Maintain Strong Relations With Students

Agriculture and natural resources faculties have been perceived as being among the best on campuses in fostering strong and respected working relationships with students. It seems obvious that colleges of agriculture and natural resources must continue to capitalize on this positive perception and foster such relationships. Certainly, the favorable image of caring about students and graduates has been and must continually be earned. It is not an automatic response based upon history.

I believe that faculty must continue to be actively involved in helping students plan their education programs and career development strategies. In recent years, some colleges have transferred counseling responsibilities from faculty to career counseling centers. My observations suggest career counseling centers may have a comparative advantage in helping students deal with mechanical operations in the university bureaucracy, but are generally less able than faculty in helping most students effectively utilize available courses and curricula.

In summary, major challenges and opportunities facing colleges of agriculture and natural resources in 1982 generally are not new, unique, or profound. Education in the United States exceeds a 100 billion dollar business managed by nearly 20,000 boards of directors. Like Mr. Schwibs of Buffalo and other potential conquerors of Ms. Pack-Man, educators must occasionally deal with random monsters in the system. However, the educational issues are real, and they must be addressed by each of us if we are to produce the required human capital for a continued efficient and productive agriculture in the coming decades.

IDEA SHARING SESSION

NACTA Conference

An Interdisciplinary Taped Closed Circuit Television Course

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Abstract

The development of an interdisciplinary closed circuit television course is described. The medium has the disadvantages of rapid obsolesence of lectures, greater demands on instructor time, and lack of student-instructor contact. The interdisciplinary aspects increase problems of subject matter integration and instructor and department recognition. The advantages are greater ease of scheduling prominent instructors, greater efficiency in integration of subject matter in a multi-disciplinary offering, and much greater flexibility in utilizing various teaching techniques, particularly in terms of bringing students to uniform, close-up views of lab and field examples.

Introduction

This article is prepared to fulfill part of the obligation to a grant provided by the Minnesota Higher Education Coordinating Commission to revise a closed circuit television course. This revision has come at a time when both closed circuit television courses and interdisciplinary courses are losing favor. This report will attempt to express the author's views and personal experience regarding a specific closed circuit television course. Because this paper deals with a specific course the reader should be aware that the experiences recorded here are not necessarily generally applicable.

Course Description

The experiences described deal with an interdisciplinary course originally developed in 1971 and entitled "Issues in the Environment." It was part of the Resources and Community Development Curriculum. A grant to revise the course was obtained in 1977 from the Minnesota Higher Education Coordinating Commission. The course originally contained five segments: land use and planning, water pollution, solid waste disposal, agricultural chemicals, and forest management and involved a team of nine instructors. The 3-credit (quarter basis), 10 week course had four taped lectures, one discussion period with an instructor from that segment, and a guest lecture with each of the five segments.

The video lectures were 45 minutes in length leaving five minutes for discussion after each tape. Subsequently, class periods were reduced to 45 minutes and revised tapes were scheduled to run 30 to 35 minutes, leaving 10 to 15 minutes for discussion after each tape.

To facilitate grading, objective examination questions with a key were prepared by the instructor of each segment. Quiz materials came directly out of the lecture. Students were permitted to review their exam paper after grading, but were not allowed to keep the exam. Students were warned early that clues to selecting the right answer were deliberately inserted into the exam so as to be misleading and could not be depended upon to lead to the correct answer. The exam was structured so as to achieve an average score of 75 percent. Examinations that deviated significantly were subsequently revised and the current exam scores adjusted to an average of 75. Scores on five examinations accounted for 70 percent of the grade and were weighted equally.

A term paper has been required of each student. The paper may be a case study of an environmental problem or a library study of a very specific topic. Prior approval of term paper topics has been required. The paper accounts for 30 percent of the grade.

In revising the course 20 new taped lectures were prepared. At least seven of the old tapes will be used regularly in the revised offering. A new segment on energy has been added. In addition to the video-tapes prepared specifically for the course, other audio-visual productions will be combined with the video tapes, such as slide sets and film strips to give more flexibility in addressing current issues.

We plan in the future to offer the course via an auto-tutorial contract during quarters it is not presented formally.

Observations Regarding Taped Closed Circuit TV

Disadvantages

The work of Schmidbauer (1973) summarizes publications evaluating the acceptance and problems associated with closed circuit television to that time. We would concur with the difficulties he noted with television lectures. His summary largely dealt with "live" presentations and included such disadvantages as lack of funding, greater time required to prepare lectures, poor transfer of information, lack of classroom monitoring, and lack of student-teacher contact. The fact that Issues in the Environment was interdisciplinary and previously taped introduced disadvantages of scheduling problems, maintaining current information, integration of subject matter, and giving appropriate credit to the instructors. Those disadvantages peculiar to the interdisciplinary and taped nature of the lectures were of greatest concern in preparation of this paper and are discussed first. **Scheduling.** The original version of "Issues in the Environment" was prepared by newer faculty in the lower ranks. This may have been a wise choice since Schmidbauer (1973) found that new instructors or very experienced professors were more likely to accept innovative approaches in teaching. However, at the time of revision, the instructors associated with the course were largely full professors with many professional and administrative responsibilities. This made preparation time, script reviews, and actual taping of the lectures very difficult to schedule. Equipment failures during taping also added to the scheduling difficulties.

