h. Application and practice
i. Interpersonal relationship among participants, the Extension agent, and the group.

Each student privately consulted with the instructors after the activity to discuss the collective results of their peer evaluations. Open-ended comments were also discussed and synthesized. This dialogue prepared each student for a scheduled group discussion with his or her peers to address the effectiveness of the activity and its outcomes. Evaluation of the clientele outcomes was based upon the objectives of the activity and the chosen teaching methodologies.

It is imperative that the classroom climate for this experience of being "Extension Agent for the Day" be open and conducive to discussion. It was concluded that individuals in the class need to develop a supportive camaraderie among their peers within the group. Supportive camaraderie can help individuals more openly to discuss their observations, reactions, and evaluation.

Students observed and began to recognize various clientele behavior patterns as they evolved within the groups. They were able to "dissect" each group and theorize as to why such behavior patterns precipitated. Sociograms were made to indicate who generated the communication within the groups, who were the decision makers, who were the legitimizers, and who were the non-participants.

For this teaching technique to be effective, the instructor needs to be cognizant of these factors: levels of experience and education among the students differ; undergraduate and graduate students may be coming from passive learning oriented classes into an active learning oriented class; and international students may be hesitant to relate with off-campus clientele groups. One major limitations to this teaching approach is the class size. Fifteen should be the maximum students per instructor. The overall evaluation by students of the "Extension Agent for the Day" at the end of Fall Semester, 1983 was 5.52 on a six point Likert-type scale (six being excellent). They strongly recommended that this experience be an integral component of EXT ED/AG ED 450 in the future.

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INTERNATIONAL AGRICULTURE

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Nigerian Study Reports Teacher Professional Competencies Need by Agricultural Colleges

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The main goal of the agricultural colleges in Northern Nigeria is to train agricultural technologists. The services of these technologists are needed in agricultural education, the River Basins Development Authorities, grain production companies, agricultural research stations, and a number of other projects set up by the federal government to boost food production. Additional goals were identified by Madaki in 1982. These include conducting inservice workshops for agricultural field staff, organizing practical training, and conducting open house for farmers. The goals and objectives of the colleges cannot be achieved without the availability of competent teachers. The World Conference on Agricultural Education and Taining[2] held in Copenhagen reported:

> ... of all aspects of agricultural education and training, the teacher is the most important. Without good teachers, competent at their work and possessing those qualities which enable them to inspire and develop the latent capacities of their students, agricultural education as a whole cannot function effectively.

This observation from the World Conference is as valid today as it was in 1970 and has relevance to the agricultural colleges in the states of Northern Nigeria. The teachers in these colleges do not generally have pedagogical training. They are hired on the basis of their technical qualifications. Teacher certification is not required thereafter. Technical competence alone is inadequate in a training institution like the colleges of agriculture. The teachers also need professional competence which will enable them to inspire and develop the latent capacities of their students. This study therefore attempted to identify these competencies.

Objectives

This study was designed to verify the professional education competencies appropriate for the teachers in the agricultural colleges of Northern Nigeria.

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The specific objectives examined were:

1. To identify the professional education competencies considered important for teachers in the agricultural colleges of the northern states of Nigeria as perceived by teachers of the division of agricultural colleges, state agricultural colleges, and the administrators of the colleges;
2. To compare the attainment level of teaching competencies presently possessed by teachers in the division of agricultural colleges and state agricultural colleges;
3. To compare the attainment level of the graduate (degree) teachers with pedagogical training to those of the graduate teachers without pedagogical training; and
4. To suggest competencies useful for conducting a regular teaching workshop or in-service training.

Method

There are 14 colleges of agriculture in the ten states of Northern Nigeria. Each state has an agricultural college. These colleges are collectively referred to in this text as State Agricultural Colleges (SAC). Four of the colleges are administered by Ahmadu Bello University, Zaria. These colleges are called the Division of Agricultural Colleges (DAC).

The population for this study consisted of all the DAC teachers (N = 105) and all the SAC teachers (N = 170), the chief agricultural officers in the Ministries of Agriculture (N = 10), and the administrators of the DAC (N = 5). The last two subpopulations constituted the administrators of the colleges of agriculture.

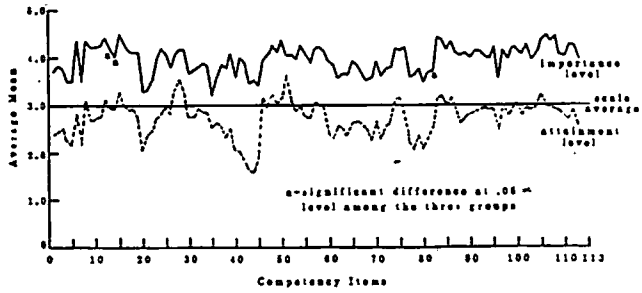
A research instrument containing 113 professional competencies was developed using the performance-based teacher education (PBTE) modular list (developed at the National Center for Research in Vocational Education)[3]. The instrument also included a list of training need items of potential agricultural extension workers in the northern states of Nigeria (Onazi, 1973). The instrument was administered by the researcher to the two groups of teachers and the administrators from May to August of 1982. Each group was asked to indicate the relative importance of each competency as well as their individual level of attainment for each competency.

