ABSTRACT
                This paper outlines the concept of "program" and one
set of elements that are considered to make up the program planning
process in agricultural extension, and an example of practical
program planning in Rhodesia is given. Although there is a wide
variety of meanings attached to the term "program" in adult
education, it has been stated by Thomas (1964) that all programs
consist of two factors: (1) the relationship between participant and
agent (usually oral); and (2) a variety of relationships with a
variety of factors in the environment, all chosen and planned by
these two parties. Four overlapping factors suggested by Verner
(1964) as the basis for designing the learning experience, provide a
simple model which could be elaborated to suit various situations and
levels of planning: (1) determination of needs; (2) identification of
educational goals; (3) arrangement of learning tasks; and (4)
measurement of achievement. Each of these steps is discussed. The
cited program in Rhodesia, in the rather isolated Gokwe district, is
based on cotton production. The foundation of the program is close
liaison between specialists, extension staff, and the Cooperative
Officer, and consists of the following essentials: a program that is
technically sound and economically attractive; close cooperation of
Extension and Cooperative functions; locally adapted recommendations,
simplified to the essentials; emphasis on staff training (technical
and team work); annual programs of main events; and monthly work
program prepared one month in advance from the farmer/field worker
level upwards. (DB)

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AGRICULTURAL EXTENSION - PROGRAMMING THE WORK

by

G.A. Smith

Lecturer

Institute of Adult Education

University of Rhodesia

Paper for presentation at the SARCCUS

Agricultural Extension Workshop

Swaziland, 5th-16th July 1971.

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## AGRICULTURAL EXTENSION – PROGRAMMING THE WORK

Extension programme planning is difficult to describe because it is a complex process consisting of a series of tasks arranged in an ordered sequence, but necessitating rearrangement and adjustment as programme objectives are accomplished and redefined.

In order to give structure to the programme planning process so that it can be described, and studied, writers build up the steps, stages or elements in programme planning into a model. It must be remembered, however, that model-building is just a convenient way to clarify and perhaps improve the process. In real-life situations there will almost certainly be differing emphases and a wide variation in the practical procedures followed.

Three of the main problems which bedevilled extension programme planning in the African Tribal areas of Rhodesia during the 1960's were:

1. levels of knowledge and skill of the agricultural demonstrators initially were low

2. field staff were oriented to Master Farmer Training – teaching to a syllabus and not operating creatively in teaching farmers to solve specific problems

3. the concept of farmer participation in all phases of the programme planning process was inherited from the U.S.A. – there was always considerable doubt about the value of involving illiterate or semi-literate farmers in programme planning with the exception of relatively specific short-term planning at the demonstrator/farmer level for learning and action

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This paper outlines the concept of programme and one set of elements which are considered to make up the programme planning process. Until the questions relating to farmer participation — at what stages and in which ways — have been decided, the value of teaching set procedures of programme planning in inservice staff training are limited. This is illustrated in one example of successful programme planning in Rhodesia where extension staff undertook most of the planning — resulting in a 'package' type programme at demonstrator/farmer level.

## The Concept of Programme:

Thomas (1964) notes that there is a wide variety of meanings attached to the term programme in adult education.

He suggests that a programme consists of a number of elements

- order and continuity
- a number of events or items
- future purpose — (objectives)
- events are related to each other.

He goes on to point out that programme planning and programming are inseparable from the word programme in the literature and this implies activity.

The educational value of participation by the sponsoring organisation, agents and participants is stressed by many writers, not only in carrying it out, but also in planning the programme. It is suggested that this tends to ensure that programmes will be centred in the real needs of the participants.

The stress on activity is necessary to ensure that what in
fact are programme descriptions (programme plans) lo not become
inflexible and lose their vitality and educational value, but are
continuously adapted to participants. However, programmes vary
considerably in the amount of participation by clients in the actual
programme planning process.

Houle and Knowles (1960) suggest that in the various approaches
to programme planning there are two common factors

1. Education is a co-operative venture
2. There are four basic educational topics:

> objectives
> content
> method, and
> evaluation

Two related developments should be noted which are increasingly
affecting ideas about individual learning, communication theory and
programming : cybernetics and programmed instruction. The cybernetic
approach implies self-regulation of activity by means of a feedback-
control system or servo-mechanism. (Smith and Smith 1966).

