

## **A Study of the Teaching-Learning Situation in Some Southern Nigeria Schools of Agriculture**

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### **Abstract**

The study objective was to analyse the dynamics of the teaching-learning situation in Southern Nigeria Agricultural Schools. Data were collected from 107 Agricultural Assistants-in-training and 54 Agricultural Superintendents-in-training, in January to March, 1981 through the questionnaire. Most respondents were males with a neutral attitude towards agriculture, although they perceived their courses as relevant to their training purpose; lecture and demonstration were the commonly experienced teaching methods, farm practical classes were infrequent. Intensified practical classes, use of more teaching methods and training more females in specific urban oriented fields such as poultry keeping, should improve the impact of the training schemes.

### **Introduction**

Agricultural education is important in transmitting the minimum verbal and quantitative skills associated with literacy for informal self-learning, further formal education, and communication and transmission of basic technical, economic, cultural, social and political information (Edwards and Todato, 1974). To develop the manpower that would transmit the information, Nigeria, like many other developing nations, had evolved various agricultural education programmes at the degree and non-degree levels. Many of the Universities have Faculty of Agriculture in which degree programmes are offered. Yet, there has been a shortage of the high level senior manpower produced by these Universities. Three reasons have been given for this by Osuntogun and Fabiyi (1981), namely, a shortage of qualified staff at the teaching and research levels; inadequate equipment, accommodation and other facilities; and a shortage of funds.

At the non-degree levels, agricultural training is being carried out to supply the intermediate manpower needs of the nation. Osuntogun and Fabiyi (1981) stated that there are sixteen schools of Agriculture, three schools of animal health three schools of forestry, two schools of fishery and a few polytechnics in which this technical manpower category is being developed.

According to Kincaid Jr. (1968), formal non-degree training in agriculture started in Nigeria with the establishment in Southern Nigeria, of the School of Agriculture at Moor Plantation, Ibadan, in 1921. The Samaru School of Agriculture was established in the North in 1927. After the establishment of the Eastern, Western and Northern regions in 1954, the Umudike School of Agriculture was established in 1955, the Akure School of Agriculture in 1957, and the Kabba School of Agriculture in 1964, to serve the respective regions. Later development activities have led to the establishment of the other agricultural training schools. The schools train two categories of staff. These are the agricultural, livestock and forestry assistants trained for about two years in the respective schools. Some of these, in addition to

their colleagues who have acquired practical experience, are further trained for an additional period of two years in the schools of agriculture, livestock and forestry to become agricultural, livestock and forestry superintendents. The two categories of staff are absorbed into the Agricultural Development Projects (ADPs) where they are expected to utilize their technical training received in the schools for agricultural development.

Since over seventy years ago when the first school of agriculture was established, no systematic attempt has been made to study the dynamics of the teaching-learning situation with a focus on students as respondents. This therefore constituted the major objective of the study. The findings should be useful to policy-makers for agricultural training at this level and teachers in the schools of agriculture to design better agricultural education programmes for the students based on increased understanding of the curricular coverage, the personal and economic backgrounds, the methods of teaching frequently employed by teachers, the practical as well as the relevance of the theoretical content of subjects taken in the schools and attitudes of students towards the agricultural profession. Investigation of these topics constituted the specific objectives of the study. This approach is likely to improve the training effectiveness in the schools and presumably the performance of the graduates on their jobs.

### **Theoretical framework**

The teaching-learning situation of technical training in agriculture could be elucidated through an understanding of the teaching-learning situation in the formal school system articulated by Klausmeier and Goodwin (1966). They identified seven groups of variables which influence the efficiency of attaining teaching-learning goals as follows:

- (i) learner characteristics such as intellectual abilities, physical maturity, effective characteristics, perception of situation, health, socio-economic background, attitude age and sex;
- (ii) teacher characteristics such as those of learners;
- (iii) learner and teacher behaviour in the learning process and in using the teaching methods;
- (iv) physical characteristics of facilities such as space, materials, media;
- (v) subject-matter characteristics such as its meaningfulness, organization and type;
- (vi) group characteristics such as number, structure, attitude, cohesiveness, leadership; and
- (vii) outside forces influencing students such as home and neighbourhood; and those influencing the entire setting such as school personnel, administrative concerns, curriculum and community support.

