

OBAFEMI AWOLOWO UNIVERSITY, ILE-IFE, NIGERIA.

Inaugural Lecture Series 96

**ANDRAGOGICAL TRANSMISSION: THE
SECRET OF NATIONAL FOOD SURPLUS**

By

A. Adegboyega Jibowo
*Professor of Agricultural
Extension & Rural Sociology*



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INTRODUCTION

In choosing the topic of this inaugural lecture, I have been guided by three basic considerations. First, is the tradition of many inaugural lectures in this university; second is the tradition of the academic discipline of this lecturer; third is the focus of this lecturer's work as a crucial issue in his academic discipline. A culmination of the academic work of this lecturer is to assist farmers boost food production; this is reflected clearly in the topic. This clarity manifests the tradition of the academic discipline of this speaker. The tradition of many inaugural lecturers is to choose titles which have disguised meanings, at least to readers who are not specialists in the disciplines. The purpose of this, it is argued, is to arouse the curiosity of the readers who could then be encouraged to attend the lecture and satisfy the curiosity.

Following the tradition of clarity of expressions in this speaker's discipline, I have considered a number of possible topics for this lecture, namely, "Agricultural Extension: The Challenge of a Nation", "Agricultural Extension: An Imperative for Agricultural Development", "Agricultural Extension: The Cornerstone of Agricultural Development", "Agricultural Extension: The Caterpault for Agricultural Development". Although the above titles satisfy the criteria of clarity and academic focus and actually convey synonymous intentions, they might not arouse the level of curiosity and expectancy with which many of our inaugural lectures have come to be identified. I have therefore chosen to speak on the title, "Andragogical Transmission: The Secret of National Food Surplus". The only word in this title which appears to be unfamiliar is "andragogical". The word "andragogy", was coined in Europe in 1833 and imported to the United States of America in the mid-sixties (Knowles 1977). According to Mccullough (1978), "andragogy is a process, it is a way of dealing with adults, of helping adults learn what they want to learn, when they want to learn". The andragogist is a facilitator of learning. He looks at groups of adults as aggregates of individuals each with specific needs. A state of national food surplus is that situation in which the nation can produce enough food to satisfy its domestic consumption and still have enough for export. "Andragogical transmission" therefore means the transfer of adult learning contents. In Agricultural Extension, the type of adult learning contents transmitted are those of improved technical knowlege, skill and attitude in agriculture which are directed towards agrarian development and consequently, the production of abundant food.

Production of national food surplus is attained when the quantity, quality and variety of food produced in a nation is in excess of the consumption need of that nation. A nation can be regarded as having attained the level of production of surplus food when it has produced in excess of the quantity needed for human, livestock and industrial consumption. The quality of products must also have been high enough to meet the rising tastes of consumers. The variety must have been such that would have met a high level of satisfaction. When the domestic consumption need is satisfied, the excess could have been partly stored to meet national and international emergencies caused by hazards such as drought, pest invasion, flood, fire disaster, disease epidemic, tornado, and warfare. It is then that a nation could reasonably talk of an excess which could be sent to other nations in need, or even destroyed.

This presentation has been organized as follows:

- (i) Introduction,
- (ii) History of Extension,
- (iii) The Problem, Objective and Hypothesis;
- (iv) Andragogical transmission in food production;
- (v) Conclusions;
- (vi) Recommendations.

HISTORY OF AGRICULTURAL EXTENSION

The history of Agricultural Extension in Nigeria has been linked with that of agricultural development in general. Before the colonial era by the British, there were conscious efforts made by farmers through selection, introduction and teaching of the practices involved in producing good varieties of crops and breeds of livestock. Families have taught the succeeding generations various farm practices through progressive observation and participation by learners. Neighbours and friends have shared their new knowledge of improved farm practices.

Formally, organised agricultural development in Nigeria started in 1893 with the establishment of the Department of Botanical Research by the British administration. Its headquarters was at Olokemeji in the former Western Nigeria (Williams, 1978). Its responsibilities included research in both agriculture and forestry. In 1905 the British Cotton-growing Association acquired 10.35 square kilometres of land at the site now called Moor Plantation, Ibadan, for growing cotton to feed the British textile mills. The above two early projects were abandoned. In 1910, Moor Plantation Ibadan became the

headquarters of the Department of Agriculture in Southern Nigeria, while the department of agriculture was established in the North in 1912. In 1921 a unified Department of Agriculture was formed after the amalgamation of the North and the South.

The major policy of the Central Department of Agriculture was to increase production of export crops for the British market. Extension efforts were therefore aimed at increasing efficiency in crop handling and marketing. Regulations were made to set and enforce standards in export crop production. In 1952, the Western, Eastern and Northern Regions were formed. In 1963, the Midwestern Region was created from the former Western Region. In 1967, twelve states were created from the four regions. The Federal Ministry of Agriculture also emerged. In 1976, nineteen states were created. In 1987 two additional states, namely Akwa Ibom and Katsina States were created to bring the total number of states in Nigeria to 21. Each Region had and each state still has a Ministry of Agriculture and Natural Resources with an Extension Division. The Federal Ministry of Agriculture has agricultural development programme with some extension focus. The primary responsibility for extension teaching lies with the state governments.

Special agricultural development schemes with direct or indirect extension function were also embarked upon. These included the Farm Institutes, Agricultural Development Corporation Projects, the National Accelerated Food Production Projects (NAFPP), the Operation Feed the Nation (OFN) Programme (1976) which was later changed to the Green Revolution Programme (1980). The agricultural programmes of the River Basin Development Authorities (1973), and the Agricultural Development Projects (1972) which are being popularly embraced by nearly all the states in the country. New generation schemes such as school to Land Programmes have been embarked upon by many states. The origin of Agricultural Advisory work in several European countries dates back to over one hundred and thirty-eight years. It initially focussed on encouraging outstanding and progressive farmers. From 1840 onwards, travelling teachers of agriculture were found in many countries. Organized Advisory services started at the beginning of the twentieth century in most countries through the efforts of governments and farmers' organizations. In 1873, Cambridge University used the term "Extension Education" to describe the practice of taking educational advantages of the university to ordinary people. The idea later spread to other institutions in Britain, the United States, and elsewhere Extension lectures in Agricultural Science received the first

public grant to the extension movement from the English County councils. In 1963, all countries in Western Europe had Advisory services. It was after the Second World War that greater emphasis was placed on the educational aspects of the advisory work by European governments (Sanders, 1966).