To analyze data pertaining to objective one, means were determined for the DAC and SAC teachers and the administrators. For objectives two and three, the data obtained were analyzed using analysis of variance. To analyze objective four, the Pearson Product Moment Correlation Coefficient was used to determine the significant relationship between the importance item and the teachers' attainment levels. The list of significant items evolved constituted a priority list for inservice/workshop training.

Major Findings

1. Each of the 113 competency items was rated important or very important (rating score ranges from 3.27 to 4.49; the instrument scale average being 3.0). Of these competency lists, 76 (62 percent) were rated over 4.0 or "very important" by the two groups of practicing teachers and the administrators. The three groups of respondents, that is, DAC and SAC teachers and the administrators, differed significantly (P ◄ .05) in only three out of the 113 competency items in rating the importance of the competencies. Figure one shows how the competencies were rated by the three groups.
2. The attainment levels of the DAC and SAC teachers were above a 3.0 mean score in 25 out of the 113 competencies. In the 88 others (78 percent), the teachers rated themselves below average. Figure one also illustrates the attainment levels of these two groups.

Fig. 1. Rating of Competency Importance and Attainment Level as Perceived by DAC and SAC Teachers and Administrators



Comparing the perceived level of attainment of the DAC and SAC teachers on the 113 competencies, the two groups differed significantly (P ◄ .05) in 53 (47 percent) of the items. DAC teachers were on the average, older, had served longer, and had more members with higher qualifications than the SAC teachers. The SAC have as high as 50 percent National Youth Service Corps members on their staffs. These Corps members are posted directly from colleges, and they serve for nine months.

3. The graduate teachers with pedagogical training constituted 13.6 percent of the teachers in the colleges. The competency level of teachers in this group was higher than that of their colleagues without pedagogical training in six of the twelve competency categories. The categories were Instructional Management, Instructional Execution, Guidance, Professional Role and Development, Industrial Attachment Education, and Agricultural Extension Philosophy, Organization and Administration.

Table 1. Priority List of Competencies Suggested for Inservice/Workshops in the Colleges of Agriculture.

	Competency	Mean Score
A.	**Program Planning, Development and Evaluation**	
	1. Developing program goals and objectives	4.37
	2. Developing a course of study	4.32
	3. Conducting a student follow-up program	4.18
	4. Evaluating your vocational program	4.16
B.	**Instructional Planning**	
	1. Developing a lesson plan	4.47
	2. Determining needs and interests of students	4.40
	3. Developing student performance objectives	4.18
	4. Preparing teacher made instructional materials	4.14
C.	**Instructional Execution**	
	1. Directing student laboratory experience	4.22
	2. Using oral questioning techniques to facilitate learning	4.15
	3. Summarizing a lesson	4.12
	4. Introduction a lesson	4.10
D.	**Instructional Evaluation**	
	1. Assessing student performance: skill	4.35
	2. Assessing student performance: knowledge	4.26
	3. Assessing student performance: attitude	4.12
	4. Evaluating your instructional performance	4.08
E.	**Instructional Management**	
	1. Managing your budget (time & resources)	4.25
	2. Providing for the first aid needs of students	4.21
	3. Assisting students in developing self-discipline	4.17
	4. Arranging for improvement of your vocational facilities	4.07
F.	**School-Community Relations**	
	1. Cooperating with members of the community	4.22
	2. Obtaining feedback about your vocational program	4.21
	3. Cooperating with state and local government educators	4.15
G.	**Professional Role and Development**	
	1. Keeping up-to-date professionally	4.49
	2. Serving your teaching profession	4.36
	3. Serving the school and community	4.32
	4. Developing an active personal philosophy of education	4.15
H.	**Coordination of Industrial Attachment Education (IAE)**	
	1. Evaluating the students' on-the-job performance	4.23
	2. Securing training stations for your IAE program	4.14
	3. Managing the attendance and behavior of students on IAE program	4.14
	4. Establishing guidelines for your IAE program	4.07
I.	**Agricultural Extension Philosophy, Organization & Administration**	
	1. Identifying the farmer/community needs	4.46
	2. Evaluating results of programs	4.43
	3. Planning programs to meet specific needs	4.34
	4. Guiding students on the role and functions of Extension Agents (Agricultural Assistants)	4.35
J.	**Communications**	
	1. Using visual aids in Extension	4.27
	2. Conducting farm and home visits	4.25
	3. Guiding students on methods and processes of communication	4.09
	4. Writing technical reports and newsletters	4.09

4. Based on the significant relationship among the very important items and the teachers' attainment levels, a list of 52 competencies were prepared for the purpose of inservice and workshop trainings. The four competencies with the highest mean score for each category reported are shown in Table 1.