Unanticipated equipment failures also present problems for television courses. One such example occurred with us when the telephone company severed a transmission line, just minutes after the lecture began. Even though the class was monitored the instructor was not sufficiently familiar with the subject matter to effectively use this time. Since the entire quarter was fully scheduled, the only way to make up the missed lectures was outside of class time.

On the other hand, to schedule these same instructors in a quality interdisciplinary conventional classroom setting would be equally difficult and a contiguious, orderly development of the subject matter difficult to achieve. In television courses students expect the best instructors available to be giving the lectures (Schmidbauer, 1973). These same people have many demands on their time and to schedule them into a fixed conventional classroom offering would be very difficult.

Maintain Current Relevancy. A course addressing current issues by taped closed circuit television would be impossible if provisions were not made for continuous revision. The five minute discussion time reserved at the end of the original video tapes was designated partly to give the student some instructor contact and partly to provide time for current examples or correction of recently invalidated information. However, five minutes was not enough discussion time. Consequently, the revised lectures were designed to give 10- to 15-minutes.

We found that issue-oriented taped lectures very quickly became obsolete. After five years we found forty percent of the tapes totally obsolete. In preparing such a course, controversial aspects of the issue should be avoided. Only basic mateial should be discussed on the tape. Issue related controversies should be left to the discussion period.

Anything that "dates" the issue should be avoided on the tape. Nothing should be discussed in the present tense. Bibliographic information should be avoided, e.g., an instructor introduced as an assistant experiment station director who had become a vice-president drew criticism from the students. Showing a dated example, an unresolved issue now resolved, and a current recommended outside reading source should be avoided. Students reacted negatively to these examples. Curiously, the date of taping placed in the introductory credits did not seriously impact the credibility of the tape.

In revised tapes great effort was taken to eliminate items that "dated" the tapes in a manner that had negative impact. The instructor was not introduced on tape. All examples were referred to in the past tense even though they were current. Unresolved issues as examples were eliminated.

However, tapes made by deceased, retired, or moved instructors were found to be useable if carefully handled.

Integration of Subject Matter - The original course was produced on a strict time table of one year. Integration of subject matter could not be achieved within that time frame. During revision a two-year extension of the grant was approved. This gave more time to integrate tapes. In order to prevent obsolescence all revised tapes were made to stand alone. No reference was made to another tape which later might become obsolete. However, the technical director (the author) after reviewing the script would direct instructors to emphasize certain terms of certain examples which would tie subject matter on the tapes together. For example, in the original tapes a common theme emerged, i.e., "trade offs often have to be made." However, instructors did not use similar terms or examples so that this theme was not effectively exploited. Coordination of the subject matter by a technical director with knowledge of the subject matter and the objectives of the course is essential.

Recognition to the Instructor and the Department - This problem is related to the interdisciplinary nature of the course. Such an offering should be presented at a higher level than the Department. The original production was at the request of the Institute of Agriculture, Forestry, and Home Economics. Committee members and instructors preparing the course answered to the Dean. With the revision, the committee was entirely **ad hoc** and instructors answered to the department. Thus, the effort became "added" work and very difficult to schedule. The administration of accountibility and the "numbers game" played at universities is incompatible with an interdisciplinary environmental offering. Forms used for assessing teaching activities and assignments are discipline or department oriented. For administrative accountibility our curriculum was treated as a separate departmental offering. However, no faculty of Resource and Community Development has been established, nor joint appointments made. Consequently, the student credit hours generated by the instructor were lost to both the department and the instructor. As a result, faculty participation has been limited to instructors with a personal conviction of the value of team and interdisciplinary taught courses to students and not by any benefits to the instructor. In fact, interdisciplinary offerings made in a strictly **ad hoc** way were viewed to reflect negatively on the participants.

Traditional Television Lecture Criticisms - Where instructor accountibility is emphasized the time required to prepare a television lecture is of great concern. According to Schmidbauer (1973) from 15 to 20 hours was required to prepare a "live" lecture. He indicated that instructors of television courses were expected by students to spend more time in individual student contact and that administrative matters took more time than with conventional courses. Schmidbauer suggested that television instructors should have a reduced course load. In preparing lectures for continued use we found 30 to 40 hours preparation time was not uncommon, even where the instructor was thoroughly versed in the subject matter and had given a similar lecture in a conventional classroom setting numerous times. Metcalf (1974) also concluded that it takes more teacher effort to use modern technologies for teaching than to follow a traditional lecture approach.

Additional time is required to prepare a lecture that fits into a very exacting time frame and to effectively integrate various visual teaching tools to achieve full impact of the medium.

Table 1. Cost of Instructor Time Per Student, Fall Quarter 1979, in Three Classes of Equivalent Size.

Item	RCD 1010[a]	RCD 5099[b]	Soil 5340[c]
Number Students	22	23	22
Hours spent by the author in class and in preparation for class	103	63	152
Number of instructors present per day	1+d	5	1
Estimated other instructor time per class, hours	112	252	0
Cost per student	$138[e]	$205[f]	$110[f]
Cost per student per credit	$ 46	$ 51	$ 22

a This is the course described in this paper. Television taping is included and prorated over five years.
b A team taught four credit interdisciplinary practical. A team of nine instructors was involved with an average attendance of five instructors per class. The students were required to do a resource inventory and analysis.
c A traditional five credit lecture course with no more than two guest lectures, usually when the instructor is absent. Topic was Soil Organic and Pesticide Residues.
d On discussion days one to three instructors might be present.
e Includes cost of video tape materials.
f Instructor time only, materials cost insignificant.