These dynamics of the formal teaching-learning situation are also applicable and adaptable to a theoretical framework for understanding the teaching-learning dynamics of technical training situations in agriculture.

Development of technical skill to enable graduates acquire proficiency in farming, constitutes the fulcrum around which the teaching-learning experiences in the schools of agriculture revolve. The dynamics of the teaching-learning setting are therefore vocationally oriented. For instance facilities such as individual farm plots for students, crops, livestock and poultry projects and demonstrations are established for teaching skill and knowledge acquisition, as well as attitudinal development by the students. The teaching techniques emphasised such as the laboratory, problem-solving and method demonstration are mainly for skill and partly knowledge and attitude development. Others such as the lecture and question-answer are mainly for acquisition of knowledge by students.

The curriculum emphasises both theoretical and practical contents. Kincaid Jr. identified the major areas of the Ordinary Diploma curriculum for the Nigerian Schools of Agriculture as general agriculture, crops, soils, animal husbandry, surveying and agricultural engineering, agricultural science, and practicals; while those of the National Diploma were horticulture and agronomy, extension, agricultural engineering, farm economics, farm centre management, sciences, animal husbandry and poultry, breeding and genetics, soils, rural sociology, research methods, field experimentation and practicals. Apart from the technical content of the various science, engineering and agricultural subject-matter areas of the curricula, the educational process of imparting the subject-matter and the sociological attributes of the rural setting contained in the agricultural extension and rural sociology aspects, should equip the students on graduation, with the ability to transfer the technical information and skill gained during training to the ultimate users, who are the farmers, effectively.

## **Methodology**

The pretested questionnaire was the instrument for data collection. Data collection took place during the period of January to March, 1991 from 107 Agricultural Assistants-in-training and 54 Agricultural Superintendents-in-training, randomly selected from the lists of trainees in each class of each programme at the schools of agriculture in Ibadan, and Umudike.

All the variables except attitude, were measured by direct questions which were designed to have face validity. Attitude towards agriculture as a profession was measured by asking the students to state whether they strongly agreed (SA), agreed (A), were undecided (U), disagreed (D), and strongly disagreed (SD) to each of six positive and nine negative attitude statements. The statements were formulated along those identified and validated by Abiri (1976) for measuring attitude towards any profession. Total attitude score for each respondent was computed by adding the individual score on each statement. Scores of 5, 4, 3, 2 and 1 were assigned for SA, A, U, D and SD, respectively to each positive statement and vice-versa to each negative statement. Respondents who had a mean attitude score of one standard deviation below the mean to one standard deviation above the mean score of 3, were classified as having neutral attitude; those with less than one standard deviation below the mean were classified as having negative attitude; those with more than one standard deviation above the mean were classified as having positive attitude. Chi-square analysis was carried out to test the significance of categorized variables, while the t-test was used to determine the significance of the differences between the means frequency distributions were used to describe the data.

## **Results and Discussion**

### **Personal and economic characteristics**

Data in Table 1 summarise the personal and economic characteristics of the respondents. The Agricultural Assistants-in-training (AAT) were younger than the Agricultural Superintendents-in-training (AST). The t value of 10 at 155 degrees of freedom which was statistically significant at 0.05 level confirmed this finding. Most (83.1%) of the AAT were 16 - 25 years old while only 18.5% of the AST belonged to this age category. The remaining AST (16.9%) were 26 - 30 years old, while the remaining AST (81.5%) were 26 - 50 years

old. of which 63% were 26 - 30 years old. The mean age was 21 for the AAT and 28 for the AST. The age difference was due to the fact that completion for the AAT programme is a prerequisite for admission into the AST programme.