Programmed instruction is the careful creation of a programme
in a logical ordered sequence leading to the desired behaviour. The
programmer first identifies and defines the desired changes in behaviour
in the participants and then works backwards from these, designing the
steps in the programme by which they can be accomplished.

In summary, Thomas (1964) states that all programmes consist
of two factors:

1. the relationship between participant and agent
(usually an oral relationship)

2. a variety of relationships with a variety of factors
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Elements in Programme Planning

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## Elements in Programme Planning

Many models have been put forward to illustrate the programme
planning process. Most authors assume that the programme is people-
centred and particularly that it deals with problems determined through
the joint participation of agents, specialists and participants. It is
also assumed that agricultural extension is essentially an educational
process utilising non-directive methods.

Models usually consist of elements (or steps) following each
other in a time sequence as part of a cyclic process. The exception
is perhaps the 'campaign' approach which focusses on an important
problem and is mounted for a pre-determined period of time.

Various authors emphasise different aspects of the programme
planning planning process, and because of the diversity of situations
and approaches together with the complex pervasive nature of the
subject it is difficult to suggest a simple model which will meet all
needs.

The four overlapping factors put forward by Verner (1964) as
the basis for designing the learning experience do provide a simple
model which could be elaborated to suit various situations and levels
of planning:

1. Determination of needs
2. Identification of educational goals
3. Arrangement of learning tasks
4. Measurement of achievement.

(The first two factors have already been considered in a previous paper presented to this workshop, (Smith 1971), the other two factors are outlined below).

3. Arrangement of the learning tasks

Verner considers the arrangement of learning tasks under three headings:

(1) The identification of specific tasks – each step in the achievement of an educational goal must be arranged in sequential order: from known to unknown, from simple to complex, etc.

(2) Selection of the appropriate educational process – this involves a consideration of methods, the nature of the learning task, characteristics and experience of the participants, abilities of the instructional agent, inherent efficiency of the technique, availability of facilities and equipment, and the nature of the learning process.

(3) The selection of resources – human and material. The subject matter content and learning tasks influence the choice and use of resources.

4. The measurement of achievement

The statement of goals is the basis of evaluation which must be built into the programme. Evaluation is not only a check on goal achievement, but also is a feedback to learners and serves as a motivation to further learning.

Determination of needs

This element may be broken down into several sub-steps, each

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<u>Determination of needs</u>

This element may be broken down into several sub-steps: fact collection, situation analysis and identification of problems. These sub-steps may be undertaken in a more or less cursory assessment of the situation or a detailed survey may be carried out over a period of time.

A simple method of determining the kinds of facts needed is to focus on problems (bottlenecks to agricultural extension and improved productivity), groups - formal and informal and leaders in the area. This will assist in selecting and involving participants in the programme.

The fieldworker may undertake this type of survey in the form of a booklet/questionnaire "Do you know your area". The Extension Officer should undertake more comprehensive fact collection, mapping and contact with specialists.

The determination of problems and the ranking of priorities <u>may</u> involve farmers (particularly if there is a local extension committee), but <u>must</u> involve the relevant specialists. This is necessary because the identification of the real problems in the situation, their causes and solutions are often beyond the abilities of the local fieldworker or district extension officer.

Identification of Educational Goals.

The identification of educational goals (or objectives) involves problem-solving to determine possible solutions. Much of the literature on programme planning suggests that the people concerned should be involved in problem-solving - solutions may come from the people themselves, and in setting the relevant educational objectives based on the solutions - people are motivated to the adoption of practices they have participated in deciding upon.

Problem-solving which may be undertaken jointly with the people and specialists, involves a series of sub-steps including:-

> Problem definition.
> Suggesting possible solutions.
> Judging possible solutions for feasibility.
> Selection of practical viable solutions.

Miller (1964) and Osborne (1961) describe the problem-solving process. Osborne also describes problem-solving techniques, including 'brain storming' and Zahn (1966)describes the implications of creativity research in adult education programmes.

