Volume 9 Issue 8, August 2020

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2014). All these depend upon effective dissemination of knowledge and information on the latest farming technologies among the smallholder farmers. It involves the use of various channels including mass media for the transmission of messages to large audiences. The mass media can be a powerful tool for information dissemination within the rural masses. Technology has changed the mode of communication for there are smallholder farmers who prefer print media like magazines and newspapers which publish agricultural information in detail. Hence making smallholder farmers learn new ways of improving their farming skills in Pakistan. Even though the scholars' findings were good and realistic, the study was carried out in a developed country where technology is reliable in disseminating information to the farmers unlike in Kenya where the extent of adoption of agricultural farming technologies by the smallholder farmers is not clearly known.

In Africa, agriculture is vulnerable since countries experience shortages of rain, poor farming methods because of scanty knowledge and information communicated to the smallholder farmers in a language and communication tools not easily understood by the individual farmers. A study was conducted in Ethiopia by Crandall (2012) on agricultural information that showed that there was increased short message service (SMS) based information dissemination services which provided farmers with information regarding weather, market and other relevant information. The researcher found out that farmers preferred calling rather than SMS due to its ease and little practice on using SMS. In the same vein, Masuki et al., 2010, findings revealed that use of the telephone was appreciated by rural communities as an easy, fast and convenient way to communicate and get prompt answers of respective problems.

In Kenya, information dissemination for agricultural advancement dates back to the early 1900s (Nkamleu, 2015). Several approaches were tried, including individual visits, unified extension and group methods. In the present age of information revolution, the application of ICT that is the use of radios, television, telephones, cameras, videos and computers in extension delivery is hard to some extent in a developing country like Kenya. To access such important farming knowledge and information through ICT, a farmer will require a smartphone, bundles, electricity to charge the phone, knowledge on the use of a smartphone among other requirements that require money to sustain the service. While ICT would make information accessibility easier, maintenance is expensive, the timing of the radio and television agricultural programmes is a disadvantage to farmers who are mostly in the farm, market on their way home when such important agricultural programmes are aired. Print media which can be read, re-read, shared amongst farmers' groups and kept for future reference yet, the cost of purchasing the print media was incurred once. The use of information and knowledge dissemination is an intervention on poor farming methods to share knowledge and information on ecologically sustainable agricultural farming methods which are improved farming technologies, methods and practices are put into right use by farmers.

2. Statement the Problem

Agricultural knowledge and information is a key component in improving agricultural production, improved human, plant, soil and environmental health. The importance of knowledge and information sharing in agricultural research for development agenda has been firmly established through research. Access to appropriate information and knowledge is known to be one of the biggest determinants of agricultural production (Masuki, Mowo, Kamugisha, Tanui, Tukahirwa, & Adera, 2010).

An examination of dissemination of knowledge and information on ecologically sustainable agriculture literature through the print media (magazines, newsletters, newspapers, flyers, scholarly journals among others) on the adoption of ecologically sustainable agricultural farming methods shows that few studies have been conducted in this area. Most studies that have been conducted are on the role of broadcast media such as radio and television in disseminating information about sustainable agricultural methods among rural farmers. Not much has been covered on the use of print media (magazines and the newspaper) to play the same role in Kenya.

Embu County has a good climate that supports both livestock rearing and crop farming but has been mapped among poorly performing counties in agricultural activities, the reason being poor farming methods among smallholder farmers, inadequate farming appliances, and lack of information on the climatic changes among farmers (KNBS, 2013). The same report indicates that there is a poor use of magazines and newspaper print materials in Embu, Muranga and Nyeri County. Chapota (2012) for instance, states that there is need for an investigation on the role of media in the agriculture development program support project that emanates from the observed gap between knowledge and action from research-extension-farmer linkages where most of the researchers limit the communication of research results to scientific journal publications and conferences other than focussing the information dissemination in the farming communities. Chapota Ibid concludes that the challenge of bridging the communication gap on sustainable agricultural methods among farmers can be addressed through the production of targeted agricultural knowledge, which is delivered through appropriate communication channels.