**TABLE 1: SUMMARY OF THE PERSONAL AND ECONOMIC CHARACTERISTICS OF THE RESPONDENTS AND THEIR PARENTS**

Characteristics		AAT	AST	Significance Test Result
Age in years (mean)		21	28	t = 10*
Male %		91.6	85.2	X <sup>2</sup> = 2.98
Sex: Female %		8.4	14.8	
Years of farming experience	(Mean)	4	7	t = 1.14
Took course previously in agriculture %	Yes	80.4	100	
	No	19.6	-	X <sup>2</sup> = 21.73*
Father's major occupation %	Farming	52.6	64.8	X <sup>2</sup> = 3.07
	Others	47.4	35.2	
Mother's major occupation %	Farming	38.8	39	
	Others	61.2	61	
Father's income in Naira	(Mean)	3,844	2,171	t = 16.55*
Mother's income in Naira	(Mean)	1,557	1,308	t = 5.45*

\* & , 0.05

Technical training in the Schools of Agriculture enjoyed almost a complete male monopoly; the few AST females out-numbered their AAT counterparts although the X<sup>2</sup> value of 2.98 at 1 degree of freedom did not show statistically significant difference in the proportions of each sex between the two schools. Two main reasons had often been given for this male dominance: the first is that agriculture is strenuous and requires soiling of dresses and hands; the second is that graduates are often posted to the rural areas. Females are naturally weaker than males, hence most of them avoid jobs which require much application of physical energy. Posting of female adolescent graduates to the rural areas often takes them away from the cities where they expected to meet appropriate male friends who could become their future partners.

The AST appeared to have had a greater number of years of working experience on family farms the AAT. The means were 4 and 7 years for the AAT and the AST, respectively, although the t value of 1.15 did not show statistically significant difference between these means at 97 degrees of freedom. It was interesting to find that 44.9% and 26% of the AAT and AST respectively had no working experience on family farms. This suggested that they must have grown up in non-farming communities. Thirty-one percent of the AAT and AST had 1 - 5 years of experience; 13.1% and 19% had 6 - 10 years respectively; 8% and 11% had

11 - 15 years; 3% and 13% had 16 years and over. The previous farming experience of students must have influenced their adjustment to the farm practical demands of their training, and possibly their attitudes towards the profession. Those with previous practical experience must have adjusted better and had more favourable attitude to agriculture than those without.

The fathers of majority of the respondents were farmers. A greater percentage (64.8%) of the AST than the AAT (52.3%) indicated that their fathers were farmers. The fathers of the remaining respondents were non-farmers. The  $X^2$  value of 3.07 at 1 degree of freedom did not show statistically significant difference in the percentages of the two categories of trainees who indicated that their fathers were farmers and non-farmers. The mothers were mainly non-farmers. Only 39% stated that their mothers were farmers. The remaining were non-farmers. The  $X^2$  value of 0.00084 was not statistically significant at 0.05 level with 1 degree of freedom. This indicated that there was no significant relationship between mother's occupation of the two groups of trainees. Those whose mothers were farmers must have mostly been respondents from the Umudike school of agriculture located in an area where the predominant ethnic group is the Ibo. Farming is popularly practised by females among the Ibo. Most of the respondents from Akure and Ibadan schools located in Yorubaland must have been largely excluded, because farming is a less popular occupation among Yoruba women.

Most (80.4%) of the AAT and all the AST took courses previously in agriculture; 19.6% of the AAT did not. The findings suggested that most of the AAT took agricultural science in the post primary schools; the AST took agricultural courses in the post primary schools and during their agricultural assistant training, hence the  $X^2$  value of 21.75 showed statistically significant difference at 1 degree of freedom to confirm the greater occurrence of taking agricultural courses previously among the AST than the AAT.