Table 1 makes a cost comparison of three relatively equivalent courses in class size in which the author is involved. As can be seen, the team taught and television lecture courses were very expensive.

A factor that also may take more time, particularly in "retakes" is the high tension and stress of a television lecture. "First time" television instructors usually are readily apparent because of a high state of nervousness with a tendency to speak too rapidly and in a monotone.

In the author's opinion, failure to monitor the television lecture is a major problem in these classes. Without monitoring an important feedback for student comprehension is missing. Furthermore, students do not take the initiative to correct transmission problems even though informed of the procedure to do so. For example, one week we had difficulty adjusting the sound. Near the front of the room the television program was comprehensible but near the back the sound was not crisp and clear. At the start of the third class

period the media engineer was called. What was presumed to be a set problem was actually a transmission problem and corrected immediately. The significant point is that this audio-defect had been present for all courses offered on that channel for at least three days. Our class was the first to report it. The students complain about poor transmission but rarely step forward to correct a problem. Thus, monitoring the classroom is important.

The most common complaint about television lectures is the lack of student-teacher contact. Students prefer live lectures where they have the option of asking questions if so inclined. However, for very large classes or interdisciplinary classes like the one described here, the televised lecture may lead to more student-instructor contact. Small sections with qualified student teaching assistants may afford greater "student-teacher" contact and be less intimidating than the very large classroom.

A frequent concern involving audio-visual courses is the question of information transfer. The author's observations in his classroom, and others, lead to the conclusion that students take fewer notes during a televised lecture than in a conventional classroom setting. Wessel **et al.** (1978) concluded that students spent less study time on audio-visual courses. In the course described, although test success was largely a function of memorization, scores were low. Audio tapes have been available for make-up work and review, but have been rarely used. Consequently, few test scores have averaged in the A-range (12%). Term papers have been used to swing grades, with more than 80 percent of the students receiving a score on term papers equal to or greater than on test scores. Table 2 shows the accumulative distribution of grades.

Finally, the question of funding needs to be considered. Our television course has not been supported by an on going budget. It was developed and now revised on grant monies. In the author's opinion this is not an efficient way to maintain such courses. To effectively utilize instructor time and sustain a quality offering, a budget sufficient to revise at least twenty-percent of the course each year should be maintained. This would ease scheduling, provide a steady state which would enhance integration, and improve the quality of the offering.

The Advantages of Teaching by Taped Closed Circuit Television

In the author's opinion the great advantage of taped, closed circuit television is the improvement in course quality. This takes the form of better utilization of competent staff and better integration of specific subject matter. Of great value is the much enhanced flexibility in the utilization of different teaching tools. Finally, the instructor is at liberty to schedule taping at times that do not interfere with other responsibilities.

Table 2. Accumulative Class Performance in Resource and Community Development, Issues in the Environment.

Grade student earned in course	Number students receiving				
	A	B	C	D	N
	(Overall class performance)				
—	60	101	48	9	7
Test scores					
A	27	30	3	0	0
B	0	36	60	5	0
C	0	3	24	20	1
D	0	0	1	5	3
N	0	2	1	1	3
Report scores*					
A	51	4	0	0	0
B	51	32	6	1	0
C	10	11	11	5	3
D	0	2	1	4	1
N	0	0	0	0	7

*In two offerings no report was required, accounting for fewer students earning report scores.

Course Quality - Common complaints among students of courses with more than one instructor are that there is repetition, there is no integration of the subject matter, and there is no continuity to the lectures. Team taught courses can easily become a series of fragmented lectures (Matthews, 1978). A technical director can edit scripts and make certain that these short-comings are overcome. Key words or phrases can be emphasized so that lectures can be reinforcing. At the same time duplication can be easily eliminated. In a conventional classroom setting all members of the team should be present during lecture to avoid duplication and still retain constructive development of the subject matter unless there is some organized method of review by each instructor of the material presented by the others. Consequently, a great deal more information can be conveyed by taped television lectures in a relatively short time than in a conventional classroom setting.

The television medium allows integration of several teaching techniques and still preserves clarity to the students. For example, a student can be guided through dissection of an animal or plant or have a closeup look at the operation of an instrument without needing to compete with another observer for viewing space. Thus, all students are able to see exactly the same scene. Slides often enhance the understanding of a subject. However, they frequently cannot be used without dimming the lights or turning them off altogether. Thus, the student is hampered in taking notes. Also class time is often lost in set up and operation of the instructional media. With color television the instructor can move quickly from one medium, — slides, film clips, posters, demonstrations — to another and from close-up views, to field and lab examples, and panoramic shots without detracting from note taking. Background music may also be used for impact without competing with the instructor audibly or for class time through instructor set up.

Busy and highly qualified instructors may be more willing to set aside time to prepare a video-tape at their convenience than to present a live lecture at the appropriate time in the lecture series.

Summary of Conclusions

Video-taped lectures provide an efficient means of presenting interdisciplinary subject matter in an orderly and logical fashion. However, particularly with environmental subject matter, unless very carefully prepared and edited, the material quickly becomes obsolete. An orderly schedule of revision is essential. Maintenance of such a course by grant money is inefficient and a disservice to the granting agency. If an institution accepts such a course offering, it should be prepared to provide an annual budget to revise 20 percent of the tapes each year. Everything possible should also be done to delay obsolesence. Particularly, subject matter should be treated at a basic level that is less likely to experience a dramatic change over a period of time.

