

A Paradigm for Evaluation of Use and Effect of Communication Channels in Agricultural Extension Services

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ABSTRACT An evaluation is essential in an attempt to assess the relative effectiveness of one approach against the other. Many communication channels have been used in agricultural extension services and it is through evaluation that appropriateness and effectiveness of such channels can be determined. To facilitate the task of evaluation among researchers, it is necessary to put in place a model such as the one being proposed by this paper. In the model, a professionally designed and packaged extension messages in form of improved agricultural technologies emanate from an extension agency which constitutes the communication source. The next stage in the model is the use of communication channels. This entails decision by the target audience to use a particular channel, amount of content, and in a particular manner, which can be determined by many socio-economic variables. Effect of an extension programme on the target audience through a particular channel can be operationalized through observable changes in their attitude, knowledge and practice of the innovations leading to enhanced technical competence and increased farm output.

INTRODUCTION

According to the model of social labour division in western culture, technical knowledge was generated by science and industry, transferred by extension services and utilized by farmers. The introduction of western technology to non-western farmers was intended to increase their production capacity, income and standard of living (Roth, 2001).

Essentially, extension is an educational process with the aim of bringing about desirable changes in people's knowledge, attitude and skills, which will contribute to better farm and home practices and better family living. The conceptual changes (knowledge and attitude) must precede the technical change (action or practice) and must be brought by education. Extension evaluation is the process of determining the extent to which these desired behavioural changes have been accomplished in ways of thinking, feeling and acting. Evaluation helps to determine the effectiveness of a programme and also clarifies what is really being done and how it is done (Janelid, 1972).

Communication is basic to any form of social reality. According to McQuail (1978), communication serves the purpose of extending public education and promoting innovation in agriculture, health and population control. At the

practical level of causation, communication performs the role of stimulating society to higher ideals.

In the area of agricultural extension, communication can play an important role in raising the productivity of farmers. The extension worker is basically the source of new information. The extension agents are however, few and reach only a fraction of the farmers. The same information can be diffused to much larger audience by using the mass media. Dare (1990) and Moemeka (1990) posited that the mass media should serve as vehicles of non-formal education and help rural people see opportunities they might otherwise not see. This implies that mass media could accelerate rural development through mediating between the other actors in agricultural production system. In addition, the mass media could promote attitude change, extending public education and advancing innovation diffusion in agriculture.

Media technology has been accepted as an effective tool to bridge the geographical distance between the message senders and receivers. Extensive use of electronic and print media in support of agricultural extension, diffusion of information technology, social reforms, education and health awareness can be seen all over the world.

The bottom line of communication is that at the end of any communication process, the ideas

or messages must have been transferred and received with little or no distortion. As a result of growing influence of communication in various forms and from different channels on the knowledge, attitudes and practices of human beings generally, the concept is now widely seen and recognized as important tool to bring about desirable changes in social process in particular and development in general.

Various communication channels are being used in agricultural extension services. It is through evaluation that the appropriateness and effectiveness of such channels can be determined. Such evaluation shall provide the necessary feedback mechanism to media organizations, extension agents and policy-makers. A good starting point is formulation of a suitable evaluation paradigm, which is the objective of this paper.

THE CONCEPT AND MODELS OF EXTENSION EVALUATION

Every extension activity involves a conscious or unconscious appraisal of progress and effectiveness. Objective and well-organized extension studies conducted in cooperation with rural leaders help make the extension programme realistic in terms of people's needs, justify the investment of public funds and are educative to those who participate.

According to van den Ban and Hawkins (1996), evaluation is an action-oriented management instrument and process. Information gathered in this process is analyzed so that the relevance, effect and consequences of activities are determined as systematically and objectively as possible. It is used to improve present and future activities such as planning, programming, decision-making and programme implementation to achieve extension policy goals more effectively. It includes value judgements of the extent to which these activities have proved to be worthwhile in comparison with the resources need.

