



**FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA**

**TRAINING AND TECHNOLOGY ADOPTION:
ROADMAP TO A HUNGER-FREE NATION**

By

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***Professor of Agricultural Extension &
Rural Development***

**INAUGURAL LECTURE
SERIES 101**

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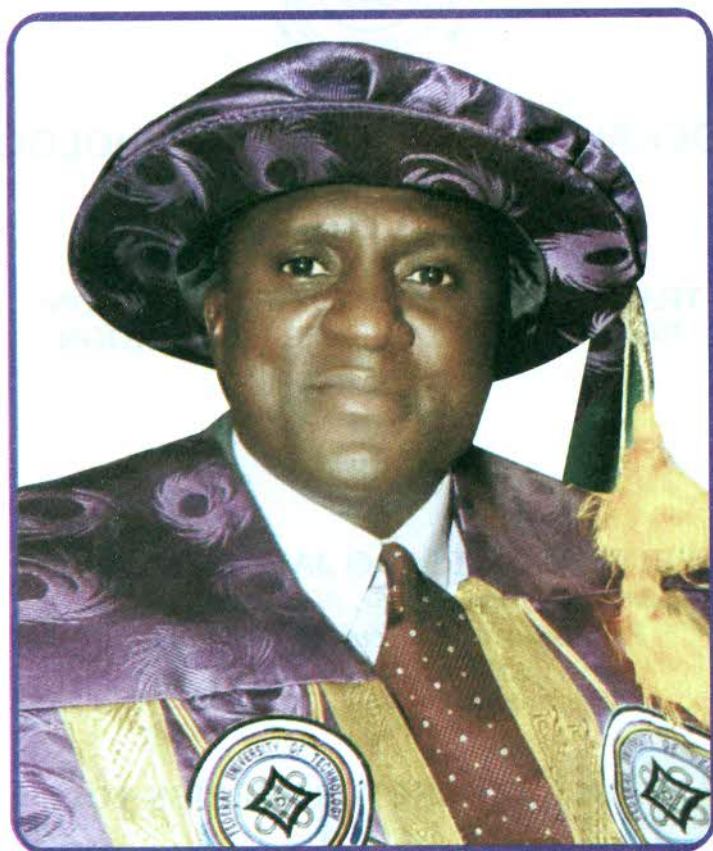
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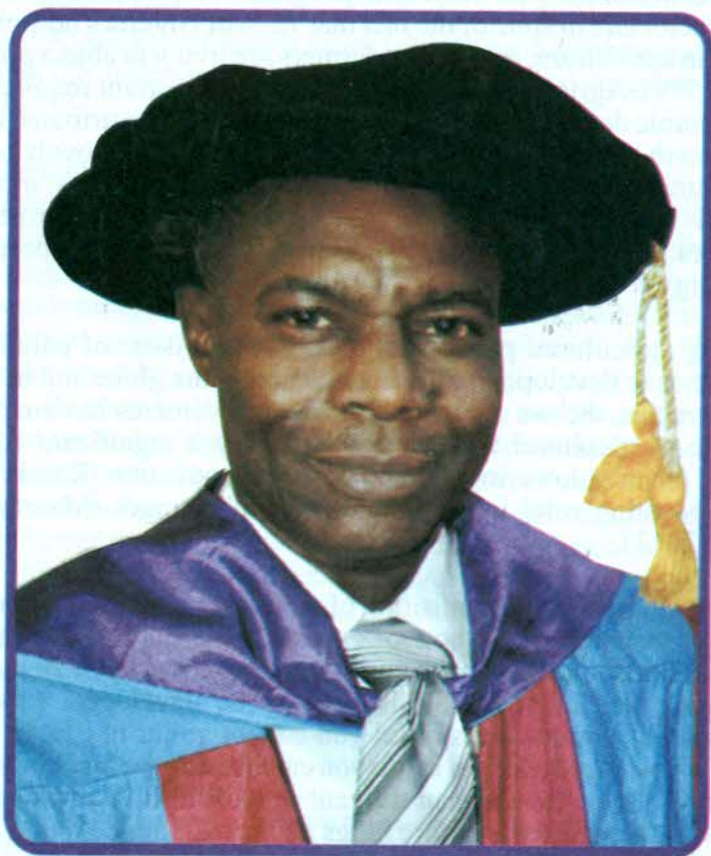
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1.0 Introduction

Agricultural development is the foundation for economic development, and the agricultural sector is undoubtedly the prime area of concentration for economic progress. Despite the importance of this sector and in spite of the fact that 72 % of Nigeria's households engage in agriculture, most of the farmers are living in abject poverty (FOS, 1999). Agricultural development is an important requirement for economic development. One of the major reasons attributed to the low growth of the Nigerian economy is the slow growth of the agricultural sector, which has resulted in rising food prices, increase in food import and inadequate raw materials for agro-based industries, which is attributed especially to the use of inappropriate technology (CBN, 1999).