In the United States of America, the Cooperative Extension was formally established through the passage of the Smith-Lever Act in 1914, and amended in 1962, providing that land be allocated to each state to establish a college of agriculture which would also teach Home Economics and Mechanical Arts. Such colleges were to work in cooperation with the officials of the United States Department of Agriculture in each State. The Federal appropriations were to be spent by the college according to the State Legislation's directives. The primary responsibility of the extension service was to aid in diffusing useful and practical information on subjects relating to agriculture and Home Economics and to encourage the application of the same among the people of the United States. This educational orientation of the extension service later influenced its organization in Europe, Africa, Asia and many other parts of the world.

The Problem, Objective and Hypothesis

Agricultural development in Nigeria has been faced with many problems which had retarded its progress. These exist in all aspects of life of the farmer. They can be conveniently grouped into three main categories, namely, the farmer-related problems, the farm related problems and the community-related problems.

The farmer-related problems are those with which the farmers are characterised, and which make them unable to produce maximally. Most Nigerian farmers are about fifty years of age. In Imo State, the mean age of farmers is 46.6 years; in Oyo State, it is 49.4 years; in Ogun State, it is 55 years; in Ondo State, 58 years; in Kwara State, 45.1 years.

Most Nigerian farmers have no formal education. In Ogun State, 79% of the farmers are illiterate; the mean period of schooling is three months. Most (92%) are male, polygamous with a mean of two wives out of which one assists in farm work. They have a mean of seven children with little or no farm assistance. They have many years of community residence and high degrees of identification with their communities. Modern economic facilities are limited among farmers. Hence they popularly use kerosine lamps, bicycles, and locally made

wooden beds. Expensive items like television and motor vehicles are few. Majority cannot read in Yoruba, English or Arabic. Similarly, 91% cannot write each of these languages. Only 13 percent had ever attended adult literacy classes.

Many farm-related problems also inhibit food production. In Ogun State, size of farm cultivated with food crops is small, as the mean is 1.92 ha. while that of tree crops is 3.43 ha. Farms are frequently far from the farmers' homes. The mean nearest distance is 4.75 km, while the mean farthest distance is 10.58 km. Pressure on land is great, as fallow period is about two years. Contact with agricultural extension agents is minimal, as 84% had never met with them to discuss their farm problems. Many farm plots are not contiguous, hence farmers dissipate energy in moving from one plot to another.

Community-related problems are largely institutional. Disease and pest infestation of farms have led to uneconomic yield. High yielding and disease resistant varieties of crops and breeds of livestock which are adaptable to the farm conditions are few. This is because of the inadequate research motivation and financing in the country. The few materials released lack adequate institutional support through virile credit and extension systems. Community structures such as the mutual aid groups which facilitate production are being rapidly dismantled without introducing effective substitutes.

Rigidity of community boundaries and absentee land-ownership make access to rural land uneasy by prospective users who are willing to invest on the land. The Land Use Act (1978) has not helped significantly in solving these problems. The problems operate singly or in combination to inhibit food production in the country.

The above problems are not limited to Ogun State. They have been found in Oyo and Ondo States by Jibowo and Adepetu (1985). Many of them are common problems in other states of Nigeria.

Before the problems can be significantly removed and hence pave the way for increased food production, research and extension of research findings to farmer's must be actively pursued. The main objective of this lecture therefore is to discuss how agricultural extension can act as an instrument for production of national food surplus. It is hypothesized that andragogical transmission in agriculture is a pre-condition for rapid production of national food surplus.

The Department of Agricultural Extension and Rural Sociology has been involved in training of prospective agricultural extension

workers, and conducting research into various areas of extension since 1965; extension work with selected farmers in the Isoya Group of Villages since 1972, and Ede North group of villages since 1984.

Since this speaker joined the department, it has been possible to contribute to the above assignments on a continuous basis. The next part of this lecture is devoted to how these have been done with specific focus on research.

ANDRAGOGICAL TRANSMISSION IN FOOD PRODUCTION

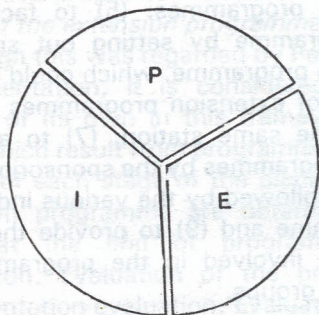
To be effective in transmitting improved farm practices to farmers, agricultural extension adopts the educational approach of teaching farmers these practices, rather than carrying out the practices for them, so that when the extension workers leave the farm situation, the farmers can continue to carry out the practices. To facilitate this approach, extension performs other functions including planning of extension programmes to systematise operations and facilitate accomplishments; organizing and administering the programmes to facilitate delineation of functions, coordination, communication and budgeting; motivating farmers and staff to encourage job commitment and organizational commitment, assembling human and material resources; supervising extension workers; and developing local leaders to assist in teaching other farmers. Other functions include linking of research and farming communities; cooperating with other agencies which are connected with providing services in the other areas of the farmer's life such as family health, education, housing and nutrition.

Extension also encourages programme actions through effective discharge of the functions mentioned above, and timely follow-up of teaching to correct operational errors. Extension reports its process, accomplishments and problems to its officials and the public to facilitate wholesome public relations and support. The extension process for understanding the mode of producing national food surplus can be explained through an analytical framework.

The Analytical Framework

The framework separates the extension process into three phases. These are (1) the planning phase; (2) the implementation phase; and (3) the evaluation phase of extension programmes. These phases can be represented in form of a pie diagram shown as figure 1.