If possible, multiple uses should be sought. The current revision of the described courses is being made in cooperation with Agriculture Extension. Hopefully the video-tapes may have value at extension meetings and short courses, and may be used by rural television stations outside of the conventional classroom setting. In addition we plan to offer the course to students on an auto-tutorial basis.

Television has great potential for quality courses. However, it does require considerable commitment by faculty and needs administrative support at the college level.

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IDEA SHARING SESSION

NACTA Conference

Use Of One-Hour Modules In Agricultural Economics Programs

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During a recent comprehensive review of agricultural economics programs at the University of Kentucky, the need for a modular approach to some topics became apparent. In revising and developing courses to meet the learning needs of the agricultural economics major, a number of topic areas emerged that did not conveniently fit into the traditional three-hour format. Most of the topics did not warrant the usual two or three hour course treatment. Following some reluctance on our part, several one-hour modules were developed and integrated into the program. They have proven to be a benefical addition to the overall program. Thus, the purpose of this paper is to appraise the modular course concept and to offer some suggestions to those considering its use. The paper focuses on: 1) the need, 2) advantages, 3) limitations, and 4) an overall evaluation of modules.

Need for Modules

Traditionally, the format for college courses has been two to five hours credit with one-hour credits used primarily for seminars and/or special problems. In our curriculum review, however, there emerged a need for three general types of one-hour modular courses. First, there was a need for modules which would fill some gaps in the match-up of learnings and course offerings. In many cases, the topic areas could stand alone. Modular courses entitled Agricultural Credit Institutions, Farm Labor Management, Farm Estate Planning, Farm Insurance Strategies, and Farm Income Tax Management fall into this category.

A second need was for modules that would logically extend a "parent course." For example, the commodity marketing modules which focus on the uniqueness of the marketing and pricing system for specific commodities are essentially an extension of the introductory course in agricultural marketing. This type of module was developed for the major agricultural commodities produced in the state.

A third type of need was for a module to meet short-term situations in the utilization of teaching personnel. Modules facilitate the use of extension and/or administrative personnel on a short-term basis who might not be available for a semester course.

Advantages

Several advantages of modules were envisioned by the Committee prior to incorporating them into the program. Others have become apparent since that time. From the standpoint of the student, one advantage is the *scheduling flexibility* which modules provide. Normally, three modules are scheduled in the same time slot with each meeting three times per week for one-third of the semester. Students may register for any

number of modules in the block depending on individual needs, interest, and course load. The time allowed for entering or dropping a module is prorated on the basis of the semester drop/add schedule. Thus, students may choose to lighten their course load during the last part of the semester or can add modules to offset the dropping of another course.

In addition to scheduling flexibility, modules also provide *program flexibility* for nonmajors who may be somewhat limited in the number of agricultural economics courses that can be included in their program. Modules tend to give flexibility to highly structured curricula such as agricultural education and production agriculture.

A second advantage of modules which is somewhat unique to the land grant university system is the opportunity to *utilize extension specialists* in the teaching program. The nature of extension programs makes the teaching of a full semester course almost impossible for the extension professor. Yet, with careful planning, a five-week module can be taught during slack periods of extension activities. Colleges and/or departments that employ part-time professionals in the teaching program might likewise benefit from the use of modules.

A third advantage which was not apparent initially is *improved instruction and course preparation.* A module requires the instructor's best effort in developing and presenting a well organized, concise, and complete course in a relatively short period of time.

Limitations and Words of Caution

Perhaps the most noticeable limitation of modular courses is the *shortage and cost of texts.* Most texts are written for three hour courses. Requiring a text for each one-hour module thus could triple the per-hour textbook cost for the student. The alternatives are either to 1) develop and write materials specifically for the module or 2) use extensive reference materials. The use of reference materials in lieu of a text involves either the duplication of massive amounts of material or use of the library reserve. The current budget crunch precludes extensive duplication of materials while the library reserve is often inconvenient for students. If, however, course materials are developed and written by the instructor, what at first appears to be a limitation of the modular approach may prove to be a definite advantage to the student.

A second limitation in the use of modules is the *duration of the course.* A five-week period simply does not allow time for the degree of growing and maturing in a course which is often needed. The short time period can be an especially limiting factor if extensive reference materials are used. Journal articles and bulletins are never quite as concise as needed.

Some words of caution concerning *prerequisites and assignments* seem in order. If prerequisites are specified for a module, adherence is crucial from the standpoint of both student and instructor. There just isn't enough time for a review of previously-covered materials. Prerequisites are particularly crucial for the course-extension type of module.

In planning a modular course, it is imperative that the instructor keep in mind that the course is only for one hour of credit. Students will abandon a module in short order if the *work load* gets out of line with the amount of credit received. This applies to both the amount of material covered in the course as well as the number of exams. Informally, our department has been reasonably successful in coordinating this aspect of module teaching.

Overall Evaluation

One-hour modules are a vital component of our undergraduate course offerings. Students have accepted, and like, the modules — as evidenced from the continued increase in enrollment. They especially like the flexibility which modules provide. Likewise, faculty and administrators have responded favorably to the modular course concept. In a relatively short period of time, modules have become an important part of our undergraduate program.