Boosting agricultural productivity has been an issue of paramount importance to development institutions across the globe and in order to achieve this, the use of technological improvements have to play a key role. Agricultural innovations also play a significant role in fighting poverty, lowering per unit costs of production (Kassie *et al.* 2011), boosting rural incomes and reducing hunger (Maertens & Barrett, 2013).

Training has to do with acquisition of abilities and skills. Skill means ability or technical know-how or expertise in a field. Before a man becomes skillful he must have gone through the regour of all manner of training and exercise. Skills have to be developed. In every profession, if you are not skillful you cannot go far in life. In other words, if you are not skillful in life you cannot stand before kings. The Bible says “seest thou a man diligent or skillful in his business or profession, he will serve before kings and he will not be found in the midst of mean or despicable men.” (*Proverbs 22:29*)

The training of farmers and the adoption of improved technologies can lead to increase in productivity and higher income to farmers. This could consequently lower the prices of agricultural products and generate greater economic efficiency and overall growth in the national economy (Benin & Pender 2001; Oyebanji, 1997). In the same vein, Falusi (1997) emphasizes that increase in availability and adoptions of improved packages of production technology are two of

the factors which favour the growth of food production in Nigeria. The relative contribution of the agricultural sector to the Gross Domestic Product (GDP) declined steadily to the point where the country's agricultural production has all but stagnated, and food prices risen dramatically (Olayide, Eweka & Bello-Osagie, 1980; Dayo, 2010). However, training and adoption has some potential to support Nigeria smallholder farms to produce more than enough food to curb the increasing incidence of hunger and improve farmers' livelihood.

2.0 Agricultural Extension Education

Extension is a non-formal education that applies to any institution that disseminates information and advice with the intention of diffusing and promoting knowledge, attitudes, skills and aspirations through training. "Extension is rural vacuum filler". Extension is an educational programming to adults in communities. Therefore, extension must be committed to offering excellent training to its own clients (farmers). It is useful to review extension's role in a functioning technology development, transfer and adoption system. Most people would agree that extension should be involved in a two-way process of transmitting problem solving information to farmers and information on farmer problems back to agricultural research (See Figures 1&2). However, it proves difficult to translate this theoretical conviction into actual practice. Therefore, the technology transfer function is frequently stressed, with little or no concern with extension's role in farmer feedback.

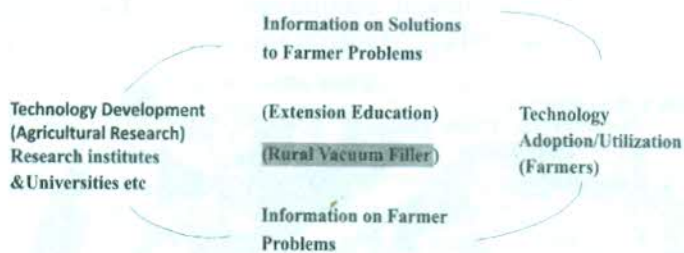


Figure 1: A sample conception of a technology development, transfer and utilization system

Source: Adopted from Havelock (1976) and Tsado (2013)

According to Ekumankama and Anyanwu (2008) in Ogunwale (2012), effective agricultural extension service depends on the effectiveness of the frontline extension staff members, who have the mandate to train farmers. For any extension service to be effective it has to abide with the following basic principles: (i) Principles of cultural difference. (ii) Grass roots principle. (iii) Principle of indigenous knowledge. (iv) Principle of interest and needs. (v) Principle of learning by doing, and (vi) principle of participation

An extension service that is to function as part of an interdependent technology development, transfer and utilization system must achieve a two-way flow of information. Therefore, strengthening extension is not just a process of training and deploying more extension workers; rather, it is a process of strengthening the whole system. For example, in cases where field extension workers are poorly trained, it may be overly optimistic to expect them to clearly identify and then articulate farmers' problems back to researchers. An alternative approach, depicted in (Figure 3), might be to have agricultural researchers become directly involved in identifying farmer problems and then working to solve them through a farming systems research approach. Under these circumstances, potential solutions to farmer problems (which result from farming systems research) could be considered by a technical committee involving farmers, researchers and extension specialists (as well as representatives from agri-service firms or agencies and agricultural banks) to formulate technical recommendations that would be subsequently disseminated by extension and utilized by farmers.