In view of competing demand for public funds, programme managers are always required to justify the continuity of their programmes by providing valid and reliable data on which to base their decisions.

Evaluation is essential in any attempt to assess the relative effectiveness of one approach against the other. It also makes room for constant reassessment of the aims and objects of the

programme, whether it is still following its stated goals or has deviated. It also allows for the setting of new goals and incorporation of new ideas as the programme continues.

Essentially, evaluation of communication channels/media may seek to answer questions such as:

- (a) Are the communication channels/media being used by the target audience?
- (b) Are there any effects on the target audience in terms of change in their attitudes, behaviour and practices as a result of utilization of the channels/media?
- (c) Do some channels/media seem more effective than others in influencing target groups to accept and practice recommended technologies? If so, which one(s)?
- (d) What is the cost of using one channel/media compared to another?

The answers to these questions and other similar ones provide basis for policy decision and they may indicate what modifications may be necessary in subsequent media programmes.

There are several alternative approaches to extension programme evaluation. Making a choice among these approaches is significant since for each, there are different assumptions about what data to collect, how to collect them, and how to make judgement about success. The following seven major models will provide a sufficient choice for most extension evaluation situations:

- (i) Attainment of objectives model
- (ii) Goal-free model
- (iii) Expert model
- (iv) Experimental model
- (v) Management decision model
- (vi) Participatory evaluation model
- (vii) Naturalistic model.

(i) Attainment of Objectives Model: This type of evaluation begins with clarifying measurable objectives and gathering of data that validate the extent to which the objectives have been met. This approach assumes that the success of a programme can be determined by measuring programme outcomes against its own goals and objectives. For this model to be credible, an essential feature should be added, namely the evaluation of appropriateness of goals and objectives, given the circumstances and needs of farmers.

One of the limitations of this model is the fact that programmes are often tempted to set goals

quite low so that outcomes will be met easily, thus appearing to be successful while ignoring major challenges. Another limitation of this model is that it fails to provide explanation for outcomes by ignoring the extension process (Provus, 1971).

(ii) *Goal-Free Model*: The assumption in this model is that outside evaluators do not know, or need to know what the programme has intended to accomplish but that it is the task of the evaluators to uncover what is actually happening relative to farmers' interests regardless of stated goals and intentions. The focus point is to identify environmental and farming conditions and then to compare these needs with what people are actually experiencing as a result of the extension programme. The gap is then viewed as a starting point for making changes in the programme (Scriven, 1972).

(iii) *Expert Model*: this approach relies on expert judgement and usually documentation is prepared in advance of experts' visits. The experts interview, analyze document, and make judgements using their own judgement perspectives or those set as standards by the outside organizations or stakeholders (Eisner, 1983). Teams of experts are brought from bodies or organizations like FAO, World Bank or Extension Systems from several countries to make judgements and comparisons regarding strengths and limitations.

(iv) *Experimental Model*: The aim of this approach is to determine whether changes in programme outcomes (learning accomplishments) were due to the contributions of the programme and not just to life's experiences or from other influences. The question asked by this model is "were differences in sustainable agriculture practice attributable to the programme?" The simplest way to go about this is to determine causality between the programme inputs and comparable groups, a group that received the educational treatment and group that did not. This means that programme accessibility, at least during the experiment is withheld from those learners who serve as a control group (Murphy and Marchant, 1988).

The limitation of this approach lies in the difficulty in its operationalization. Due to the nature of human subjects, the ethics of withholding educational services and the difficulty of controlling for external influences, it is extremely difficult and costly to operationalize this model.

(v) *Management Decision Model*: The

purpose of this model is to provide relevant information as a management tool to decision-makers. The assumption is that evaluation should be geared to decisions during programme initiation and operation stages to make results more relevant at each particular stage. Participation of stakeholders is central to the process because evaluation should serve their decisions (Gold, 1988).

A limitation of this model is the tendency for the decisions of major stakeholders to be viewed as more important than those of various types of farmers.