IDEA SHARING SESSION

NACTA Conference

Organization of a Technical College for the Teaching of Agriculture

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What is the best way to organize a post secondary institution to teach agriculture? The authors are going to demonstrate that organizing by programmatic areas is superior to organizing by disciplines in a technical college similar to the University of Minnesota, Waseca. Both authors have been at UMW prior to the start of the college in the fall of 1971. In addition, Hasslen was at the University of Minnesota, Crookston, before it began, and had the opportunity to take leave to visit institutions with primarily technical programs in agriculture in 1966-67 and 1976-77.

Institutions such as the State University of New York Agricultural and Technical Colleges at Alfred and Cobleskill; the University of Minnesota Technical College, Crookston; and the School of Technical Agriculture, University of Nebraska; all are basically organized on a programmatic basis.

The Colleges of Agriculture offering baccalaureate degree education plus graduate studies are usually organized on a department and discipline basis. For example, the College of Agriculture of the University of Nebraska, Lincoln, has the following department and program areas: Agriculture, Agricultural

Biochemistry, Agricultural Communications, Agricultural Economics, Agricultural Education, Agronomy, Animal Science, Entomology, Food Science and Technology, Forestry, Fisheries and Wildlife, General Agriculture, Horticulture, Integrated Pest Management, Mechanized Agriculture, Natural Resources, Plant Pathology, Preveterinary Medicine, and Veterinary Science.[1]

However, during the time prior to the planning and start of the Waseca program, the College of Agriculture on the St. Paul Campus at the University of Minnesota underwent considerable revision in its curriculum structure. According to Martin[2] "In recent years we have seen increasing emphasis on broadening the curriculum in agriculture and a decrease in specialized training at the **undergraduate level.**" "Curricula in agriculture reflect this trend. At Minnesota, for example, five new curriculum programs were recently instituted, the fifth one being accepted by the faculty February 6, 1967."

"Significantly these were titled: Agricultural Science and Industries, Agricultural Business Administration, Biological and Physical Sciences in Agriculture, Food Science and Industries, Resource and Community Development."

When the University of Minnesota Technical College, Waseca was being organized prior to its opening in the fall quarter of 1971, all of the information sketched in this paper plus more had an influence on UMW and its organization. It is a specialized college with a single mission. That mission is the teaching of agriculture. It does not have a research component or an extension component.

UMW focuses its objectives on the preparation of midmanagement, semi-professional technicians in the broad fields related to agriculture and services to rural homes and communities. All the students take a core of agriculture courses as well as related education courses in communications, mathematics, social sciences, and basic sciences. In addition, the students take competency courses offered for their particular program of study.

In organizing the college, one of the objectives was to develop an umbrella that future programs could be fitted into and be integrated smoothly. This has functioned well with the most recent division. Food Industry and Technology, coming under this umbrella in an integrated fashion. A second objective was to have an organization that would "make sense" to the student. In other words, a student does not take courses in terms of discipline areas so much as he or she does in a programmatic fashion because the students' objectives are fashioned in terms of programs. A third objective was to avoid proliferating programs and courses since in the early years the faculty and staff would have to "wear a number of different hats" and carry many different responsibilities.

The organization chosen was programmatic and includes seven degree granting divisions. There are Agricultural Business, Agricultural Industries and Services, Agricultural Production, Animal Health Technology, Food Industry and Technology, Home and Family Services, and Horticulture Technology. A support division of Related Education or General Education comprises the eighth division of the college organization. Since two of the divisions are often colleges in the land grant institutions, those of Animal Health (Veterinary Medicine) and Home and Family Services (Home Economics), this organization cut down the number of programs. The seven program areas offer 24 majors. In certain majors, students may pursue an area of emphasis. For example, Beef, Dairy, Poultry, Sheep, and Swine have areas of emphasis under the Livestock Production major in the Agricultural Production Division.

UMW has approximately 1,000 fulltime students, and approximately 70 tenure track positions. The fact that UMW does not have a research or extension component limits faculty numbers. Four divisions, including Related Education, are adequately sized, with the other four on the "small" side in regard to faculty numbers (Food Industry and Technology has only two faculty members). However, the organization has worked well regarding staffing.

A major problem with the UMW organization is that faculty members in a particular discipline such as Animal Science may be assigned to different divisions, e.g. Agricultural Production or Agricultural Industries and Services. Instructors in Mechanized Agriculture are split between these two groups in areas such as Animal Science, Agronomy, and Soil Science so that faculty members can meet as a group in their specialities. All academic staff members are assigned to at least one discipline group. There are 25 discipline groups at the present time.

The discipline groups are organized on the same basis as the courses which appear in the college bulletin. The primary function of the discipline group is to articulate course work within discipline areas. Leaders are identified for each discipline group and responsible for coordination. The leaders are responsible to the Assistant Provost for Academic Affairs and are evaluated yearly and either reappointed or changed, as appropriate.

Although there is no place in the UMW organization where the term "department" is used, the term is used widely by faculty and staff because of their previous background. Overall the University of Minnesota also has problems with the term department

[1]UNL College of Agriculture Bulletin 1980-1982. University of Nebraska, Lincoln, p. 2-90.

[2]Martin, W.P. "The Role of the Professional Society in Undergraduate Education, NACTA Journal, Vol. XI No.s 2 and 3, June, 1967-September, 1967. pp. 45-49.

because of the use of program, school, center, institute, and division.

It is the opinion of the authors that in spite of the problems which have been listed, the organization has been functional at UMW during the first eleven years of operation and it has allowed the college to grow in an orderly fashion. The size, age, type (teaching), mission (agriculture), and specialization of the institution make it logical for UMW to be organized along programmatic lines.