Arrangement of Learning Tasks.

In extension programming the arrangement of learning tasks is usually incorporated into a plan of work which also includes staff training and other activities which are not strictly educational in nature, e.g., organisation of supplies and services, etc.

Kelsey and Hearne (1963) describe a plan of work as an outline of activities so arranged as to enable efficient execution of the entire programme. It answers the questions how, where, when, and by whom the work is to be done.

A calendar of work is a plan of work arranged chronologically. Such a calendar of work may be made out in skeleton form for a year or more in advance, placing the important events under each

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A calendar of work is a plan of work arranged chronologically. Such a calendar of work may be made out in skeleton form for a year or more in advance, placing the important events under each month. This may be accompanied by a detailed calendar of specific dates continuously in preparation three months in advance. Seasons of work and habits of work may make it desirable to prepare a calendar of work quarterly.

They state that the action planned must include:-

(a) People to be reached.
(b) Goals, dates, and places.
(c) Teaching procedures to be followed.
(d) Duties, training and recognition of volunteer
                              leaders.
(e) Part to be played by extension personnel.
(f) Part to be played by other agencies.
(g) Plans for measuring results.

Successful execution of the plan depends upon purposeful effort and necessary support in implementing each step in the correct sequence, bearing in mind the need for flexibility to cope with changed circumstances or unforeseen difficulties.

The U.S.D.A. (1962) gives some practical suggestions for execution of the plan of work:

The first requirement for successful programme action is sound technical knowledge on the part of the agent. The

<u>second</u> is the use of teaching methods suited to the
subject matter and to the people involved.

The value of advance planning of each programme
activity cannot be over-estimated.  This includes making
sure that all involved know their responsibilities and
how to carry them out - advance preparation of teaching
aids, checking on supplies and equipment to assure their
availability well in advance of the time they are needed,
and special efforts to make each activity a useful learning
experience for all participants.

## The Measurement of Achievement - Evaluation.

In many countries there has apparently been little
progress in assessing the extent to which both agricultural
extension programmes and participants have achieved objectives.

Part of the problem is due to the general lack of care-
fully devised programme objectives, the superficial approach
to programme planning and the fact that evaluation has been
neglected by administrators and others due to lack of time and
resources to carry it out, together with the assumption that
past programmes have been satisfactory.

Evaluation is a process of measuring how well a programme
has succeeded in achieving its objectives.

Some of the functions of evaluation are:-

> To assess the effectiveness of instruction
> in relation to the specific educational objectives.

> To analyse the suitability of content in relation
> to the specific educational objectives.

> To determine whether or not the time, energy and
> money expended in planning and conducting
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> programmes produce results sufficient to
> justify the expenditures.

> To measure the extent to which the programme is
> meeting the needs of the participants involved.

The evaluation task involves four questions (adapted
from Unesco ED/JS/135).

1. What is to be evaluated, why and how?

2. Which indicators are to be used for measuring
   progress?

3. How and when to collect measurement data?

4. Who will undertake evaluation tasks?

Di Franco (1960 and 1969) makes the point that a major
evaluation problem is that many practitioners engaged in adult
education are reluctant to expose their programmes (particularly
to outside evaluators) for fear of incurring adverse criticism.

He suggests a 'systems' or 'action-research' approach to
evaluation - where the purpose of evaluation is to bring about
practical improvements in the programme. This type of regular
evaluation should be a fundamental element of constructive
programmes.

Di Franco points out the need to distinguish between <u>regular evaluation</u> for programme improvement and <u>evaluation studies</u>. The latter are designed to assess the overall impact of a programme over a period of time and are often politically motivated.

It frequently occurs that ongoing operational programmes fall short of initial stated programme objectives and thus appear to indicate poor overall impact over a period of time. Such an assessment could lead to programme curtailment.

This was found to be the position in a series of studies undertaken in the early 1960s of agricultural extension programmes started in various Latin American countries in the 1950s. It was, therefore, decided to institute a type of programme evaluation termed 'analytical studies' to locate why a programme had not been able to achieve its original objectives and to determine how it could be improved. It was carefully explained to practitioners that the aim was to strengthen, not to undermine the programme.