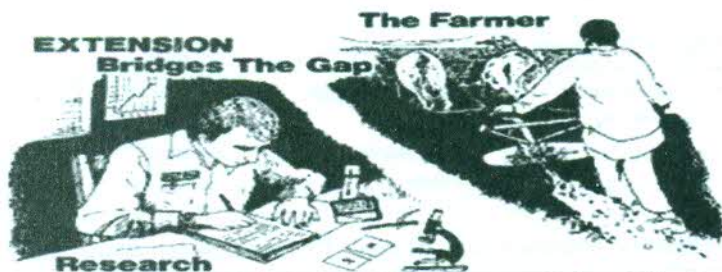


Figure 2: Extension bridging the gap between research and the farmer
Source: Adapted from by Havelock(1976) and Tsado, (2013)

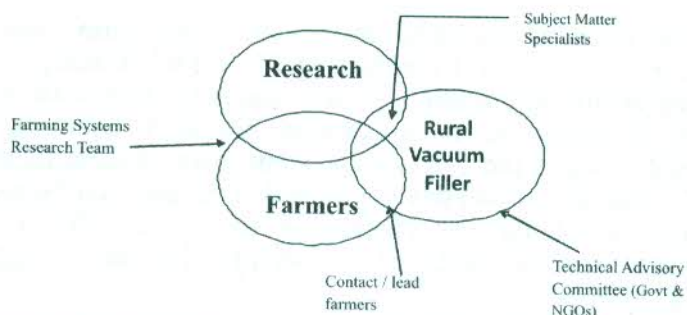


Figure 3: An alternative conception of a technology development, transfer and adoption system

Source: Adapted from Havelock (1976) and Tsado (2013)

Extension services help in improving the flow of information about farmer problems either directly to research, or indirectly and assisting farmers to improve their organizational and leadership skills so they can effectively articulate their problems and needs which are essential features of an effective technology development, transfer and utilization system as illustrated in Figure 3.

3.0 Training

Training is described by Okwu and Ejembi (2005) as a process of acquiring knowledge and skill required by an individual to use technology appropriately. Agricultural training is defined as the educational process involving the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in agriculture, in addition to general education (Jones, 2013). Training can also be described as the act of increasing the knowledge and skills of an employee in doing a particular job. Training is mostly directed at improving the ability of individuals to do their vocation more effectively and efficiently. Generally, it involves acquiring information and developing abilities or attitudes, which will result in greater competence in the performance of a work. There are two main agents in training – the trainee and trainer. The active participation of both agents at every stage of the training programmes is very important (Broad, 2007; Tsado, 2013). There are five basic steps to be followed in organizing a successful training programme: (i)

Assessment of needs, (ii) design of relevant means to meet them, (iii) selection of trainees, (iv) conducting the actual training and (v) evaluating the training session. A good understanding of the need is therefore fundamental to successful training. Training need assessment is one of the most crucial steps towards identification of farmers' intent, design and development that can best suit the existing real condition of farmers (Sajeeu *et al.*, 2012). The German development agency (GIZ, 2015) explains the various types of training as follows:

Formal training: Provided by the state education system and leading to a recognized qualification. The learning processes are intentional and systematic.

Non-formal training: Delivered by education and training providers, companies, social partnership organizations and public-benefit bodies outside of the state-initiated education and training system. The learning processes are intentional and systematic and may lead to a recognized qualification.

Informal learning: Non-structured, non-intentional learning processes that take place at work or through other everyday activities. It does not typically lead to certification and recognition.

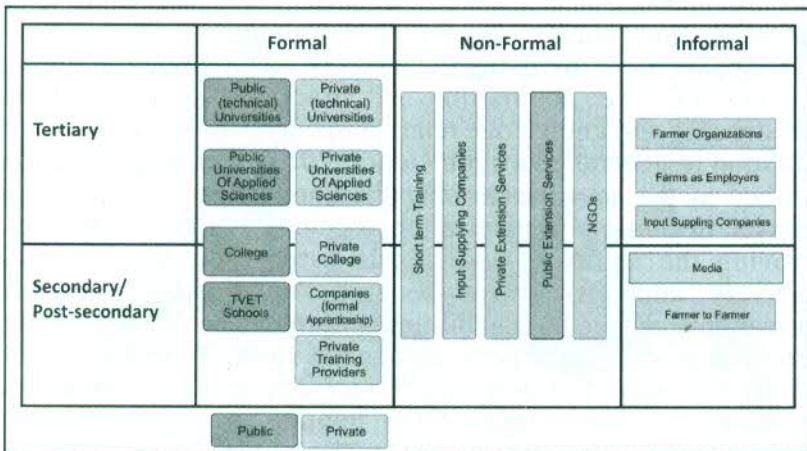


Figure 4: Actors in Technical Vocational Education and Training in Africa
Source: Adapted from Walker and Hofstetter (2016)