IDEA SHARING SESSION

NACTA Conference

Service Experience Program

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Introduction

I would like to begin with a brief background of Bergen Community College, to put into perspective the main topic of my talk. Bergen Community College is an urban, two year, degree-granting institution of Higher Education, offering associate degrees and certificate programs in the liberal arts and career areas. The Ornamental Horticulture Program is part of the Division of Natural Sciences, and offers upon completion an Associates of Applied Sciences degree. The eleven different horticulture courses of the program are taught by two professors, Dr. Steve Fischer (a Graduate of Delaware Valley) and me. Both Dr. Fischer and I are responsible for all phases of the program. This includes development of course contents, ordering supplies and equipment, club activities, and care and maintenance of equipment. We report directly to the Associate Dean of the Natural Science Division.

The underlying philosophy of the Ornamental Horticulture Program is to provide in all courses hands-on experiences emphasizing commercial procedures and practices. For instance, the teaching of seed germination procedures is broadened to provide students with the experience of producing a saleable, retail bedding plant crop. The plants are coded, graded, marked, and sold in the flower shop and garden center operated by the students. In addition to the flower shop, students maintain the greenhouses, nursery, flower beds, and grounds of the Horticulture Complex, plus power equipment and gasoline powered vehicles. The immediate area around the Horticulture Complex (in which all horticulture courses are taught), is assigned to horticulture. Here we have developed an arboretum, as well as designed and landscaped the area. Obviously there is a great deal of work to be done in the program. Full or parttime paid help to carry on some of the required, essential tasks of the program is not affordable. With so much work to be done, and many new projects to complete, we faced a real dilemma as to how to accomplish this with just two instructors. It seemed logical to turn to the horticulture students and somehow obtain their cooperation, utilize their free time, and so accomplish the tasks and new projects both to improve our learning environment and do our routine maintenance work. The easy part of our plan was to decide that student help was the answer; the hard part was to determine and to put into practice the method of doing this.

My colleague and I both knew that to collar a few students to do the work or to make it mandatory for all students to participate in the program was not realistic. After much agonizing and three years of reasonable (but far from ideal success), we developed what we call the Service Experience Program. It is this program that I will briefly describe, including its successes and its problems.

Service Experience Program

Concept

The Service Experience Program was developed to provide educational and practical experiences peripheral to the regular lab (shop) activities. This program would enable the horticulture program to accomplish new projects, retail sales, and routine maintenance of grounds and equipment during non-class time.

Goals of the Program:

1. To fuse the activities of the Horticulture Club with that of the Service Experience Program.
2. To obtain a maximum number of students to participate in the peripheral horticulture activities of the Service Experience Program.
3. To develop among students a feeling of working together, helping one another, making new friends, and accomplishing tasks of which they can be proud. We call the feeling of comraderie among our students "family." Observing the youthful Dr. Fischer, I bet you can guess who is referred to as "DAD."
4. To instill in the student the concept of "service" to the college by their participation in the Service Experience Program.

Results of the Program:

1. About 65 percent of the horticulture students participate in the Service Experience Program. Those students who do not participate either work full or parttime or have other personal responsibilities.
2. New projects such as the building of sheds, lath house deck, plastic greenhouse, and others were completed as a result of the program.
3. Horticulture students have developed a sense of comraderie.

4. Plants sales have successfully made available funds for purchasing equipment and materials by the Horticulture Club.

Student Form For Programs

Definition:

Service experience is defined to mean participation by the student in prescribed service activities such as florist shop operation, nursery operation, bedding and container crop production, maintenance of grounds and equipment on an individual basis by acquiring service units each semester for four semesters.

A service unit is defined as one hour of service experience (work) by the ornamental horticulture program at Bergen Community College.

Service Areas:

The major service experience areas include:

1. florist shop operation
2. nursery operation
3. bedding and container crop production
4. turf and plot maintenance
5. landscape maintenance
6. small equipment maintenance
7. librarian
8. public information

Requirements:

1. All full-time horticulture students should complete 15 service units each semester, for four semesters, for a total of 60 service units.
2. Part-time or special horticulture students are not obligated to participate in the program, but may do so if they wish.
3. Service units are obtained as a requirement of selected courses throughout the two-year horticulture program. These courses are:

   First Semester
   1. Introduction to Horticulture
   2. Turfgrass Growth and Maintenance
   3. Plant Classification

   Second Semester
   1. Plant Propagation
   2. Floral Design

   Third Semester
   1. Trees and Woody Plants
   2. Floriculture

   Fourth Semester
   1. Principles of Landscaping
   2. Nursery Operation
4. A student may accure more than 15 service units in one semester.
5. A student may elect any service area to participate in during each semester, and may change the service area if warranted.

Procedures for Student Praticipation:

1. At the beginning of each academic semester, the students complete the form entitled "Service Experience Program" Application. The students indicate the service area they want and the time periods of the week they will work.
2. In addition to the application form the students fill out the top of their time sheets. Each student has his or her own time sheet.
3. After each time period of work the students record into their time sheet the hours they worked. Each entry must be validated by a Horticulture Club officer or faculty member.

Validation Procedures:

1. Each Horticulture Club Officer has the authority to validate the hours worked by the students.
2. As officers of the Horticulture Club they may also validate their own hours worked.
3. Officers of the Horticulture Club are defined in the Horticulture Club charter.
4. Validation means the signing of student time sheets by an officer of the Horticulture Club or faculty member.

