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A GUIDE TO TEACHING AGRICULTURAL ECONOMICS
IN NONSPECIALIST COURSES IN A DEVELOPING ECONOMY:
EXPERIENCE OF TEACHING FOR RURAL CHANGE IN MALAWI

D. A. G. Green

Bunda College of the University of Malawi provides all university level agricultural education in Malawi. Currently there are around 240 students, with a planned expansion to about 420. College entrants are largely from rural backgrounds. On qualifying, a wide range of occupations is open to students: after three years of training, diplomates find employment in both public and private sectors; after five years, graduates are employed predominantly in the public sector. There are 40 staff members distributed over a wide range of disciplines constituting the School of Agriculture, which is grouped into four departments: agricultural engineering, crop production, livestock production, and rural development. The latter is multidisciplinary, and during 1976-78 was headed by a professor of agricultural economics. Throughout 1975-78, considerable time was concentrated on restructuring the curricula for the general degree and diploma in agriculture. The present curricula and experience of their development provide bases for discussion and the identification of recurrent themes and guidelines. There is no claim to perfection; curriculum development is a dynamic process. Experience from the microcosm of a single university college can provide insights which pragmatic academic staff may appreciate more readily than generalizations from surveys.

Problems

Common problems exist in institutions of higher rural education throughout the developing countries of Africa: different levels of student streams, students' inadequate pre-college training, crowded teaching schedules, and expatriate staff on short term contracts (FAO). Bunda College's experience appears representative, but the development of "end-on" (sequential) diploma-degree curricula may well be unique. The present curricula emphasize practical application of the rural sciences. The need to maintain an integrated approach to the subject matter of rural change persists (Sangare). These common problems are expanded with reference to Bunda College.

1. Interrelationship of student streams. The College is responsible for diploma and degree training and, increasingly, short term inservice training. Despite their ultimate professional involvement in indigenous problems associated with rural development, the diploma and degree streams tended to separate. This problem has been resolved to some extent by sequential curricula: degree candidates are selected from the diploma class on the basis of achievement and demonstrated potential.
2. Students' abilities in agricultural economics. Student's training prior to university selection is hardly adequate to begin conventional social subjects or the applied agricultural sciences. Thus, the first year concentrates on basic subjects (63 percent of total teaching). The rural social sciences, conceptually so different from the technical sciences, are introduced in the second year. Introductory agricultural economics develops decisionmaking concepts in practical areas of farm production and marketing in the context of rural development.
3. Balance of agricultural economics with other rural development subjects. Larger classes and heavy staff commitments are the result of larger student intake and the necessity to teach basic sciences in the first years

of both diploma and degree training (63 percent and 30 percent of total teaching respectively). Moreover, agricultural economics (including farm management) is only one of the rural development subjects (others are extension, communications, rural sociology, home economics, nutrition, and public health) being crowded into a quarter of total teaching time (36 percent in the home economics option).

4. Relevance of professional material. Agricultural economics draws on empiricism and the application of analytical concepts. Short term expatriate staff members frequently lack both facts on the economy in which they find temporary employment and relevant practical analytical experience. Thus, there is a tendency to resort to conventional materials with origins in the advanced economies, a situation which lacks satisfaction for both teacher and student. Improvements could occur as appointments are increasingly filled by indigenous staff. However, a pragmatic philosophy will still be necessary in selecting appropriate course materials.

Role of Agricultural Economics in Subject Matter Selection

In drawing from a body of professional knowledge, selection of appropriate subject matter must consider quality and quantity of students and staff, professional expectations of both, employers' expectations, and the country's future professional needs (Mather, Davis, Brannon, and Bordeaux, and Beck). Objectives of university education must also be incorporated (Lewis; and Williams).

The subject matter of the rural social sciences borders on the humanities, dealing substantially with values, judgment, and humanistic concepts, in sharp contrast to subjects based in the natural sciences. Discussion on the role of agricultural economics in general agricultural education reiterate the integrative quality of the discipline and the pragmatism of the majority of its practitioners. Agricultural economics is generally accorded first priority.