(vi) *Participatory Evaluation Model*: This model assumes a democratic participatory process along with autonomy on the part of educators and learners at the local level. The purpose of the model is, therefore, for extension educators and farmers themselves to initiate a critical reflection process focused on their own activities. This is a form of what is called "participatory action research" (Brunner and Guzman, 1989).

(vii) *Naturalistic Model*: The assumption of this model is that programme is a natural experiment and that the purpose of evaluation is to understand how the programme is operating in its natural environment. The model assumes that programmes are negotiated realities among the significant stakeholders and that evaluation serves this value-laden negotiation (Guba and Lincoln, 1989). Another purpose of this model is to diagnose or to identify the causes of certain behaviour on the part of some farmers, agency staff or other development actors (Murphy and Marchant, 1988).

Data should be collected and analyzed from multiple perspectives. The outcome of the evaluation is dialogue concerning disagreements about objectives, expectations, problems, opportunities, policies, procedures and suggested changes in methods or activities. Many positive collaborative changes can be made through this model of evaluation if conflict resolution skills are combined with evaluation.

It can be seen from the foregoing discussion of evaluation models that different types of evaluation approaches (or models) have their own strengths and limitations. The expert model, for example, most often focuses on data from inputs, activities and participation while the goal-free model tends to focus on individual change, organization change or community change, ignoring

the inputs and activities. The attainment of objectives model compares the philosophy, goals and objectives of inputs to the extent of individual or organizational change outcomes. The naturalistic model emphasizes understanding activities, participation and reactions as processes that occur within cultural, economic and political contexts.

When an agricultural extension programme is to be evaluated, there are many questions to answer. The principal one is how farmers (learners) experience the learning process and what they actually learn (the outcome of learning), their knowledge, attitudes, skills and aspirations and their behaviour change. An evaluation can also focus on the extension educator and the content, processes, and resources that are needed. Since learning is always a social phenomenon, an evaluation can focus on the social environment, organizational context, and the relevance of language, culture, and sometime public policy to learning. Educators tend to focus on questions that serve their own perspective. Similarly, learners (farmers) may be interested in questions that serve their purpose.

A MODEL FOR EVALUATION OF USE AND EFFECT OF COMMUNICATION CHANNELS IN AGRICULTURAL EXTENSION

Figure 1 is a model for evaluating the use and

effect of communication channels in agricultural technology transfer designed by the authors of this paper.

The general objective of any extension service delivery programme is to bring about change in attitude, knowledge, practices, yields, income and standard of living of the farmers. The realization of this objective can be facilitated through dissemination of relevant information on improved farm technology to the farmers using mass media and/or interpersonal channels of communication.

Improved farm technology messages are professionally designed and packaged by the extension agencies, which constitute the communication sources. The messages which may include use of neem extract for farm produce storage, use of herbicides, treatment of livestock diseases with local herbs, vaccination against livestock diseases, use of improved crops/livestock variety, etc are disseminated through interpersonal and/or mass media channels to the target audience, the farmers. The interpersonal channels are extension agents, contact farmers, opinion leaders, friends, fellow farmers, neighbours, relations while mass media are radio, television, journals, newspapers, extension bulletins or newsletters, film shows, posters, handbills. The specific objectives of an intervention programme can be derived from the general objective of extension service of the extension agency concerned