Figure 1: Pie Diagram depicting Major Phases in the Extension Process



Key: P = Planning Phase
I = Implementation Phase
E = Evaluation Phase

For a proper consummation of the process, each phase is separated from the other with a broken line. This is because each phase flows gently into the other to influence its content, colour, flavour and consequently its degree of efficacy. If one phase is not properly handled, it reflects negatively on the states of the other phase and the entire programme.

Planning is the design stage of the extension programme. It is the phase of scheduling in advance what is to be done in extension. The question may be asked, "is it necessary to plan extension programmes?". Simple as the answer might seem, that it is necessary to do so, the axiom that, "nobody plans to fail, but we often fail to plan", is true of many agricultural extension situations in Nigeria. However, planning of extension programmes can be justified on the following grounds: (1) to maximize the use of resources such as time, funds, material and human efforts committed to extension programmes; (2) to prevent role misperception and facilitate appreciation of the relationships among various individuals, groups and agencies connected

with extension programmes; (3) to facilitate smooth implementation of the programme by identifying the sequential steps to be followed; (4) to serve as a motivational instrument for the extension workers through advance appreciation of what is to be done, and also the farmers, who on seeing that their welfare is being taken care of through systematic planning, are encouraged to commit their resources such as time, funds and land to extension programmes; (5) to facilitate a systematic evaluation of the programme by setting out specific process and expected product of the programme, which could later be determined; (6) to allow continuity of extension programmes from one extension officer to another in the same station; (7) to argue for budgetary support of extension programmes by the sponsoring institutions; (8) to serve as a guide to be followed by the various individuals and groups involved in the programme and (9) to provide the knowledge of the appropriate time to be involved in the programme to the various relevant individuals and groups.

The planning phase, according to Pesson (1966) consists of (1) collection of facts; (2) analysis of the situation; (3) identification of problems; and (4) decisions on objectives. Facts about the farmers their families, farms and the community, in the social, psychological, economic and technological dimensions are collected, analyzed and interpreted to identify the problems which require the attention of the extension institutions in assisting farmers to provide solutions. The needs of the farmers which should be met in the process of providing solutions are identified. It is on bases of the needs that decisions on objectives are made. A greater number of objectives than that which can be effectively achieved using the available human and material resources available are frequently constructed. The objectives therefore have to be screened to separate the very important and urgent objectives from those which are less important and urgent. The more important and urgent set of objectives are then included in the programme for attention.

The programme implementation phase is that in which actions are taken to assist farmers attain their programme objectives and evaluate their accomplishments. The steps included are (1) development of the plan of work; (2) execution of the plan of work and determination of progress made. The plan of work states what objectives to be attained, who should be involved, where, when and how actions will take place. The calendar of work is the daily, weekly or monthly time-table for executing the plan of work. In executing the

plan of work needed resources are assembled, training of personnel, punctuality at meetings, use of appropriate extension teaching methods, involvement of community organisations, trained local leaders and administrative support at this and other stages of the planning, are ensured. Necessary follow-up of extension teaching activities by extension agents is provided to assist in solving problems which may arise to inhibit effective programme execution.

Evaluation of the extension programme is the third phase in the pie-diagram. Although this was regarded by Pesson as the last stage of programme implementation, it is considered important enough to constitute a phase of its own in this framework. In evaluation, the accomplishments which result from programme implementation as well as the significance of each stage of the planning and implementation phases of extension programme are determined. Determination of accomplishments at the end of programme implementation is summative evaluation. Evaluation of the programme while still in progress is implementation evaluation. Evaluation of the programme at the planning or design stage is formative evaluation. The main significance of formative evaluation is to make necessary changes in the design of the programme prior to implementation. The major advantage of the implementation evaluation is to detect needed modifications which may arise as a result of unanticipated changes which take place in the programme and other dynamic and related factors to the programme, which impinge upon the programme. Although evaluation at various depths, particularly snap and casual, is continuous throughout the life of an extension programme, to be sensitive to essential modifications and hence effective, and extension programme ought to be evaluated at these three major stages. The semisystematic depth involves more carefully validated instrument for data collection, more carefully selected criteria, and more carefully considered judgement, than snap or casual evaluation.

The reconsideration stage involves an overview of all steps of the programme planning and implementation process during which errors are detected which should serve as lessons in a future programming cycle. This step is frequently regarded as linking both the planning and implementation phases of extension programmes. In its simple essence, it is evaluative in nature. Programming specialists and practitioners are sometimes faced with the dilemma of where to stop the programming process. They then wonder whether to stop at the determination of objectives and then itemise what is needed to attain

the objectives before proceeding with programme action or not. An effective programme for extension work should include systematic layout of the planning, implementation and evaluation phases of the extension programme well in advance of programme implementation.

Another dilemma in programming is that of which model to adopt among the existing possibilities such as the cyclic, pentagonal, helical, step-wise and triangular models. The cyclic model describes the programming process as being in form of a cycle in which each cycle starts with the same step often collection of facts or analysis of the situation and ends with reconsideration of the entire cycle (Figure 2). In the pentagonal model five steps are identified, namely, (1) situation and problem, (2) objectives and solution, (3) teaching plan of work, (4) evaluation and (5) reconsideration (Figure 3). The helical model describes the programming process as being in form of a helix in which each cycle does not start in exactly the same point because of changes in situations and problems (Figure 4). The triangular model considers programming as consisting of three steps, namely, (1) situation, (2) programme and (3) results (Figure 5). Programme determination, programme implementation and evaluation are the articulating steps. The step-wise model describes programming as consisting of series of steps in form of an elevator with each step leading to succeeding higher steps (Figure 6). The steps include (1) collect facts, (2) analyse facts, (3) define problem, (4) propose solutions, (5) develop plan of work, (6) implement programme, (7) evaluate success, (8) plan next phase and (9) reconsider situation. Experience has shown that effectiveness of a model is dependent on the situation and problem. A simple model could work with simple extension problems in clearly discernible situations. Complicated problems in complex social, economic and psychological situations require appropriately complex models to be evolved in dealing with the situations. The models, however, frequently follow similar logical steps with varying degrees of complexity.