The responsibility for course material which trains the young professional in an integrative approach to rural change and the development of reasoning skills and judgment as essential tools for continued learning lies with the rural social sciences, and with agricultural economists in particular (Manderscheid).

This philosophical position is also responsible for containing the various social science disciplines within the rural development department. Thus, within the college there exists a cohesive influential unit which can encourage the development of linkages among the rural sciences. With increasing emphasis on integrated rural development, the socioeconomic subjects will continue to gain in importance (Hoffman).

The Curricula

Currently, teaching is directed toward undergraduate and diploma training, although the future possibility of postgraduate training must be kept in perspective (Green, 1976a and 1976b). The incumbents of four established posts are responsible for teaching agricultural economics: two posts in farm management, one in marketing and development, and the departmental head. Table 1 presents the essential details of the curricula for the diploma and degree courses which are now arranged sequentially, in contrast to the time up to 1975 when both courses existed in separate streams. The sequential ordering of courses creates new problems for upgrading mature students, but these are not fundamental, as was the previous segregation of student levels and duplication of classes.

Emphasizing undergraduate and diploma training in general agriculture, the curricula permit no specialization, except for the choice of a final year degree

TABLE 1. Analysis and distribution among subjects of teaching time by year of course for the General Degree and Diploma in Agriculture, Bunda College of Agriculture, University of Malawi, 1978

Analysis and Distribution by year of course	General Diploma in Agriculture by year of course				General Degree in Agriculture by year of course															
	Year 1	Year 2	Year 3	Total	Year 4	Year 5				Total (5 years)										
<u>Analysis of teaching time</u>																				
Total hours per academic session ^a	900	840	750	2,490	750	640				3,880										
Average hours per week	30	28	25	28	25	21				25										
Ratio of lectures: practicals ^b	37:63	53:47	45:55	45:55	53:47	39:61				45:55										
<u>Distribution of teaching time</u>																				
a. Among all subjects					With ^d RD Project				Without ^d RD Project				With ^d RD Project				Without ^d RD Project			
	excl ^c		incl ^c		excl.		incl.		excl.		incl.		excl.		incl.		excl.		incl.	
	HE		HE		HE		HE		HE		HE		HE		HE		HE		HE	
	%		%		%		%		%		%		%		%		%		%	
	63		63		7		7		25		25		30		-		-		22	
	30		20		58		46.5		63		53		50		39		51		63	
	7		17		35		46.5		37		47		25		36		19		37	
	100		100		100		100		100		100		100		100		100		100	
	%		%		%		%		%		%		%		%		%		%	
	-		5		-		2		3		-		-		-		-		1.6	
-		6		17		8		-		19		-		-		-		7.7		
-		3		-		4		-		-		-		-		-		1.3		
-		2		-		1		5		-		-		-		-		1.4		
-		16		17		11		12		19		-		-		-		12.0		
-		-		8		2		-		4		-		-		-		3.0		
-		16		25		13		12		23		-		-		-		15.0		
7		17		19		30.5		12		22		12		23		7		14		
7		17		35		46.5		37		47		25		36		19		37		

a. Based on three 10 week terms.

b. Equal weighting of lectures and practical time.

c. Excluding/Including Home Economics. Agricultural Engineering is included in "Technical agriculture" taken, usually by men students, Home Economics included in "Rural development subjects" usually taken, as a substitute for Agricultural Engineering by women students.

d. Degree Projects taken in the final year with some freedom of choice among four departments. Project selected in the Rural Development Department adds 9 practical hours (14%) to the "Rural development subjects".

e. Mathematics, Agricultural Statistics, Biology, Physical Science, Use of English/Communications (50% of first year is basic English).

f. Agricultural Chemistry, Crop Production, Livestock Production, Farm Practice, Farm Project, Agricultural Tour.

g. Use of English/Communications (50% of first year and all second year is technical writing and communications). Home Economics, Agricultural Economics, Farm Management, Agricultural Systems and Rural Development, Extension and Rural Sociology, Human Nutrition and Public Health.