Certificate of Service:

An official Bergen Community College Certificate of Service will be awarded to those students who satisfactorily complete the 60 service units at the time of graduation.

The awards will be made by the faculty of Ornamental Horticulture and the Dean of the Natural Sciences Division.

Merit Service Award:

The Merit Service Award will be presented to the student or students who participate in the Service Experience Program in an outstanding manner.

The recipient(s) of this award will be selected by the faculty of the Ornamental Horticulture Program.

An official Bergen Community College Merit Service Award will be awarded at the annual Awards Night Presentation sponsored by Bergen Community College.

Ornamental Horticulture Service Units

APPLICATION

Name _____ Phone No. _____

Address _____ Semester _____

SERVICE AREAS:

Florist Shop Operation **Small Equipment Maintenance**

Choice _____ Choice _____

No. of Hours _____ No. of Hours _____

Nursery Operation **Bedding and Container Crop**

Choice _____ Choice _____

No. of Hours _____ No. of Hours _____

Landscape Maintenance **Physical Plant Maintenance**

Choice _____ Choice _____

No. of Hours _____ No. of Hours _____

Turfgrass Maintenance

Choice _____

No. of Hours _____

Faculty Advisor Approval Total Service Units ____

IDEA SHARING SESSION

NACTA Conference

Open-ended Problems in Landscape Plant Selection

Harrison L. Flint
Department of Horticulture
Purdue University

Courses in landscape plant materials traditionally operate at low cognitive levels — probably inevitable because of the nature of the subject matter. Yet opportunities can be found to leaven the traditional fare with opportunities for more creative learning.

For the past 6 years, we have used take-home problems in landscape plant selection as a supplement to testing of achievement in identification and use of landscape plants. Three problems are assigned each semester, the first a practice exercise that is evaluated but not included in the course grade, and the remaining two constituting about 10% of the course grade.

Problems are open-ended, i.e., the instructor does not have a list of "correct" answers in advance but is prepared to evaluate whatever solutions are offered. Students are given two weeks in which to complete problem solutions, and are asked to justify their plant selections in detail, with the help of the literature. At least one problem is treated as a simulation of a professional assignment; students are expected to prepare solutions in business letter form and are graded on professionalism.

Because of the subjectiveness of the open-ended assignment, we evaluate solutions in part by the jury method. The jury, composed of all laboratory instructors in the course, usually about 6 persons, meets to determine criteria for grading and to assign point scores for all plants selected by class members. This usually requires one or two evening meetings, or a total of 4 to 6 hours of group evluation. Individual instructors use group-determined scores for plant selections but are then left to determine scores for justification and professionalism individually.

Advantages of open-ended problems are that they a) stimulate student interest, b) provide a realistic work assignment, c) help students develop professional attitudes, and d) bring about learning at a somewhat higher cognitive level than otherwise would be the case.

The primary disadvantage is operational: evaluation is extremely time-consuming. For multi-section classes, at present funding levels, it is not possible to assign a very large number of problems. If it were not for this we probably would at least double the number of problems assigned, with a corresponding decrease in testing of rote learning.

Student response to problems has been, as any teacher would predict, mixed. Surveys have shown, though, that an overwhelming majority of students like these exercises, for the same reasons as their instructors — especially the realism of the exercise.

We have compared performance of students in tests vs. take-home problems. Performance of the majority of students shows a high correlation between the two. There are sub-populations of students who consistently perform much better in tests than in problems or much better in problems than in tests. We have attempted to recognize characteristics of these groups that would help to explain their performance, as yet with little success.

Probably it should be no surprise that some students excel in problems, others in conventional tests. We assume that individuals differ in learning style, whether this reflects preference or differential learning ability. Until we understand this better, the immediate lesson is clear: continue to provide variety in both teaching and evaluation, so any student with a desire to excel can find an appropriate opportunity.

HORTICULTURE 217 — Problem A

Place yourself in the role of a consulting landscape horticulturist, specializing in assisting landscape architectural firms with plant selection problems throughout the eastern U.S. One of your new client-firms has asked you to recommend three shrub species for use in screening plantings in any one of several suggested locations. Each plant selected should grow tall enough and be full enough to function as a reliable visual screen without the help of other species and to provide solid mass in the landscape, under the conditions specified for the site you have chosen. They would like you to go one step further, and indicate a first, second, and third choice of the three species that you select, and to fully document your reasons for selecting them and placing them in this order.

It is likely that the client-firm intends to use this initial assignment as a means of evaluating your competence and professionalism, so your future relationship with them may be "on the line." Prepare a report for them, in formal business letter form, addressing the client firm by whatever name and address you wish to give them. Provide full literature citation for all references used (and all other sources of information as well), and **show clearly what specific information was derived from each source.** Use sources of information other than books whenever appropriate, be prepared to defend the credibility of each source, and consider carefully whether you should take one person's word for a piece of information without checking with others (will this be considered to be "professional"?)

Please select the site that you will work with from the following alternatives:

Site 1: Light, sandy soil, prone to summer drought in some years. This site, located in South Burlington, Vermont, lies in partial shade of tall trees, but no part of it is fully shaded. Soil pH is 5.3.