AN ASSESSMENT OF AGRICULTURAL EXTENSION PROGRAMME PLANNING IN NIGERIA

To be effective in bringing about production of abundant food, the design and implementation of agricultural extension programmes should follow some fundamental guidelines. Unfortunately, the Nigerian extension systems had largely or entirely ignored many of these guidelines.

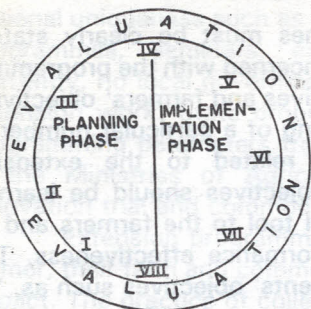


FIGURE 2 : CYCLIC MODEL

KEY :

- I. COLLECTION OF FACTS
- II. ANALYSIS OF THE SITUATION
- III. IDENTIFICATION OF THE PROBLEMS
- IV. DETERMINATION OF OBJECTIVES
- V. DEVELOPING THE PLAN OF WORK
- VI. EXECUTION OF THE PLAN OF WORK
- VII. DETERMINATION OF PROGRESS MADE
- VIII. RECONSIDERATION

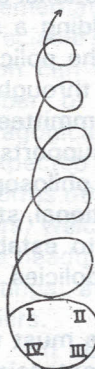


FIGURE 4 : THE HELICAL PROCESS

KEY :

- I. SITUATION AND PROBLEMS
- II. OBJECTIVES
- III. SOLUTIONS
- IV. EVALUATION

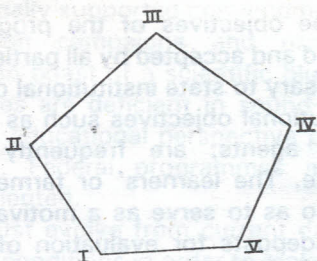


FIGURE 3 : THE PENTAGONAL MODEL

KEY :

- I. SITUATION AND PROBLEM
- II. OBJECTIVES AND SOLUTIONS
- III. TEACHING PLAN OF WORK
- IV. EVALUATION
- V. RECONSIDERATION

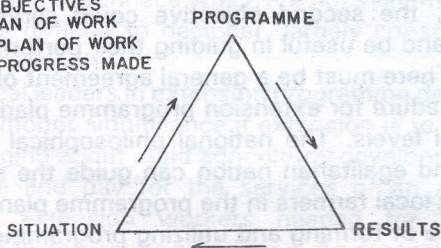


FIGURE 5 :
THE TRIANGULAR PROCESS

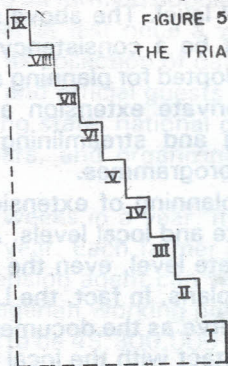


FIGURE 6 : THE STEPWISE PROCESS

KEY :

- I. COLLECT FACTS
- II. ANALYZE FACTS
- III. DEFINE PROBLEM
- IV. PROPOSE SOLUTIONS
- V. DEVELOP PLAN OF WORK
- VI. IMPLEMENT PROGRAMME
- VII. EVALUATE SUCCESS
- VIII. PLAN NEXT PHASE
- IX. RECONSIDER SITUATION

The objectives of the programmes must be clearly stated, understood and accepted by all parties concerned with the programme. It is necessary to state institutional objectives and farmers' objectives. The institutional objectives such as training of a particular number of extension agents, are frequently not related to the extension programme. The learners' or farmers' objectives should be learner-oriented so as to serve as a motivational tool to the farmers and as useful guideposts for evaluation of performance effectiveness. The objectives frequently set are extension agents' objectives such as, "to teach farmers in Oranmiyan Local Government Area the agronomic practices in hybrid maize production", rather than educational objectives such as, "farmers in Oranmiyan Local Government Area to comprehend the agronomic practices in hybrid maize production". While the first objective could motivate the extension agent and be used in guiding his teaching, the second objective could serve as a motivator of the farmers and be useful in guiding their performance evaluation.

There must be a general agreement on the philosophy, policies and procedure for extension programme planning at the national state and local levels. The national philosophical value of building a self-reliant and egalitarian nation can guide the selection of the policy of involving local farmers in the programme planning process through the procedure of forming and utilizing programme planning committees of local farmers at the local level. The above example also supports the position that there must be a consistency between the philosophy, policies and procedure adopted for planning at all levels. National, state, local government and private extension agencies need to establish avenues for exchanging and streamlining philosophy, policies and procedure on extension programmes.

Comprehensive planning of extension programmes must take place at the Federal, state and local levels. Although field extension is based primarily at the state level, even the Federal and local agencies should evolve their own plans. In fact, the Local Government blueprint for extension work will serve as the document for effective closest and possibly the greatest contact with the local farmers when all the Local Governments in the nation evolve their own plans. This suggests the need for strengthening the extension staff at the local level. State plans by state extension agencies such as the Agricultural Development Projects will not be mere compilations of local plans. They will have their own unique features particularly on extension programmes which are common to all local governments in the state. Similarly, the national

plan will not be just an aggregation of state plans, but reflect its own national uniqueness such as nationally supported commodities training programmes, seminars, extension campaigns and programmes. Currently, no local government can boast of a scientific blue-print for extension work. State programmes are deficient in sound extension programming parameters from an educational perspective particularly in the Ministries of Agriculture. Federal programmes are largely innovation trial and commodity oriented.

Extension programmes must evolve from current data on the farmer, their farm and community conditions in order to make a reliable impact. The practice of collecting adequate, reliable and valid data for the purpose of planning extension programmes is not popular among many extension agents in Nigeria. The influence of culture, market conditions, soil fertility status, labour availability, pests and diseases, are rarely determined for specific areas of the state in planning programmes. Guesswork and experience which are not systematic, and hence whose impacts are difficult to decipher, largely constitute the bases for programme formulation.