Recommendations

The following recommendations are made as a result of this study:

1. All the 113 competencies included in the study should be incorporated into the educational curriculum for training graduate agricultural teachers. Special emphasis, however, should be placed on the 76 items rated above 4.0 or considered to be very important.
2. Each state agricultural college should commence a regular inservice program to update experienced teachers or train the inexperienced ones. The priority competency list for inservice workshop training in Table 1 could serve as a guide.
3. Since the service of the National Youth Service Corps (NYSC) has become normalized in the colleges, measures should be taken to ensure that these temporary teachers are properly oriented to teach. A one-week special teaching workshop should be organized for them. Content of the workshop could comprise basic competencies needed by beginning teachers. These include developing a lesson plan, selecting student instructional materials, directing student laboratory experience, introducing a lesson, summarizing a lesson, and assessing student performance in knowledge and skills.
4. A student vocational organization should be introduced as part of the agricultural college curriculum. At present, there is no student vocational organization in the Nigerian education system. The study shows that the respondents considered such an organization important enough to be included in the agricultural teacher education curriculum.
5. A consortium of the experienced teachers in the 14 colleges of agriculture, teacher educators, administrators, innovative farmers, and graduates of the colleges should be formed to develop a competency-based education program for the colleges.

Implications

Three implications can be drawn from this study:

1. The study has great relevance for the development of agricultural teacher education, improvement of education in the colleges of agriculture of northern states of Nigeria, and, indeed, Nigeria as a whole. Institutions training agricultural teachers would find the identified competencies useful in preparing preservice curricula for their students.
2. For any agricultural college interested in conducting inservice workshop training to

improve the pedagogical competence of their teachers, this study provides a wide range of topics that can be used.

3. The findings of the study also can be used as a foundation for competency-based educational programs — not only in the colleges of agriculture, but also in other technical and vocational institutions in Nigeria.

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Resources for Teaching and Learning

Wesley J. F. Grabow

Quality of Education

There is a continuing pressure from many sources to improve the quality of education received in our schools and colleges. Assuming we have a well designed curriculum, we can meet these demands by improving the teacher, by improving the teaching-learning environment, by improving the materials and methods of instruction, or by some combination of all three. Of course, we must do all those things that we know will improve the quality of education. But we also must set priorities as to what gives the more immediate and the most far-reaching results. It is my opinion, as it is of many other educators, that we can best set our priorities by initially improving the instructional materials available to the student. It is almost impossible to provide an excellent teacher to every student in the United States. But, we can quickly make the best instructional materials available to every student in the United States. As a result we can in turn improve the teacher by improving the instructional materials they use. We have knowledge of how we best learn from childhood to old age. To apply those teaching-learning principles to the design of our instructional materials would result in materials that would improve the quality of education.

So many times we set our instructional development procedures out of order. We place the cart before the horse or fail to complete the process. We design our instructional technologies, or select them, with the utmost care to fit a particular purpose but fail to spend equal time and equal effort in the design of the materials. Many times these technologies are designed for other than instructional purposes and the expertise (design and operation) of the hardware is separate from the design and utilization expertise of the instructional software. A good example of this is the use of computers in the teaching-learning process. The quality of educational computing depends on the quality of the software, how it is designed, selected, and the way it is used in the curriculum. Our "Journals" report the lack of adequate software while others extol the advantages of the micro computers in education. One president of a commercial firm said, "A teacher who won't have a computer in the classroom is like a ditch digger who won't learn to use a steam shovel." What if they have no funds to purchase a steam shovel or what if there is no way to obtain the experience to use the equipment? And in the case of computers, the numbers of machines and the power of each machine are increasing dramatically, while the quality of educational software has not kept pace. There is no question that the computer can increase the power teachers can apply to learning situations, but if they lack computers, the computer competencies and the adequate software, how can this take place?

Our instructional materials need to be designed with the thoughtfulness of both the technology expert and the instructional design expert. The teacher needs continuing help and support in this professional development process. This is true not only for the computer and its software but for all instructional materials including text books, films, audio tape, video tape. As Edgar Dale stated back in the 1970's, "To cope with the complexities of communicating effectively we must create a new generation of message-makers who have mastered the science and art of instructional communication. These will include persons described as educational designers, instructional technologists, and media specialists. They will know how to communicate in various ways: reading and writing, speaking and listening, visualizing and observing. They will understand how best to use the instructional power of the still and the moving image, of drama, fine arts, radio, television, exhibits, the museum." Yes, and the computer.

Software Evaluation. A national evaluation program of trained data-based software evaluators determined that of all the software they evaluated only 5 percent of the hundreds of programs were judged to be of truly high quality, while more than 50 percent

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