The fathers of the AAT earned higher incomes than those of the AST. The means were N3,844 and N2,171 respectively. The  $t$  value of 16.55 which was statistically significant with 159 degrees of freedom confirmed this relationship. Forty-six percent of the AAT and 54% of the AST indicated that their fathers earned N1,000 and less; 30.6% and 35.3% respectively, indicated N1,001 - N5,000; 23.4% and 10.8% respectively, indicated over N5,000. Fathers of the AAT earned a higher income than those of the AST possibly because a greater percentage of the former than the latter were non-farmers who presumably earned higher incomes from their non-farming occupations. The mothers of the AAT earned higher incomes than those of the AST. The mean was N1,557 for AAT and N1,308 for AST. The  $t$  value of 5.45 with 159 degrees of freedom which was significant at 0.05 level confirmed this relationship. Majority of the mothers of the AAT (61%) and AST (72%) earned N1,000 or less; 33.6% and 22.3% respectively stated that their mothers earned N1,001 - 5,000; 5.4% and 5.7% respectively indicated over N5,000. It could be seen that except for the majority of the AAT who stated that their fathers earned for the majority of the AAT who stated that their fathers earned over N1,000, the majority of the respondents indicated that their parents earned a low income of less than N1,000.

#### **Attitude towards Agriculture as a Profession**

Data in Table 2 showed that most of the AAT (75.7%) and the AST (74.1%) had a neutral attitude towards agriculture as a profession. Fifteen percent of the AST and 5.6% of the AAT had a favourable attitude towards agriculture as a profession. The chi-square value of 1.17 with 4 degrees of freedom which was not statistically significant showed no significant

difference in the frequencies of the two categories of students who had negative, positive and neutral attitudes towards the profession.

The preponderance of students who had a neutral attitude towards agriculture as a profession suggested that many of them took to agricultural training not primarily because of their interest in the occupation, but because of some other reasons. Unless such attitude improves, the students could not possibly be expected to perform very effectively at school and on the field after graduation, as attitude is often positively related to performance.

**TABLE 2: DISTRIBUTION OF RESPONDENTS BY ATTITUDE TOWARDS AGRICULTURE AS A PROFESSION**

Mean attitude score	AAT		Mean attitude score	AST	
	N	%	N	0	
Below 1.32 (Unfavourable)	1	0.9	Below 1.6	0	0
1.32 — 4.68 (Neutral)	81	75.7	1.6 - 4.4	40	74.1
Above 4.68 (Positive)	6	5.6	Above 4.4	8	14.8
No response	19	17.8	No response	6	11.1

$$X^2 = 1.17, \text{ degree of freedom} = 4, > 0.05$$

#### The curriculum relevance

Except government procedure which 53.7% of the AAT perceived as only relevant, majority of the respondents perceived other subjects taken in the schools of agriculture as very relevant to the attainment of their purpose of training, which was mainly to develop proficiency in farming. Of the AST, 35.5% perceived this subject as very relevant and relevant. Majority perceived others as very relevant. Some respondents did not indicate subject relevance.

**TABLE 3: PERCENTAGE DISTRIBUTIONS OF RESPONDENTS BY PERCEIVED RELEVANCE OF CURRICULUM CONTENT TO TRAINING PURPOSE ATTAINMENT**

SUBJECT		Very	AAt	No Res	Very	AST	No res
		Relevant	Relevant	ponse	Relevant	Relevant	ponse
1) Soil Science	(N=71)	87.3	11.3	1.4	(N=36) 86.1	13.9	0
2) Crop Production	(N=68)	86.8	11.8	1.4	(N=36) 100	0	0
3) Animal Production	(N= 71)	83.1	14.1	2.8	(N=39) 84.6	15.4	0
4) Agric. Extension	(N=74)	74.3	23.0	2.7	(N=36) 80.6	19.4	0
5) Agric. Engineering	(N=64)	70.3	25.0	4.7	(N=33) 66.7	33.3	0
6) Biology	(N=72)	66.7	31.9	1.4	(N=36) 83.3	16.7	0
7) Animal	(N=52)	61.5	30.8	7.7	(N=28) 57.1	42.9	0
8) Chemistry	(N=78)	59	37.2	3.8	(N=36) 69.4	30.6	0
9) Agric. Economics	(N=78)	56.4	41.0	2.6	(N=38) 63.2	34.2	0
10) Govt. Procedure	(N=67)	23.9	53.7	22.4	(N=31) 35.5	35.5	29

It was not surprising that a vast majority of the AAT and the AST perceived the major agricultural sciences of crop production, soil science and animal production as very relevant, because these constitute the cornerstone of the agricultural profession. Many of the AST, however, added Biology and Agricultural Extension to the list of very relevant subjects.