Involvement of local leaders in extension programme design and implementation is of paramount significance if extension is to make an appreciable impact in bringing about rapid agricultural development. No nation can afford to hire and pay for the services of an adequate number of professional extension workers needed for effective andragogical transmission to its farming population. An extension agent is expected to visit a farmer at least once a week to be effective. He performs other duties such as collection of data, writing of reports and letters, welcoming farmers and official guests to his office, visiting the state headquarters, attending state, national or inter-local government meetings, attending seminars, and organizing training for groups of farmers.

If he works for 46 weeks in a year, it means that he can visit farmers for 46 days in the year. Each farmer requires 46 days of visit per annum hence each extension agent can work effectively with only one farmer in a year. The Nigerian working population in the age group of 15-64 years is estimated to be 49,300,000 (The Population Division, U.N.O.) If 70% of this number, that is 34,510,000 are farmers, it means that this number of extension agents are needed. If each extension agent is paid N5,736 per annum, a sum of N197,949,360,000 Naira (about N198 trillion USA) will be required to settle their salaries alone. No nation can afford to pay such an amount.

The services of volunteer local leaders are therefore required. The policy of training and utilizing local leaders has not been popularly accepted in the Nigerian extension system. The impact of the use of the contact farmers by the Agricultural Development Projects in the overall state extension network is yet to be popularly known.

Extension programme planning should be for short, intermediate and long periods. This is to facilitate programme consistency from one period to the next, allow development of insight into the prospects and problems of the plans and encourage accumulation of resources needed for implementing plans. The schedule of activities and costs frequently adopted as extension programmes are often made for one year in this country. There are no intermediate or long-term plans for extension.

To generate support and understanding of the programme, it must be interpreted to extension officials, officials of related agencies to extension and the general public. As a document of major public interest, the extension programme must be discussed over the radio, in the newspapers, at farmers' meetings and meetings of government officials. In Nigeria, such public interest is scarcely generated.

CONTRIBUTIONS TO RESEARCH IN AGRICULTURAL EXTENSION

This speaker's studies have been based on three fundamental assumptions:

- (a) That adequate information on improved farm practices for production of food surplus by the nation is available.
- (b) That agricultural extension is the institution which is primarily charged with the responsibility of transmitting such information to farmers.
- (c) That through research, this institution becomes fortified with the necessary facts to make it an effective instrument for facilitating the production of national food surplus.

The above assumptions are judged to have face-validity. It is a common knowledge among agricultural professionals that there is enough technical knowledge about production of crops, poultry and livestock to boost food production if applied, the major problem is getting farmers to practise these. There is also an agreement that the extension institution is primarily in charge of transmitting the knowledge. The place of research in improving any field of human endeavour, including extension as an academic discipline, poses no question to any organized mind.

In his research efforts, this speaker has been sensitive to (a) the need to promote scholarship through theory construction and generation of principles to organize and advance knowledge in the extension discipline; (b) identification of problems of extension and suggestion of solutions through research. Some attempts have been made in pursuing the first mission. Most of the attempts have been in pursuit of the second mission.

In furthering theory building and generation of principles, nearly all of the speaker's studies were based on theoretical frameworks which expanded existing theories. Three of such attempts are mentioned here. First is the attempt at organizing agricultural extension and rural development participation into symbolic, effective and potential participation schemes. Symbolic participation consists of activities which were needed for agricultural extension and rural community development, but do not necessarily result in development unless the participants engage in the tasks implicit in them for development. This type of participation is represented by membership, committee membership and officership of voluntary associations, religious group membership, contact with the various bodies in charge of agricultural extension and community development, development policy formulation and legitimation. The symbolic nature of these variables can be explained, for example, by the fact that a community leader can maintain contact with extension and rural development officials to discuss his personal problems rather than community problems.

Effective participation is represented by involvement in activities which directly relates to extension and community development. It is measured through variables like number of days of taking part in extension and rural development meetings, consultation with officials on community extension issues, contribution of resources such as funds and land to community extension projects and organizing materials and people and specializing in policy execution role. Potential participation is measured through inclination to contribute resources to programmes, and perception of roles which extension and rural development officials should play in programming (Jibowo, 1976).

Another attempt was that of developing a role theory and typology of local leaders (Jibowo, 1979). The role functional scheme depicted community leaders as generalist and specialist role actors, who perform group maintenance and group productivity functions. It is therefore possible to have Group Maintenance and Group Productivity Generalists and Specialists in various combinations.

A third attempt was that of organization of knowledge through categorisation, classification and expansion of extension teaching-learning problems. The problems are categorized into exogenous problems which arise from sources outside the extension teaching-learning situation, and endogenous problems which arise within the extension teaching-learning situation itself (Jibowo, 1985). The exogenous problems include institutional, service agency, community culture and external group affiliation problems. The endogenous problems include administrative, technical, extension agent and farmer problems (Fig. 7).

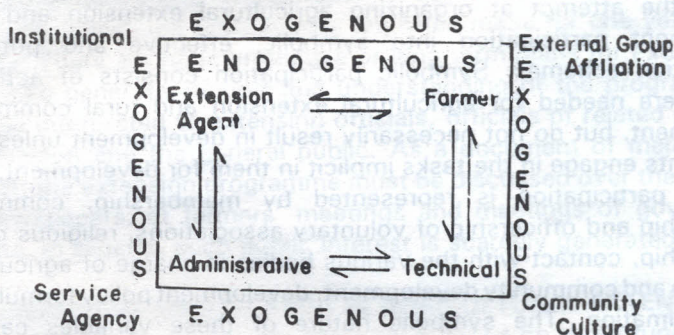


FIGURE 7 : TYPOLOGY OF EXTENSION PROBLEMS

The second research approach was that of uncovering solutions to extension problems. In a study of agricultural extension in Kwara State the major problems inhibiting the effectiveness of extension include inadequate loan facility, inadequate number of extension agents, inadequate farm input such as seeds, inadequate number of vehicles for extension agents, illiteracy of farmers, and inadequate social amenities such as pipe-borne water, health centre and electricity supply. Other less important problems include lack of farmer involvement in planning extension programmes, improper planning and coordination of extension programmes (Jibowo, 1984).