However, not many studies have been carried out on the influence of print media information dissemination platforms specifically on ways leading to the adoption of ecologically sustainable agricultural farming methods and this is not limited to agricultural magazines, newspaper, brochures, Newsletters among others. Thus, it is against this background that the study seeks to examine the influence of Newspaper information dissemination platform on the adoption of ecologically sustainable agricultural farming methods in Embu County, Kenya.

Research objective

To establish the influence of Newspaper information dissemination platform on the adoption of ecologically sustainable agricultural farming methods in Embu County

3. Theoretical Framework

Transactional Model of Communication Theory

The transactional model of communication is the practice of incessant change and transformation in which each element involved is changing such as the people, their environments and the medium used. As a result, the communicators are viewed independently.

Both the sender and receiver are important to keep the communication alive. The communicators are also interdependent to each other. For example, transactional communication is not possible if the receiver is not listening to the sender.

The transactional model has a number of interdependent processes and components, including the encoding and decoding processes, the communicator, the message, the channel and noise. Hence, each element is important and affects the effect of the other elements to each other and the attainment of the ultimate goal. In agricultural activities, smallholder farmers need prompt information packaged in languages easily understood to them, offering solutions to the farming problems facing them, information and knowledge on innovations best suited for their farming activities to improve their crop production, animal health, improved nutrition, mitigate impacts of the climate change, care for the environment and the living microorganism in the soil and put hunger into bay. A transactional model of communication is relevant to the improvement of farming activities and the researchers who receive farming challenges facing farmers, research in them, find solutions and it's the work of the communicators to simplify the research findings and package it into easy-to-understand language by the target audience who are the smallholder farmers and the policymakers.

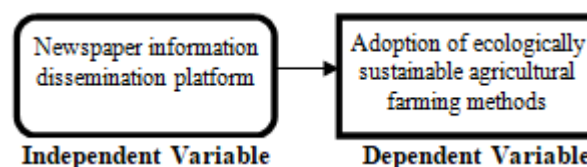
Web applications and platforms are based on the transactional model of communication whereby communities for instance farmers create and shape their own content that is beneficial to them. Communication is a dynamic process. 'Communication is like a motion picture, not a single snapshot. A word or action does not stay frozen when you communicate; it is immediately replaced with yet another word (Samovar, Portier & Mc Daniel, 2006). The premise of the transactional model of communication is that the sender and the receiver are involved in the process of encoding and decoding messages and interact hence the element of feedback, therefore, the sender also becomes the receiver. According to Tan (1984), a transactional model of communication has elements of Shannon and Weaver's mathematical model, Newcomb's social-psychological model and Westley and Maclean's general model. Communication is initiated deliberately by a source to achieve some effect (response) in the receiver. Observation of different forms of mass communication can show that mass communication is certainly purposive.

According to Turner and West (2010) communication as transactional means that the process is cooperative; the sender and the receiver are mutually responsible for the effect and the effectiveness of communication. They further state that in the transactional model, people build shared

meaning. In addition, what people say during a transaction is greatly influenced by their past experience. The distinction between source and receiver is arbitrary since both are actively involved in the transaction. The original source may affect the receiver, but receivers also often affect sources (Tan, 1984). Transactional communication requires us to recognize the influence of one message on another. One message builds on the previous message; therefore, there is interdependency between and among the components of communication. A change in one causes a change in another (Turner & West, 2010). The sharing of a common reality gives people within a particular culture a common fund of knowledge (Samovar, Portier & Mc Daniel, 2010). Shared knowledge gives rise to shared meanings which are carried in the shared physical environment, social institutions, social practices, the language, conversation scripts and other media (Chiu & Hong, 2006)

4. Conceptual Framework

The study adopted the following conceptual framework:



