

- b. Kind (very expensive) and number (2) of cars parked in MOTHER'S driveway.
- c. Fact that in northwest corner of 40 somewhat desolate acres owned by the INDIVIDUAL'S MOTHER is a very productive oil well.

By considering simultaneously information on the INDIVIDUAL plus the INDIVIDUAL'S FATHER and MOTHER, accuracy of financial value estimation is increased to .90. (As expected, this accuracy value is influenced rather dramatically by item c. above.) At this point because of the relatively high accuracy value, it is emphasized that the financial status of the INDIVIDUAL looks very promising.

**D. COLLATERAL RELATIVES (FULL SIB).** Two individuals are depicted together — one male and one female. The male illustrated is a full brother to the male referred to in item A above; whereas, the female illustrated is a full sister to the female referred to in item A above. So in addition to phenotype of INDIVIDUAL plus information evaluated on the INDIVIDUAL'S FATHER and MOTHER, financial status of INDIVIDUAL is assessed further by considering:

- a. Fact that the INDIVIDUAL'S FULL SIB also has an oil well currently producing 500 barrels per day of high grade crude.

By considering simultaneously information on the INDIVIDUAL as well as the INDIVIDUAL'S FATHER, MOTHER and one FULL SIB, accuracy of financial value estimation of the INDIVIDUAL is increased to .95.

**E. PROGENY.** If the INDIVIDUAL, whose financial status is being assessed has one or more progeny, then the PROGENY may be available for evaluation. If the PROGENY are relatively young, information on the PROGENY probably will not make much of a contribution to financial value estimation of the INDIVIDUAL; however, since the financial value estimation concept is approached from the standpoint that cattle is the livestock species of interest, the PROGENY are evaluated in terms of their potential to develop into top notch cattle people since this may have a direct influence on financial status of any future beef cattle endeavors. Finally by considering simultaneously information on the INDIVIDUAL as well as the INDIVIDUAL'S FATHER, MOTHER, FULL SIB and PROGENY, accuracy of financial value estimation of the INDIVIDUAL is increased to .96.

### Concluding Comments

The technique described herein of relating the concept of breeding value estimation to that of financial value estimation is simply an attempt, through use of a series of well developed slides to take a concept

that can be mathematically challenging to some students and present it in a manner so that the overall concept can be related rather easily to a situation either already familiar or easily grasped by most students. This approach, which has been well received by students is simply an extension of some of the concepts presented by Kuhns (1977) in his general discussion of teaching for permanent learning.

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### CASE REPORT

## Micro-Teaching Provides Realistic Learning

James E. Diamond and  
M. Joy Cantrell

For the Cooperative Extension agent, clientele groups vary greatly. Rarely does teaching an "intact" group occur, as it does in the traditional classroom. Analysis of behaviors by Hampton (1980) revealed that planning, execution, and evaluation are the major role phases critical to an Extension agent's position. Therefore, prospective Extension agents must be competent in designing learning activities and evaluating their outcomes.

Micro-teaching has been a commonly used teaching technique for on-campus training of prospective high school teachers (Peters and Moore, 1983). Research has not only supported the general effectiveness of such an experience for learning, but it also has suggested that the effectiveness is enhanced when they actually teach high school pupils rather than college peers, as reported by Scanlon, Williams, and Seamans (1983). It could be concluded that to provide effective teaching experiences for prospective Extension agents, training could be enhanced by using appropriate clientele audiences. Therefore, to provide a more realistic on-campus teaching experience, a teaching activity was designed for training prospective Extension agents. This activity was developed to enable students to apply the four components of program development and select the appropriate teaching methodologies to fulfill needs of clientele.

The four components of program development exemplified by the activity were needs assessment, program planning, implementation, and evaluation. Within this framework, each student enrolled in the

Diamond and Cantrell are both assistant professors in the Department of Agricultural and Extension Education, College of Agriculture, The Pennsylvania State University, University Park, PA 16802.

Fall Semester, 1983 course EXT ED/AG ED 450, Methodology of Extension Education, was to design a learning activity for a small group (not less than five or more than fifteen) as the "Extension Agent for the Day." Out of 14 students enrolled, 14 completed the micro-teaching learning experience.