Some of the publications were devoted to developing the framework for proper planning of agricultural extension programmes. Therefore, a framework for guiding the planning of the extension programmes of the Agricultural Extension and Research Liaison Services

(AERLS) was developed (Jibowo, 1978). AERLS establishments are the extension institutions of the agricultural research institutes in the country. The framework consists of clarifying the philosophy, purpose, clientele system, identification of resources, learning experiences and evaluation of the programmes of the AERLS.

Application of improved farm technologies is essential in producing abundant food. However, such technologies are not frequently available to Nigerian farmers through the Ministries of Agriculture and Natural Resources. Jibowo (1981) reported that majority (54.7%) of extension workers in Oyo, Ogun and Ondo States were not happy with the supply of farm equipment to farmers, 28% were indifferent, 1.3% did not give their feelings, only 16% were happy. The roles suggested for extension workers in Africa to facilitate application of science and technology to agricultural development include: (i) liaison between research and the field to influence agricultural technology transfer, (ii) acquisition of skills in operating, assembling and repairing equipment and machines so as to demonstrate their use, detect faults quickly and monitor the use of the technologies; (iii) field-testing technologies, (iv) introducing farmers to sources of solutions to special technology problems, (v) organising training programmes for operators and maintenance technicians, and (vi) organising farmers into viable cooperative groups so as to qualify for loans needed to purchase expensive farm machines and equipment.

Application of fertilizer is an important practice to improve soil nutrient status and improve crop yield. Jibowo and Adepetu (1985) found that farmers in Ogun (52%), some in Ondo (29%) and Oyo (37.5%) States had not applied fertilizers to their cropping farmlands. The major reasons given for not applying fertilizers include ignorance of existence of fertilizers, ignorance of application method and lack of knowledge of its requirement by their farms. These are entirely extension problems.

Commitment and motivation of extension workers are needed to facilitate effective extension work and production of food surplus. This speaker's work (Jibowo, 1981) highlighted the symptoms of limited commitment including lateness to work, early closure from work, working only during official hours, high rate of absence and quits, loitering, taking long breaks and sleeping in the office. These arise from sources such as frustration with the organisation and the society, habit of laziness, lack of knowledge, skill and proper attitude required, job inexperience, unfulfilled expectations, inadequate facilities,

communication, reward system and too complicated or simple jobs. Others are cultural factors like religion, fatalism, marriage and burial practices, and history of independence of a nation. Commitment can be facilitated through fusion of the goals of the organisation and employees, more frequent application of positive than negative sanctions, securing initial concrete commitment through written proposals, frequent reporting, supervision of workers, provision of facilities and provision of challenging jobs.

Two of the speakers' publications on motivation (Jibowo, 1976; Jibowo, 1977), were to detect the factors which influence motivation of extension workers, and to find out the effects on job improvement factors, namely, productivity at work, interest in work and enthusiasm on the job. The motivators identified, in order of importance, included achievement at work, recognition of good performance, the work factors such as how challenging, varied and possible to accomplish, advancement in form of promotion, and responsibility, that is, working without supervision. This is an addition to knowledge as it emphasises the importance of advancement over responsibility, unlike Herzberg's theory (Herzberg, Mausner, Synderman, 1959), which identified the same factors in the same order, but found responsibility to be more important a motivator than advancement. Employers in extension should facilitate the presence of the motivators to bring about employer-employee motivation.

The hygiene factors identified in this study were similar in type and order of importance to those identified in Herzberg's theory. They include organisational policy and administration, technical supervision, working conditions, salary administration and interpersonal supervision. Their unsatisfactory provision in the working situation brings worker unhappiness, hence they should be satisfactorily provided. Their provision does not make workers happy. The motivators have to be provided in addition, to bring about happiness of workers on their job. This finding is interesting because increases in salary to which we are often treated are not likely to make employees happy. They can only remove frustration, when applied in combination with other hygiene factors.

Presence of motivators in the work environment promoted good feelings of extension workers, who consequently attained greater productivity, interest in work and enthusiasm at work. On the contrary, unfavourable provision of the hygiene factors such as bad policy and administration and poor salary, led to bad feelings among workers, who

consequently failed to attain greater productivity, interest and enthusiasm at work.

The speaker had devoted a considerable attention to studies on how local leaders who volunteer their services to assist other farmers in extension teaching can best contribute their leadership resources. In a study of bases of influence of leaders, Jibowo (1976) ability to contribute to developing their communities, interpersonal contact and personal characteristics such as charisma, esteem and honesty were found to be positively and significantly correlated with participation in community development, including agricultural development. The relationship between participation of leaders in development activities and some characteristics were examined (Jibowo 1979). Visibility is the degree to which leaders are recognised by the community residents as influential decision-makers. Visible leaders are those assigned the same amount of power by both leaders and non-leaders. Concealed or behind-the-scene leaders are those assigned greater amount of power by leaders than non-leaders. Symbolic leaders are those assigned greater prestige by non-leaders than leaders (Bonjean, 1963). At Ipetumodu, a small rural town in Osun State, no significant relationship was found in the participation magnitudes of the three types of leaders when the F ratio was 0.07 at 0.05 level, the degrees of freedom were 2 and 34. Legitimacy, that is, the degrees to which leaders hold public or associational offices and perform leadership roles, was significantly related to participation.

Scope of influence is the range of community issues over which leaders exercise influence. Majority (60%) of the leaders had their scope of influence extended to two issues. Leadership effectiveness is enhanced when leaders are actively involved in a few important, rather than several small-scale issues.

To function effectively in teaching other farmers techniques of improved agricultural production, local leaders must be trained by extension agents. Jibowo and Adodo (1985) found that only some leaders attended such training in a local government area in Bendel State. Leaders taught other farmers and practised only some improved crop production practices on their own farms.

To be effective in discharging these responsibilities, local leaders should exhibit empathy, emotional stability, community identification, ability to share leadership role and self-confidence. Urban leaders exhibit higher degrees of consideration, that is, assisting non-leaders in practical ways, desire for leadership role, surgency

characteristics, particularly cheerfulness and community spokespersonship than rural leaders. Rural leaders exhibit higher degrees of consistency than urban leaders (Jibowo, 1980).