Source: Author 2020
Conceptual framework

Newspaper platform

Newspapers are one of the mass media communication that has been used for decades. Newspapers are periodical publications containing informative articles, editorial views, analytical articles, advertisements, special reports, pictures and cartoons. Newspapers can also provide sustained and prominent coverage on a particular subject and they are very important in inducing the public to change attitudes, become more aware, increase knowledge and skills, and learn on different topics including those on agriculture. Therefore, newspapers play a noteworthy role in disseminating developmental messages including agricultural information. In disseminating agricultural information or educative topic, the newspaper can best fit for periodic studies, where for instance every Saturday Daily Nation publishes a pullout magazine on agriculture called "SEEDS OF GOLD" which is done in collaboration with Egerton University which is an agricultural university. "SEEDS OF GOLD" has the purpose of "Educating Farmers on the Best Farming Practices". Contributors give their contact information so farmers can easily reach if they have queries or need more information on articles that have been written. Kenya has four national daily newspapers printed in English and one in Kiswahili, distributing in total a sum of 400,000 papers daily. This indicates that the news reaches all the corners of the country, satisfying the needs of a third of the farmers every Saturday. It's notable that periodic study significantly improves consumers knowledge. Farmers that are consistent in the study of the seed of gold by a daily nation can now brag of agricultural methodology and management. Concurrently, newspapers offer information comparatively. That is, it compares the happenings all over the country and also of

other countries. Newspapers are also considered current when it comes to information dissemination. It gives up to date information especially on new arrival talk of fertilizers.

Despite the noteworthiness of the role newspapers play in disseminating information to the public, there are concerns in many countries especially Kenya that newspapers tend to prioritise advertisements, politics, entertainment, and crime events while ignoring developmental topics such as agriculture (Narayana & Kumar, 2009). A study carried out in Nigeria revealed that the degree of prominence accorded to agriculture by newspapers was very low. Only 36 (4.8%) out of 750 news items on agriculture were published on the front pages (Okarie&Oyedepo, 2011). In Botswana, Oladele and Boago (2011) reported that public newspapers provided less coverage to agricultural news than private newspapers. Generally, agricultural information has suffered limited coverage in newspapers.

5. Research Methodology

This study used a descriptive research design for the purposes of triangulation. Triangulation refers to a research strategy that involves approaching a research question from two or more angles in order to converge and cross-validate findings from a number of data sources (V.Jupp, 2006). The major purpose of descriptive research is description of the state of affairs as it exists. The research designs are appropriate to this study since it seeks to establish the relationship between Newspaper information dissemination platform and the adoption of ecologically sustainable agricultural farming methods.

The target population of this study included the farmers, agricultural extension officers, and media representatives in Embu County. The numbers of farmers per organization were as follows: Burugo (1,234), Karungi (1,389), and Karamuki (876) (Embu County Agriculture Office, 2018). Additionally, the study also included 10 agricultural extension officers and five (5) media representatives in Embu North Sub-County in the target population.

The researcher used a Derivation of the sample size using Nassiuma’s (2000) formula and stratified random sampling which is a form of probability sampling to obtain the sample of respondents from the study population as follows:

$$\frac{NC^2}{C^2+(N-1)e^2}$$

Where: n = sample size;

N = population size;

C = coefficient of variation which is 50%

e = error margin which is 0.05.

Substituting these values in the equation, estimated sample size (n) will be:

$$n = \frac{3514(0.5)^2}{0.5^2 + (3514-1)0.05^2}$$

$$n = 97.8$$

$$n = 98 \text{ respondents}$$

The instrument for data collection was a questionnaire which was administered to sampled respondents. The structure of the instrument included both closed-ended and open-ended questions. Data processing and analysis were done based on qualitative and quantitative methods. The qualitative data gathered by use of questionnaires and interviews were analyzed by means of comparison with documented information about use off Newspaper. Quantitative data was analyzed by use of the Statistical Package for Social Science (SPSS version 21). Multiple regression analysis was conducted to establish the relationship between the Newspaper information dissemination platform and the adoption of ecologically sustainable agricultural farming methods.

6. Results and Discussions of the Findings

Newspaper Platform

	N	Minimum	Maximum	Mean	Std. Deviation
Have you ever used any print media platform as a source of information disseminating platform?	92	0	1	.66	.475
Valid N (listwise)	92				
Newspapers provide periodic information on the adoption of ecologically sustainable agricultural farming methods, that has proven helpful to farmers.	92	1	5	2.65	1.402
Valid N (listwise)	92				
The periodic educative information enables the individual to know how to seek and apply information in day-to-day problem-solving.	92	1	5	2.60	1.293
Valid N (listwise)	92				
The newspaper has provided farmers with comparative information on-farm management.	92	1	5	2.40	1.422
Valid N (listwise)	92				
The cost of farming and farm management has become affordable due to the adaptation of knowledge and information in the daily newspaper.	92	1	5	2.70	1.340
Comparative information in newspaper helps farmers to adopt ecologically sustainable farming practices than other methods.	92	1	5	2.79	1.395
Valid N (listwise)	92				