#### Teaching methods experienced

Lecture (76.6%) and demonstrations (59.8%) were the two teaching methods experienced by a majority of the AAT, Majority of the AST also experienced lecture (92.6%), demonstrations (68.5%) as well as question and answer (59.3%) and excursions (57.4%). Group discussions and field trips were not indicated by most students. A higher percentage of the AST than the AAT indicated experiencing each method. It could therefore be inferred that there was a greater use of teaching methods among the AST than the AAT

**TABLE 4: DISTRIBUTIONS OF RESPONDENTS BY EXPOSURE TO TEACHING METHODS**

Method	AAA T (N=107)		A S T (N=54)	
	N	%	N	%
Lecture	82	76.6	50	92.6
Demonstrations	64	59.8	37	68.5
Field Trips	46	43.0	24	44.4
Excursions	46	43.0	31	57.4
Questions and Answers	42	39.3	32	59.3
Group discussion	30	28.0	24	44.4
Problem-solving	30	28.0	26	48.1

**Use of visual and audio-visual aids**

Visual and audio-visual aids were generally not used in teaching the AAT. The only visual aid indicated by majority (56.1%) of the AAT that they experienced was the real object. However, many of these aids were used to teach majority of the AST. Fifty percent indicated over-head projector and motion pictures: 55.6%, real object; and 59.3% slide. Television and flip charts were not experienced in teaching by majority of the students

**TABLE 5: DISTRIBUTIONS OF RESPONDENTS BY EXPOSURE TO VISUAL AND AUDIO-VISUAL AIDS**

Visual and Audio Visual Aids	AAT (N= 107)		AST (N= 54)	
	N	%	N	%
Real object	60	56.1	30	55.6
Flip Chart	40	37.4	24	44.4
Still picture	37	34.6	20	37.0
Slide	31	29.0	32	59.3
Motion picture	24	22.4	27	50.0
Overhead projector	12	11.3	27	50.0
Television	11	10.3	1	1.9

### Laboratory and farm practical classes

Data in Table 6 showed subjects in which laboratory and farm practical classes were held. Majority of the AAT did not indicate that they had laboratory practical experience in all the subjects; majority of the AST indicated that they had laboratory practical experience in Chemistry (77.8%, Biology (66.9%) and Soil Science (55.6%). The AST indicated greater frequencies of laboratory practicals than the AAT. The mean percentages were 38.8 and 19.4 for indicating having laboratory practicals by the AST and AAT respectively. The *t* value of 3.67 which was significant at 0.01 level with 159 degrees of freedom confirmed the greater laboratory practical experiences among the AST than the AAT.

**TABLE 6: PERCENTAGE DISTRIBUTION OF RESPONDENTS BY SUBJECTS IN WHICH LABORATORY AND FARM PRACTICAL CLASSES WERE HELD**

Subjects	Laboratory Practical		Farm Practical	
	AAT (N=107)	AST (N=54)	AAT (N=107)	AST (N=54)
Chemistry	43.9	77.8	14.0	18.5
Biology	31.8	66.9	14.0	16.7
Soil Science	25.2	55.6	22.4	44.4
Agric. Engineering	21.5	37.0	23.4	44.4
Animal Production	20.6	44.4	30.8	48.1
Crop Production	17.9	40.7	50.5	55.6
Agric. Extension	15.0	11.1	9.3	5.6
Animal Health	11.2	9.3	9.3	5.6
Agric. Economics	4.7	3.7	7.5	3.7
Government procedure	2.8	1.9	2.8	0.0
Mean	19.4	38.8	18.4	24.5
<i>t</i>		3.67		5.98
Degree of freedom		159		159