The message sender or communicator and the

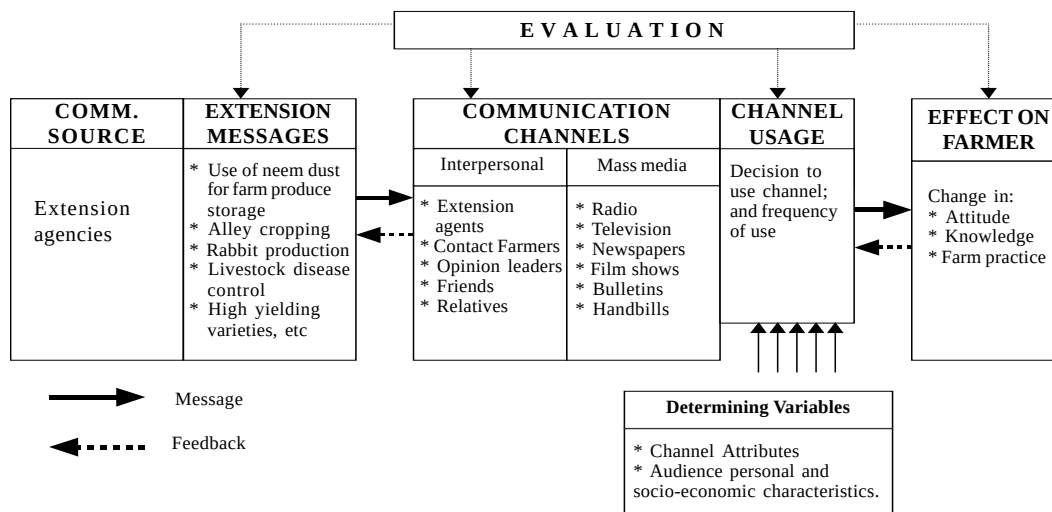


Fig. 1. Extension communication channels use-effect evaluation model

receiver must be connected to each other and channels of communication serve as physical bridges between them. No matter how important the message, it will not get through to the intended audience without proper selection and use of channels. Channel use entails decision by the target audience to use a particular channel and the frequency of use.

Individuals use communication channels within the information environment whose message contents are consistent with their personal, socio-economic and attitudinal predispositions such as age, sex, marital status, household size, farm size, income, educational level, social participation and attitudes towards change. Channel availability, accessibility and credibility will also to an extent determine their use. For a communication channel to be selected for use by a farmer, that source must first be available and accessible, and secondly, the farmer must perceive it as trustworthy and qualified to offer advice on the topic being discussed. Time of broadcast/publication, quality of reception/printing, relevance of message as well as language compatibility are other determining variables that can also affect the decision by the farmer to use or not to use a particular channel.

Evaluation provides an avenue for obtaining information on the effect of the extension programmes on the target audience. Evaluation, also called success assessment, compares the “should” and “is” levels or “expected” and “actual” levels with one another and to establish whether and to what extent the communicator has achieved the goals defined in the extension programme.

The communication effect on the target audience can be operationalized through observable changes in their attitude, knowledge, skills and practices of improved farm technologies.

It is expected that the communication effect as a result of the exposure to extension messages through a communication channel should be passed back to the communication source in form of feedback. This is what makes the communication process complete. Feedback is a control device and an important indicator of communication success or failure and helps identify areas requiring modification or further enquiry. Thus feedback can be positive, that is, when the intended effect of message is achieved or negative, that is, when the intended effect of a message is not achieved. Feedback may be weak and delayed

like in the mass media communication or immediate and sharp as in the interpersonal communication.

In conclusion, the model posits that appropriate communication channel use is a basic condition for realizing the desired communication effect (knowledge gain, attitude change and innovative behaviour of farmers). Personal/socio-economic characteristics of an individual as well as some attributes of communication channel influence the decision to use its content. Evaluation provides the avenue for determining the extent to which the communication goals in terms of effects have been achieved.

There is no one best universal way to conduct an extension evaluation. Some approaches are probably better than others for addressing particular types of questions or concerns. Most evaluations, however, have at least five major elements viz: (i) focus questions (ii) objects or events to be evaluated (iii) data or evidence (iv) analysis and interpretation using judgement perspectives, and (v) judgements, conclusions or findings. Approaches, purposes or models may vary but these elements will be present in one form or another.