The average mean for the responses for the farmers who have used print media platform as an information source was 0.66. In a yes (1) or no (0) response, this value indicates that

about 66% of the farmers have used print media to learn information regarding ecologically sustainable farming techniques. The statement 'newspapers provide periodic

information on the adoption of ecologically sustainable farming techniques' did have a mean response of 2.65. This indicates that on average, the farmers seem undecided to the farming techniques. The standard deviation of 1.402 further highlights the diversity of opinions among the farmers regarding the statement. Most of the questioned farmers had different opinions regarding the statement that periodic educative information enables the farmers to seek and apply information in problem-solving. This is explained by the large standard deviation of 1.29. The average response of 2.6 indicates that most of the farmers either agree or strongly agree with the statement. Farmers interviewed did agree with the statement that newspapers have enabled them to gain comparative information regarding farm management. This though is not the opinion with all the farmers with the standard deviation of 1.422 showing the opinion diversity among the farmers. Not all 92 farmers think that newspapers have been useful in providing them with adequate farm management information. Others are also undecided on the matter. This could have been contributed by the inability of all the farmers to access information presented in the newspapers. The adaptation of knowledge and information presented in the newspapers has made the farming cost to go down. This is a statement which, on average, the farmers seem undecided. Even though a great number of the farmers agree with the statement, the percentage of farmers who have no access to the newspapers give a neutral opinion on the matter. The standard deviation of 1.34 is a sign of the opinion difference among the respondents. Despite the differences in opinion, in general, most of the farmers find the adoption of new information and adaptation of knowledge to be vital to cost minimization in their farming activities. The comparative information provided in the newspapers have assisted the farmers to improve their farming activities, this statement is on average supported by the farmers. The average responses of 2.79 can be interpreted as a neutral stand. The standard deviation shows that there is a great deference in opinion and it can be concluded that the farmers who have access to the newspapers tend to have a different perspective from their peers who have not read the information published in the print media regarding ecologically sustainable farming techniques.

7. Summary

Newspaper Platform

The statement on accessing the information on ecologically sustainable farming methods through the newspaper platform, different reactions were observed. The average mean for the responses from the farmers who had access to the newspaper platform indicated that majority of the farmers had read such information on the print media asserting that 'newspapers provided periodic information on the adoption of ecologically sustainable farming methods. It was further observed that there was a diversity of opinions among the farmers regarding the use of the newspaper platform. Farmers interviewed agreed with the statement that newspapers had enabled them to gain comparative information regarding farm management, that adaptation of knowledge and information presented in the newspapers had made the farming cost to go down and most of the farmers found the adoption of new information and knowledge as

vital to cost minimization in their farming activities. The comparative information provided in the newspapers assisted the farmers to improve their farming activities. This statement was on average supported by the farmers who had access to the newspapers. Farmers who had not accessed such information and knowledge from the newspapers had a contrary opinion to their peers on the information published in the print media on ecologically sustainable farming methods.

8. Conclusions

Newspaper Platform

The study concluded that farmers gained information on ecologically sustainable farming methods through the newspapers although they provided periodic information on such farming practices. The newspapers too published diversity information on ecologically sustainable farming methods which helped the farmers who had read it to improve their farm management. Hence, an adaptation of knowledge and information published in the newspapers contributed to low cost in farming activities because the farmers had information on the cost and where to find the seeds. Most of the farmers found the adoption of new information and knowledge. Hence, regularly publishing ecologically sustainable agricultural farming methods in the newspapers would contribute to farmer's adoption of better farming practices.

9. Recommendations

Newspaper Platform

The study recommended that the newspaper platform was important for farmers to gain information and knowledge on ecologically sustainable farming methods. The newspapers should continue to provide regular information and knowledge on the adoption of ecologically sustainable farming methods. Hence, an adaptation of knowledge and adoption of information published in the newspapers on ecologically sustainable farming methods could enable the farmers to continue to improve their farming practice and increase their farm produce.

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