Source: "Syllabus for the Diploma/Degree in Agriculture". Paper submitted to the University of Malawi Senate by the School of Agriculture, May, 1978.

project and the possibility of substituting home economics for agricultural engineering. The curricula reflect fairly well the relative importance of essential major subject areas. Students receive scientific explanations in adequate breadth and depth; they are able to think about farming, and to observe and develop reasonable arguments. There are opportunities also to work with smallholder farmers, but time allocation appears to be relatively limited. For students who subsequently work in extension or rural development planning, this could result in an inadequate understanding of rural change at the "grass roots" of the community.

Agricultural professionals concerned with rural change must be conversant with the problems of rural village communities. The analysis in table 1 shows the strong practical bias persisting throughout the diploma and degree courses (45:55, lectures:practicals). However, the analysis cannot differentiate between students' practical learning of scientifically based skills (taught in the laboratory or on the modern college farm) and practical observations and socioeconomic analysis of rural change (which may necessitate more contact with local rural communities than the present curricula permit despite substantial amounts of time being spent in local villages during practical extension classes). Education for rural change implies an integrated approach to the socioeconomic problems, and where this objective conflicts with the practical mastery of technical skills (also important in the total perspective of rural change), there may well be good reason to introduce a greater degree of specialization according to this dichotomy of needed skills.

Analysis of the curricula for the diploma and degree courses leads to the following observations:

1. Among the four departments, time allocation is reasonable. A quarter of total time is made available to rural development subjects for students following the diploma, and, for those following the home economics route, an average of 9 percent is made available.
2. Substantial time is devoted to basic subjects in the first year of both diploma and degree curricula; this is necessary and not unusual. The degree, 12 percent agricultural economics or 15 percent for all economics related subjects, appears to fall a little below an average of 18 percent in a range from 9 percent (Khartoum) to 29 percent (Tanzania) (Thimm). In the first degree year (year 4), basic subjects shift to a higher level of scientific understanding, but the applied, practical emphasis persists.
3. Total agricultural economics content is not very high at either diploma (11 percent) or degree (12 percent) levels. Of this, almost two-thirds (8 out of 13 percent) of the diplomas and slightly over half (8 out of 15 percent) of the degrees are farm management, giving a practical bias to applied economics. The scope for developing reasoning and critical abilities in relation to change in the rural socioeconomic system is limited in some 125 hours of the diploma and an additional 174 hours of the degree.

Contributions of agricultural economics in the limited available time must obviously concentrate on the development of basic analytical concepts and thought processes, and on an integrated approach to rural change. The approach is not easy in the face of, on the one hand, students' unfamiliarity with elementary economics, and, on the other hand, some professional antipathy toward disciplines concerned with values, attitudes, and reasoned arguments in a physical environment with an obvious potential for increasing agricultural productivity.

The following are considered to be areas on which agricultural economists might concentrate:

1. Concept of the economy. An elementary conception of the economy is essential to understanding sectorial interrelationships. Thus, early in the student's career, an unsophisticated description of the economy is necessary to provide a basis for developing a more functional knowledge as elements of macroeconomics and economic development are introduced. However, there is little scope to teach more than the rudiments of development in only 1.4 percent of total course time.
2. Basic concepts of economic analysis and management. Concepts of marginal analysis are more readily accommodated at the micro level because of the emphasis on agricultural production and management. The importance of good teaching of management as a discipline cannot be overemphasized in solving problems of economic development. Basic concepts of economic efficiency and optimization and their interpretation and application can be examined by developing case studies.
3. Agricultural systems and rural development. The introduction of new technology and institutions into different socioeconomic systems of rural life requires a conceptualization of economic activity as a series of interrelated systems. For this reason, a special type of seminar has been introduced to provide the opportunity for integrating technical and socioeconomic training. The pivotal and integrative functions of agricultural marketing tend to be neglected.
4. Indigenous interpretations of economic concepts (Chipeta). More attention could be devoted to indigenous interpretations of basic concepts of economic analysis. Conceptually, the same processes occur in all socioeconomic systems, but students often fail to perceive the application to their own environment when instructed in conventional terms, thereby missing the relevance of much economic analysis. Explorations into indigenous economics demand of the teacher considerable professional maturity and experience in the local economy.