The basic technique was the use of a questionnaire to locate faults and weaknesses (i.e., determine the efficiency) of individuals and systems, leading on to their subsequent rectification. The long term aim was to build up an attitude of 'auto-evaluation' in the organisation itself. This was done by stressing that evaluation is an immediately useful device for programme improvement, and, when objectives are clarified in realistic terms before evaluation is commenced, it is a defence mechanism for the programme against over-ambitious expectations from outside.

In the USA where there are programme planning committees, these have the function of co-operatively planning extension programmes including evaluation of the programme and the planning process followed. Pesson (1966) and Raudabaugh (1963) discuss the organisation and development of these committees.

In the cyclic model the evaluation step leads back to programme objectives and replanning in the light of experience.

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Planning the Work - An Example from Rhodesia.

The most successful example of practical programme
planning in the African tribal areas of Rhodesia comes from the
rather isolated Gokwe district and is based on cotton production.

The programme was commenced in 1963 by M.G. Reid*
the Group Officer, when demonstration plots of cotton were
planted - the area now produces several million pounds of seed
cotton annually.

The foundation on which programme planning is based is
close liaison between specialists, extension staff and the
Co-operative Officer.

Before the start of each new agricultural season all
extension staff meet at an annual conference to discuss the
programme (policy) for the coming year.


    *  The author wishes to acknowledge several
unpublished papers by Mr. M.G. Reid, and discussions,
on which this section of the paper is based.

A 'ten-point' plan of the most important facts is
put forward and discussed on each crop, livestock and
economics.  These 'ten-point plans' are then bound
together as a booklet which is a quick reference source
complete with current prices, costs, sources of supply., etc.
All information is related to local conditions.

The booklet is compiled locally each year.  The contents
are thoroughly discussed by small workshop groups.  Old
copies of the booklet are destroyed.

In this way all staff become thoroughly familiar with
the programme   and recommendations for the coming season.
They can then approach their work and problems with great
confidence.

The annual conference is also used as a morale-booster,
for discussion of problems and to meet senior administrative staff.

In addition to the annual conference an annual tour for
staff is organised to broaden knowledge and stimulate interest,
and there is also periodical technical training and revision
of extension methods.

The aim and the result of this staff training is a team of
enthusiastic and capable workers.

Initially Test Demonstration plots were used to introduce
cotton as a cash crop to farmers. Seed, fertiliser, pesticides
and other cash risks were borne by the Department;   land and
labour were provided by the farmer, with all returns going to
the farmer.

Most farmer training is carried out in the field during
the actual growing season.  This requires good organisation
and deliberate effort by the demonstrators to get around their
areas.      Meetings, field days, discussion groups, visits to
and talks by outstanding farmers are extension methods which
are used as often as possible, but are not allowed to clash
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with busy work periods.

Staff work is organised into an annual programme and a
monthly programme.

The annual programme consists of a calendar of the main
activities, the dates of which are planned a year in advance.

The monthly programme is made up by each demonstrator
on a monthly work sheet a month in advance, and is based on a
daily diary. The monthly programme is built from the farmers
and field workers upwards - senior staff (Supervisors and
Agricultural Officers) then plan their monthly programmes
from the commitments in their demonstrators' monthly programmes.

This approach involving a sizable staff of field workers
working with peasant farmers over a large area consists of the
following essentials:-

1. A programme which is technically sound
      and economically attractive.

2. Close co-ordination of Extension and
      Co-operative functions.

3. Locally adapted recommendations - simplified
      to the essentials.

- 8 -

4. Emphasis on staff training - technical and
team work.

5. Annual programme of main events.

6. Monthly work programme prepared one month in
advance and planned from the farmer/field
worker level upwards.

## CONCLUSION.

Thomas (1964) provides a fitting conclusion to this paper
by stating that it is in programme planning where craftsmanship
distinguishes the able or great adult educator from the mere
functionary, and:-

"great programs    are a source of
joy in heaven, where perhaps alone they find some
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