Some evaluation situations require quantification and measurement while others require qualitative, descriptive and subjective data. A mixed-methods approach may, however, be better. For example, a mix-methods approach can lead to better understanding and appreciation of phenomenon under evaluation and provide triangulation, convergence and corroboration of results from different methods. The “communication channels Use-Effect Evaluation Model” being posited by this paper is therefore based on a mixed-methods approach phenomenon.

SUMMARY AND CONCLUSION

An extension package in form of improved agricultural technologies or recommended practices emanates from an extension agency, which constitutes the communication source. The extension messages are passed to the target audience, the farmers, through some chosen communication channels. The next stage of the model is the use of communication channels. This entails decision by the target audience to use a particular channel, amount of content and in particular manner. Individual characteristics, expectations, and perception of a channel, the

degree of access to it, etc can lead to decision to use or not to use its content.

Effect of a channel on the target audience can be operationalized through observable changes in their attitude, knowledge, skills and aspirations leading to enhanced adoption, technical competence and increased farm output or yield. Exclusive effect of communication channels can be determined by testing for significant difference in knowledge of some subject matter between users and non-users of the channels. Relevant statistical tests can also be carried out to determine the effect of other intervening variables such as personal and socio-economic characteristics of the farmers.

There is a feedback mechanism, which seeks from the actual audience, information and reactions, either about sociological, psychological or other group characteristics, their frequency and distribution, or about communication effects which are made known to the message source and media organizations. The model postulated represents this entire complex.

REFERENCES

- Brunner, I. and A. Guzman 1989. "Participatory Evaluation: A tool to assess Projects and empower People", (pp. 9 - 18), in R. F. Conner and H. Hendricks (eds.) *International Innovations in Evaluation Methodology, New Direction for Programme Evaluation*. No. 42, San Francisco: Tossey-Buss.
- Dare, O. 1990. "The Role of Nigerian Mass Media in National and Rural Development and transformation" (pp. 1 - 10), in L. Oso and L. Adebayo (eds.) *Communication and Rural Development in Nigeria*. Abeokuta: Millennium Investments Limited.
- Eisner, E. 1983. Education Connoisseurship and Criticism: their form and function in Education Evaluation, in G. F. Madans, M. Scriven and D. Stufflebeam (eds). *Evaluation Models*. Boston: Kluwer-Nijhoff.
- Gold, N. 1988. "Stakeholders and programmes Evaluation: Characteristics and Reflections". (pp. 62 - 63), in: K. A. A. Bry (eds.) *Stakeholder-based Evaluation: New Directions for Programme Evaluation*. No. 17. San Francisco: Jossey-Base.
- Guba, E. G. and Y. S. Lincoln 1989. *Fourth-generation Evaluation*, Newbury Park, C. A.: Sage
- Janelid, I. 1972. "Extension Evaluation", in A. A. Maunder (ed.). *Agricultural Extension: A Reference Manual*. Rome: F. A. O. of the United Nations.
- McQuail, D 1978. *Communication*. London: Longman.
- Moemeka, A. A. 1990. "Mass Media Communication and Rural Dwellers: Towards Effectiveness of Development Messages", (pp. 52-75) in L. Oso and L. Adebayo (eds.), *Communication and Rural Development in Nigeria*. Abeokuta: Millennium Investments Ltd.
- Murphy, J. and T. Marchant 1988. *Monitoring and Evaluation in Extension Agencies*. Washington D. C.: The International Bank for Reconstruction and Development/The World Bank.
- Provus, M. M. 1971. *Discrepancy Evaluation for Education Programme Improvement and Assessment*. Berkeley: McCutchan.
- Roth, G. 2001. "The position of farmers' local knowledge within Agricultural Extension, Research and Development Cooperation." *Indigenous Knowledge and Dev. Monitor*, 9(3): 10 - 12.
- Scriven, M. 1972. Pros and Cons about Goad-Free Evaluation." *Evaluation Comments* (3): 1 - 5.
- van den Ban, A. W. and H. S. Hawkins 1996. *Agricultural Extension*. Second Edition, London: Blackwell Science Ltd.