Except crop production in which majority of the AAT (50.5%) and the AST (55.6%) indicated having farm practical classes, majority of the respondents did not indicate having farm classes in the other subjects. This finding was contrary to expectation because the respondents who were supposed to develop proficiency in farming could only do this through practical experiences in the various areas of agriculture. The mean percentage of the AAT (18.4%) who indicated having farm practical experiences was less than 24.5% for the AST. The *t* value of 5.98 which was significant at 0.01 level with 159 degrees of freedom confirmed

this finding. This was contrary to the expectation that a greater percentage of the AAT than AST might have indicated having farm practical experiences in the subjects.

### **Nature of farm practical experience**

Majority of the AAT (72%) and AST (54.4%) had farm practical experience on individual farm plots; 28% and 42.6% respectively, did not. Similarly, majority of the AAT (52.3%), and few AST (24.1%) had group farm plots; 47.4% and 75.9% did not. The AAT spent a mean of 5 extra hours, while the AST spent a mean of 3 on their farm plots per week. Although the percentage of AAT and AST who indicated having practical experiences were comparable, the greater frequency of AAT than the AST who indicated possession of individual and group farm plots, as well as spending a greater number of extra hours on farm practical by the AAT, implied that they had a greater amount of farm practical experience than the AST. This meant that a greater emphasis was placed on laboratory practical than farm practical at the AST level, presumably because this category of trainees must have been previously exposed to heavier farm practicals during their Agricultural Assistant training. The farm practicals they had during the Agricultural Superintendent training were therefore to supplement those they had earlier.

Farm practical classes were normally held in the mornings by majority of the AAT (83.2%) and the AST (76%). Some AAT (21.5%) and AST (24.1%) indicated having farm practicals in the evenings. Few students indicated afternoons. The students attended their farm plots in the mornings and evenings because of the clemency of weather at these periods. Their time-tables normally schedule farm practical classes for the mornings.

### **Conclusions and Implications**

1. Most of the trainees were males, with only very few females. The policy of training mainly males in the schools of agriculture could be improved upon by training more females in relevant aspects of agriculture such as poultry keeping, vegetable production, marketing of agricultural products and teaching of agriculture in schools. These aspects do not necessarily require application of much physical energy or rural posting, which had often been resisted by the females. With increasing urbanization, transportation and communication in the rural areas, the rural and urban infrastructural gap would be decreased so that workers in the rural and urban settings could easily communicate; hence working in the two settings would not impose much social contact and communication barriers, which hitherto had often been objected to by the females.
2. A preponderance of the students had a neutral attitude towards agriculture as a profession. Carrying out of personal interviews or using other techniques to determine attitudes of new graduates of both schools becomes necessary before posting some of them to stations where they are expected to make and implement major organisational policy decisions, so as to ensure that only people who have positive attitude towards the profession are posted to such stations to give room for satisfactory performance. Measures to provide incentives to those with neutral attitude should also be evolved to induce positive attitude towards the profession.
3. All the subjects taken during the trainings were perceived as relevant by nearly all the students, except "government procedure" which some students perceived as irrelevant.

If any subject is to be dropped from the curricula of both schools, this subject should first be removed.

4. Lecture and demonstration were the commonly experienced methods of teaching by the students. Visual and audio-visual aids were scarcely used in training the agricultural assistants. Intensified exposure of students to other teaching methods such as problem-solving and field-trips, and the AAT's in particular to visual and audio-visual aids should enhance the varieties of their learning experiences, and hence learning effectiveness.
5. A greater percentage of the AST than the AAT had laboratory practical classes. This might be because of the greater exposure of the former to basic sciences than the latter. But the limited percentage of both categories of students who indicated having farm practical classes in all the subjects, except crop production, calls for intensification of farm practical training in the other areas of agriculture if the objective of acquiring proficiency in farming by the students is to be attained.

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