Recurring Themes: Hypotheses

Although generalizations from a single case can be misleading, a similarity exists in rural economies throughout Africa and in many of their teaching institutions (Modebe). The situation in Bunda College appears representative. A number of recurring themes emerge which can be succinctly presented as hypotheses. Guidelines then become apparent.

1. Different levels of professional agriculturalists tend to become professionally separated. Separation of diploma and degree students was evident in past experience at Bunda College and is more likely to be resolved in the sequential design of current curricula. Upgrading and inservice training courses can also be accommodated in this system. The possibility of cooperation with other agricultural training institutions could well be explored in greater depth, however.
2. Curriculum development tends to be "teaching objective" rather than "learning objective" oriented. Curriculum development is a continuous process tending to be the preserve of professional teachers. Increasingly, the curriculum development committee will feel the need to seek the guidance of all interested parties: teachers, students, employers, development planners, and scientists with a contemporary knowledge of the applied sciences.

3. Students are ill prepared to handle university level agricultural economics. Functional manifestations of basic economic concepts merit greater emphasis in order to develop an integrated understanding of the economy. Indigenous case study material, a painstaking occupation at which African university teachers are likely to do better than short term expatriates, will provide needed support.
4. The social sciences provide appropriate integrative preparation to handle problems of rural change. These subjects are maintained under the umbrella of the rural development department in which exists a unifying philosophy of developing critical skills and judgment based on values. The department as a whole provides the means of developing students' integrative perception of rural change which include a systems approach to problems of rural development. In future, some greater specialization in these study areas may be desirable to meet Malawi's increasing needs for planners and managers of the National Rural Development Programme.
5. Monitoring of appropriate technological and sociological changes requires sophisticated analytical techniques. At present, Malawian students showing an aptitude for postgraduate training in agricultural economics go abroad. However, the strength of the teaching institution and the skills of its agricultural economists will be more rapidly enhanced as specialist training and research programmes can be developed within the college and associated social science departments of the university.
6. Indigenous research is a necessary function of university agricultural economists. The research function not only provides a basis for postgraduate training but also the infusion of relevant subject material into courses. Cooperative research with related government departments can be a vehicle for pursuing relevant research topics and building up both the teaching and research capabilities of the college (Green, forthcoming).

Conclusions: Guidelines

In conclusion, the guidelines are summarized beginning with two referring generally to curriculum development.

1. Sequential professional training, upgrading, inservice courses, and inter-institutional cooperation all ameliorate tendencies for professional separation.
2. Curriculum development committees need the guidance of all parties interested in training young professional agriculturalists. Keeping the general objectives of university education in perspective requires considerable professional maturity among rural scientists.
3. More emphasis on developing an understanding of analytical concepts in terms of the indigenous environment is needed in agricultural economics.
4. Linkages between the rural sciences and an integrative approach to rural change may be fostered by the rural sciences giving more attention to marketing and a systems approach.
5. Some specialization of undergraduates' training may be justifiable because of the qualitatively different skills required to handle technical changes in contrast to socioeconomic changes.

6. Research in cooperation with government departments (and other organizations) can lead to improvements in the relevance of the curricula.

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OPENER'S REMARKS—Juma A. Lugogo

Green's paper presents a case study of Bunda College in Lilongwe, Malawi,

within which numerous serious issues involved teaching of agricultural economics for rural change in developing economies are raised. The paper confirms the problems that were identified in a seminar in Nairobi in 1976 during the last IAAE Conference. The problems identified in Nairobi for post-graduate training in African universities are similar, even at lower levels of training.