To conduct their meetings effectively, the leaders have to perform some group functions effectively. A study in group dynamics (Jibowo, 1981) revealed that most of the group task roles which should enhance extension group productivity were not performed by group leaders and followers; for example, the roles of elaborator, evaluator, and energizer-critic. Some important group maintenance roles such as those of compromiser, expeditor, and standard setter were not played. The individual roles of aggressor and playboy were entirely played by members.

Active participation in extension programmes by farmers is essential for programme effectiveness. Jibowo (1985) determined the factors which are associated with participation in the Land Development Scheme, an extension project in Kwara State. Significant associations were found between listening to agricultural programmes on radio, formal education, contact with extension agents, size of farm planted with annual crops, permanent crop cultivation, number of dependants assisting in farm work, topography, flexibility, rationality, professional orientation toward farming, and participation in the extension scheme.

Literacy is essential for the adult farmers to benefit from written instructions in extension, and also familiarize with some improved farm practices through functional content of literacy materials. Jibowo (1979) found that most of the adults who registered in Adult Literacy classes attended the classes regularly and participated actively in the classes. Active participation declined from the age of 55. Membership of community organisations, income and cosmopolitaness of the subjects were also significantly and positively associated with participation.

Agricultural extension encourages the adoption of improved farm practices by farmers. An understanding of factors which are associated with adoption of specific farm practices will assist extension workers in promoting their adoption by farmers. Jibowo (1980) identified family labour, income, access to credit facilities, organisational participation, use of mass media, cosmopolitaness, knowledge of extension workers and farm size to be significantly associated with adoption of OS₆ rice variety.

Rural Development and Extension programmes often have limited impact on the neighbouring communities to the programme. Less

than one quarter (23.1%) were influenced by the Isoya Rural Development Project (IRDP) (Jibowo, Alao and Williams, 1978). In fact, when the cocoa management practices of which the cocoa development unit of the Ministry of Agriculture and Natural Resources was primarily in charge, which influenced 85% of the respondents was excluded, only 16% were influenced. Jibowo, Alao and Williams (1979) found significant relationships between the impact of the Isoya Rural Development Project (IRDP) and community characteristics, including number of wives assisting in farm work, contact with the IRDP staff, attitude toward the IRDP, attitude toward introducing a similar project into their communities, knowledge of the villages included in the IRDP, knowledge of the IRDP actions and farm size. Impact increased with increasing positive magnitudes of these characteristics.

The speaker carried out evaluation studies of some agricultural extension programmes and projects. The major reason was to come up with suggestions for improving such programmes. In the evaluation of the extension programmes in a part of Kwara State (Jibowo, 1983), it was found that agricultural extension was generally ineffective in transferring many of the improved agricultural practices to farmers. Three reasons were given for this:

- (i) unawareness of many of the practices by farmers;
- (ii) inadequate credit facilities, and
- (iii) inadequate farm inputs such as improved seeds and agro-chemicals.

Agricultural show is an extension method employed to create awareness by farmers of improved farm practices. In an evaluation of the effectiveness of the shows in Oyo and Ondo State, Jibowo (1984) found that the shows were effective in terms of imparting knowledge in the major subject-matter areas of agriculture. Knowledge gained in crop production was applied on their farms. Knowledge gained in animal, fishery and forestry management practices was not frequently applied in improving these areas.

Land is an essential resource in agricultural development. The Land Use Act (1978) aimed at making land more available to agriculturists and other users. Jibowo (1984) found that respondents did not benefit from some of the provisions of the decree. Many of them did not apply for a certificate of occupancy on their existing lands, or for allocation of fresh lands.

The studies on evaluation included those of formal training

institutions for prospective extension workers. The studies on dynamics of teaching agricultural science in secondary schools revealed coverage of introductory topics in 'crop production, livestock production and agricultural engineering. They ignored agricultural extension, agricultural economics and rural sociology topics. The farm practicals concentrated on crop production. Laboratory practices and livestock production were negligible (Jibowo, 1978, Jibowo 1979).

The evaluation study of the agricultural training programme University of Ife, now Obafemi Awolowo University supported the introduction of the track system currently being run by the Faculty of Agriculture (Jibowo and Williams 1979). The recent studies by the speaker showed that extension-agent related factors such as number of years in service, extent of achievement of project objectives, and satisfaction with extension work, facilitate success in extension work. Innovation-related factors such as economic profitability, reasonable cost, cultural compatibility facilitate success. Community-related factors such as pattern of land inheritance, soil fertility, participation in farmers' union activities and access to government subsidy facilitate success of extension projects more than such other factors as history of conflict, history of cooperation, soil erosion, and storage facilities (Jibowo and Omoregbee, 1988).

The above reviews imply that the process of facilitating the production of national food surplus by the farmers, with the support of the andragogist is complicated. It requires continuous research, material input and educational fountain of support.

CONCLUSIONS

The preceding discussions have led to arriving at some conclusions:

1. The history of agricultural extension as a profession had been subsumed under the overall history of agricultural development in Nigeria. Although a well recognised area of knowledge, the development of extension as an academic discipline, has not been strongly pursued as that of some other technical agricultural disciplines. In fact, some people are still ignorant of its role and uniqueness as a profession and as an academic discipline.
2. Although continuous research is essential for the advancement of knowledge in technical agriculture, much improved information is available which if applied could lead to production of national food surplus. What is lacking is the adequate transmission to, and application

of such information by farmers to generate food surplus. However, extension is faced with many problems which had made it ineffective in playing the role of transmitting improved technical information in agriculture to farmers, and assisting them in applying the same. The most important problems include lack of access to adequate financial assistance, inadequate number of extension agents and inadequate supply of farm inputs.

3. Many of the Nigerian agricultural extension institutions had largely or entirely ignored a number of the guidelines for the effective design and implementation of agricultural extension programmes. Some of these include ignoring adoption of educational objectives which are learner-oriented, planning at the Federal, State and local levels, production of extension blueprints at these levels, use of current data for planning, extensive use of local leaders, planning for short, intermediate and long periods, evaluation of extension process and accomplishments and generating public interest in extension programmes.