## Objectives

Conducting this group activity had two purposes: (1) to cause prospective Extension agents to experience the critical program planning behaviors of the position and (2) to fulfill the need for an on-campus teaching experience for prospective Extension agents using appropriate clientele groups. The "Extension Agent for the Day" program prompted the students to assess needs, plan a program, implement a program, and evaluate the outcomes. The specific objectives for each student included:

### A. Needs Assessment

1. Collect information from clientele groups
2. Analyze the clientele's situation and identify their needs
3. Prioritize needs

### B. Program Planning

Write a plan of action that includes the following components:

- a. Description of the target clientele
- b. Need for the activity
- c. Objectives
- d. Methods to be used to disseminate information and/or subject matter
- e. Methods to be used to inform the clientele of the activity
- f. Method of measuring the expected changes in behavior of the clientele

### C. Implementation

1. Use various methods of communication to inform the clientele of the planned activity
2. Conduct a thirty-minute activity for a small group of clientele from the surrounding community
3. Use teaching methods for effective dissemination of information or subject matter

### D. Evaluation

1. Evaluate the clientele outcomes based upon objectives of the activity
2. Observe and evaluate the performance of each novice "Extension agent" conducting their activity
3. As a result of the teaching methodology implemented, observe and analyze the behavioral patterns exhibited by the different clientele groups during the activity

## Methodology

To accomplish the objectives of the "Extension Agent for the Day" scheme, each student had to identify a clientele group within the University or surrounding community who wanted to participate in a worthy program. The clientele were to be individuals not enrolled in EXT ED/AG ED 450 and having a common need.

Based upon the data of the needs assessment, students determined and prioritized their clientele needs. A plan of action focusing on the prioritized needs was developed. The plan included a demographic description of the clientele, a brief statement describing the need for the activity, a list of objectives for the activity, a description of the communication

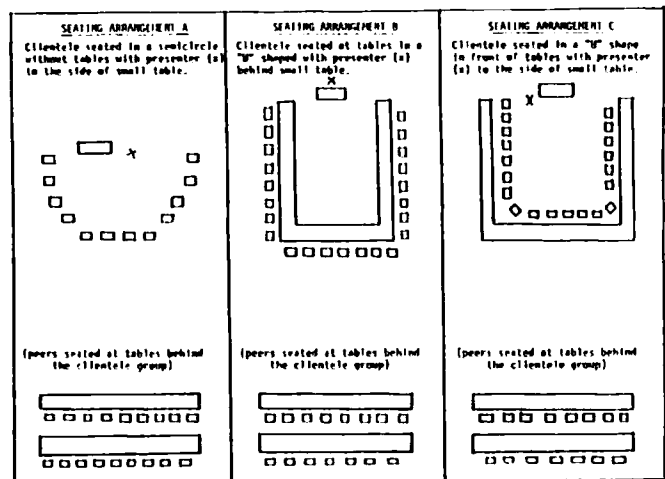


FIGURE 1  
CLIENTELE SEATING ARRANGEMENTS

methods to be used to inform the clientele of the activity, a description of the teaching methods to be used to disseminate information and/or subject matter, and a description of evaluation methods to be used for measuring the expected changes in behavior of the clientele.

Following the instructor's approval of the proposed plan, each student implemented his or her activity according to the plan. On the scheduled date for each activity, other members of the class were seated to the rear of the group (Figure 1) so that they could observe both the clientele and the "Extension Agent for the Day." They were not to participate in the activity. Their mission was to observe the performance of both the novice "Extension agent" and the clientele behavior.

## Results

All 14 students who enrolled in EXT ED/AG ED 450, during the Fall Semester 1983 were required to be the "Extension Agent for the Day." The students initially were apprehensive, but as tangible results of their efforts began to show, they gladly accepted the responsibility.

A wide variety of clientele mini-groups participated in the various planned programs. The groups ranged from four to thirteen individuals, the youngest being fifteen and the oldest, sixty-four. Program topics were the result of needs assessment, program planning, and implementation for each respective clientele group.

Following each activity, anonymous peer evaluation forms were collected by the instructors and were tabulated. The evaluation form, titled "Evaluating Group Teaching Methods," included these categories:

- a. Overall effect of teaching
- b. Preparation for teaching
- c. Arousing and maintaining interest
- d. Questioning
- e. Use of instructional materials
- f. Group meeting management
- g. Stimulation of participant thinking, reasoning, analysis, and judgment

- 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

Robert R. Shrode,  
University of Tennessee

### Nigerian Study Reports Teacher Professional Competencies Need by Agricultural Colleges

Stephen S. Okatahi  
and Richard F. Welton

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 Training<sup>2</sup> 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.

Okatahi is a graduate student and Welton is a professor of Agricultural Education at Kansas State University, Manhattan, KS.