Granted that transfer of proven technologies from developed to developing economies is the order of the day, one question that is begged by professionals working in developing countries is how suitable, adaptable, or appropriate the technologies are. They are developed and derived from experience and observations in environments completely different in endowments and socio-political settings from those prevalent in most developing economies. In this context, agricultural economics concepts and principles—particularly at the applied level—are no exception. The paper rightly calls for indigenization not only the presentation of the subject matter but, more importantly, of the discipline itself.

The more pertinent issues raised by the paper include: (1) sequential diploma-degree training, (2) inadequate pre-college training, (3) student crowded teaching schedules, (4) dependence on expatriate staff members and their high turnover, (5) inadequate case studies from local economies, (6) limited research activities, (7) problem oriented presentation and exercises, (8) inadequate textbooks and teaching materials, (9) staff loading, and (10) lack of retention of local staff in academic institutions.

Green analyzes these problems well and suggests courses of action for Bunda College in order to improve the curriculum and therefore provide Malawi with the agents for rural change for development.

Governments in developing economies are in a hurry (Nyaoism in Kenya). They have to deliver the goods of independence and growth. Hence, the political considerations dictate that experiments in agricultural training can have very adverse effects. At issue is the sequential diploma-degree training. Diploma training is terminal and serves purposes different from degree training. The diploma graduate needs to be equipped with practical skills that will be of immediate use to the farmer or rural person.

Government intervention in curriculum development is becoming increasingly prominent. Academic freedom to choose what to teach at what level is fast being phased out. As the greatest employer and main agent influencing the economy, the government dictates on a short term basis and encourages problem solving training programmes; that is, it will go more for applied areas such as farm management, marketing, cooperatives, project planning and evaluation, farming systems, and agricultural finance, rather than the basic concepts of micro and macro economics. Where should the onus lie for the final curriculum? What is the tradeoff between basic principles and applied areas? How much indigenization, as stated earlier, should be allowed to creep into the traditional economic theories?

Job identification for graduates is very important for curriculum development. Experience shows, however, that government assignments in developing economies are very dynamic in content and character. How much flexibility, therefore, particularly in time allocation, should be built into university programmes?

Finally, I cannot help but underline the importance of research by both faculty and students. Case study assignments, even for diploma trainees, are very useful in getting home conceptual messages. The question worth noting, however, is who should decide on the subject areas—those who have funds such as private firms and parastatals? They have specific objectives mind. Should we ignore the conflicting public and private interests for the training opportunities these funds offer? As Green states in another paper to be published soon, let us "search for relevance" in agricultural training for rural change in the developing countries.

Sequential training is a solution to the problems of professional separation, although, in the process, students undergoing graduate training have to take several courses which are not quite necessary. While research is important for both the faculty and the student and case study assignments could be made even to diploma students, there are questions as to who should determine the areas of research when there are conflicts between public needs and individual interests, and whether specialization might not tend to overproduce degree holders in the face of the immediate needs of the government for diploma holders to work as extension staff at the field level. Agricultural problems in these economies are specific, and while the basic concepts of economic theory need to be understood by the students, they also have to be trained to comprehend the processes of decisionmaking and investment changes in these labour surplus rural communities. For this purpose, it is important to ensure that the students have a real feeling of the rural life so that they develop a flexible approach to the problems of rural change. The process of indigenization of training could be made possible by enabling the students to be in constant touch with the villages and by engaging them during vacations in survey work in villages for the collection of requisite material for such indigenization. Also, textbooks need to be written by indigenous staff. There is also the problem of job identification for graduates as a guide to the type of training and the extent of flexibility that is available in the basic allocation between various disciplines and between basic preferences and applied areas in order to be able to accommodate the requirements of the government and parastatal organizations.

Contributing to the discussion were Ardron B. Lewis, John S. Nix, Kenneth H. Parsons, and Morag C. Simpson.