4. Efforts of scholars in the extension discipline in Nigeria and indeed Africa have not been adequately directed towards their construction and development of effective models for creation, expansion, explanation and organisation of knowledge in extension. Much of the efforts had been directed to providing practical solutions to extension problems.

5. The problems which inhibit effective teaching-learning in extension can be categorized into endogenous and exogenous problems. The former include administrative, technical, extension agent and farmer problems. The exogenous problems include institutional, external group affiliation, community culture and service agency problems. These problems require adequate and coordinated solutions.

6. The policy of utilizing the resources of volunteer local leaders for extension work has not been adequately adopted in the Nigerian extension institutions. Their services are essential to the development of an effective extension institution in Nigeria. Without this, the hope of producing national food surplus in the country might be a mirage.

7. Some farmer-related factors, are significantly associated with participation in extension programmes and projects. These include use of mass media, formal education, size of cultivated farms, availability of labour, topography, flexibility rationality and professional orientation toward farming. Some other factors which are significantly associated with adoption of specific improved farm practices include income,

access to credit facilities and cosmopolitaness.

8. The Land Use Act (1978) has not been effective in making land available to the generality of farmers. Many farmers had not applied for a certificate of occupancy on their existing lands or allocation of fresh lands. Although sound in intent, the Act has not appreciably made access to agricultural land easy for the generality of farmers.

9. In facilitating motivation of field-level agricultural extension workers, staff advancement is more important than responsibility. This is a modification of the Herzberg's theory of motivation which was constructed from studies carried out in North America and Europe, where the socio-psychological development of workers has led to attaching a greater importance to autonomy and responsibility than in developing continents like Africa.

10. The existing national and state policies on agriculture have not given a prominent place to extension. They have regarded it as a supporting service (MAMSER, 1989). This is erroneous and misleading. Unless extension is put in the forefront at this stage of our agricultural development, our national food crisis is likely to continue. Community-related factors such as soil fertility extension agent related factors such as extent of achievement of objectives, and innovation-related factors such as profitability, influence success in use of improved farm practices. For example, success is facilitated in communities with predominantly fertile soil than in those with little soil fertility. This research orientation improves on adoption research tradition which had often examined adopter variables.

11. Quite a good number of the personnel who are in implementation positions on extension are not trained in extension. They are therefore not very sensitive to the problems and needs in extension.

RECOMMENDATIONS

The following recommendations are based upon, but not necessarily limited to the preceding discussions and conclusions.

1. The Nigerian Association for Agricultural Extension should be inaugurated with the major aims of promoting the development of agricultural extension as an academic discipline and as a profession.
2. Researchers in agricultural extension should pay increased attention to theory construction and development of sound principles which will guide scholars and practitioners in

- agricultural extension. Such theories and principles should be accorded their due recognition as those developed by scholars from more developed nations.
3. To minimize misuse, maximize repayment, ease access of farmers to credit, and ensure that the right type of farmers benefit from farm loans, the government, private concerns and farmers themselves should contribute funds to a Farm Credit Union, to provide money for lending to farmers. The custody, disbursement and retrieval of the loans should also be controlled by representatives of all the contributors.
 4. To minimize the effect of the problem of shortage of manpower, the government should declare the training and utilization of local leaders in extension, a national policy which must be adopted by all extension institutions in the country.
 5. A genuine desire should be demonstrated by the government to change the current state of national food crisis to that of national food surplus. This can be done through deliberate allocation of funds to plan and implement the programme which will bring it about.
 6. Systematic planning of agricultural extension programmes, which will result in production of extension blueprints at the local, state and national levels should become a national policy. The planning and implementation of such programmes should follow consistent philosophy, principles, policies and procedures at all levels throughout the nation.
 7. The nation should look largely inward in the supply of its farm inputs like improved seeds, agrochemicals and means of improving soil fertility. Production and use of organic fertilizers should therefore be intensified. Use of improved farming system will reduce reliance on inorganic fertilizers.
 8. Each rural town and village should form cooperative societies to which it should be mandatory that all active farmers belong. It should also be mandatory that each cooperative society cultivates a minimum of a given number of hectares of land, and possibly produce a given number of poultry or livestock annually. The government should be prepared to give the needed support.
 9. The government should declare a total War Against Hunger (WAH). This war could only be won within a decade if extension occupies the forefront in the battlefield. The nation

appears to be winning the War Against Indiscipline, at least in the environmental sanitation sector. But the nation appears to be rapidly losing the most devastating war, that is War Against Hunger (WAH). Extension should therefore be declared a national assignment. All public and private institutions, religious, educational, economic and medical, should be required to establish agricultural production and extension programmes. National, State and Local Committees on Extension should be established with the objectives of advising, contributing to programme planning, follow-up co-ordinating and evaluation in extension.

10. Extension clinics should be established within walking distances to the farmers' villages, to which farmers could always go to report their farming problems and obtain information on farm improvement.

Extension workers should be given the necessary incentives to work effectively in the clinics.

Farmers should be trained to utilize the services rendered through the clinics.

11. Important decision-making and decision implementation centres on extension should be occupied by people who are well trained in extension. Extension requires special skills in andragogical planning, communication, leadership development, group dynamics, attitude change, evaluation, extension methods and other dimensions, to which only the extension specialists are substantially exposed.

12. Finally, the Vice-Chancellor Sir, there is a general agreement among agriculturists that enough improved technical information is available in the country. What is largely lacking is an effective mechanism for teaching the masses of farmers such information, and assisting them in practical application of the same. It is when the citizens of a country are well fed that they can be loyal to the nation and respond positively to mass mobilization schemes aimed at advancing development in the other sectors. It is only through the andragogist serving as the engine which will pull the train of specialists needed to boost food production, that the dream of attaining national food surplus, can be realized early. It is therefore recommended that a virile Department of Agricultural Extension be established at the Federal level, with its state and Local counterparts, to be

charged with the responsibility for agricultural extension.

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