Site 2: Fertile, well-drained loam soil (pH 6.2), near St. Albans, West Virginia, seldom experiences severe drought, and lies in complete shade from large trees located to the east, south, and west of the site.

Site 3: Very moist, imperfectly drained soil (pH 7.0) at a summer resort just east of Moorhead, Minnesota. The entire site lies in full sun and is open to prevailing winds, but a windbreak planting has already been planted and is expected to become effective gradually as the new plantings develop.

Site 4: Highly organic, well-drained loam soil (pH 6.6) near Bowling Green, Ohio, seldom experiences severe drought, and the site is open to full sun and prevailing winds.

IDEA SHARING SESSION

NACTA Conference

Training Graduate Students as Teachers

D.A. Knauft
University of Florida
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When we examine the process of graduate education in United States Agricultural institutions, one primary goal stands out: we are training students to be effective researchers. To reach this goal, programs granting the M.S. or Ph.D. degree are designed to give the student the necessary course work, the experience of performing some type of original research project, and the opportunity to spend additional time outside their own degree research area working on some established research program. Through these programs the students obtain a basis of scientific knowledge and experience that enables them to function as agriculturalists.

Upon receiving their advanced degree, students in the United States job market, especially those receiving a Ph.D., usually work for a university or for agribusiness. In plant breeding, the subject area most familiar to me, over half (56 percent) of recent Ph.D. recipients obtained university positions after completing their degree. Effective communication is essential to all jobs, but a special type of communication is required of those students taking university positions, since most will be required to do at least some teaching. In spite of the need for instructional training and experience, most graduate student programs omit this area. When we examine the numbers of students receiving advanced degrees who go on to teach, and yet have not received adequate instruction or experience in the teaching process, we can see that we are cheating not only our own graduate students, but the people they will be teaching as well. And we can certainly increase the desirability of our graduate students in the eyes of employers by giving them a strong background in teaching.

How to Solve the Problem

Schools offering advanced degrees in agriculture should make programs available that would train graduate students in effective teaching techniques just as they offer training in effective research. The first step in the development of this program is to institute a mandatory teaching experience for all graduate students in a department. This can easily be done by requiring a certain number of credits in a course called 'Supervised Teaching' or some other appropriate title. This requirement then gives all students the experience of having been involved in the teaching of a course. Even if a student does not take a job after graduating that involves teaching, he or she will have benefited from creating, organizing and/or presenting information to a group of people. This experience is always valuable. It may also be an enlightening experience, showing the student that teaching is an enjoyable experience they may wish to pursue as an important part of their career objectives, or just as important, showing the student that teaching is something they should avoid.

The two major criticisms of a teaching requirement for graduate students that I have heard are as follows:

Some schools have a high proportion of foreign students whose command of English may not be adequate for teaching responsibilities. Also the proportion of graduate students to undergraduates is so high that there are not enough opportunities for all students to participate in the teaching program. The Agronomy department of the University of Florida has both these problems; we have approximately 35 undergraduates and 60 graduate students, and about half the graduate students come from a non-English speaking background. Both these situations can be partly alleviated by using graduate students to assist in all phases of a departmental teaching program. Auto-tutorial courses are important parts of many teaching efforts. The work involved in the initiation, operation, and revision of these courses is considerable, and a number of students could be involved. The increased proportion of undergraduate students in our schools from urban backgrounds is making laboratory sections a more important part of our curriculum. Graduate students can be utilized in the upkeep of material, organization, and set-up of laboratory exercises, the creation of entirely new laboratory units or even new laboratory sections in courses previously offered without labs, and in the actual instruction of these labs. These types of involvement in A-T and lab courses can include larger numbers of students than the traditional teaching assistant roles do and can give experience in the teaching process to foreign students who lack a good command of English without requiring them to give oral presentations to classes.

This type of mandatory instruction will give all students at least some experience in teaching. Additional training efforts in instruction should be available, as they are for research, to graduate students who desire this type of training. It should be incorporated as part of a student's M.S. or Ph.D. program, rather than an extra part above and beyond the regular requirements. The responsibility for this additional training is nebulous. Most individuals in academic departments have had training in research methodology, but very few have had any formal education in the teaching process. The responsibility of training future teachers falls on the shoulders of those of us who take an interest in teaching. Even though we may not be familiar with the latest educational theories, we can expose them to our own teaching con-

cepts developed through time and experience. We can also expose them to other ideas by bringing them to NACTA meetings and other professional meetings where pedagogical concepts are discussed.

This training process should have a structure similar to the research training program, namely, it should include course work, time with a professor's own program (in this case a teaching program), and some original work in teaching. How much of this program is used, and how it is incorporated into a student's research are, of course, up to the student and his or her major professor.

Very few agriculturalists with advanced degrees have had course work in education. Yet, there are education courses at most colleges and universities that can offer much to a graduate student interested in teaching, and should become part of the student's course requirements.

The time a student spends with a faculty member's teaching program, usually as a teaching assistant, should be as broad an experience as possible, and should include teaching responsibilities under several different instructors where feasible. This training process may need to involve a rethinking of the relationship we or other faculty members have with the people serving as teaching assistants. Instead of just using assistants to grade papers or tests or to relieve ourselves of the burden of laboratory or discussion sessions, they should be a part of the creative process of teaching. This means they should be given the opportunity to lecture to a class of 150 students or a group of 15 students. This experience should be used as a way of giving the student feedback from us on his or her lecture methodology. We should not merely use the student as a substitute teacher for us when we are out of town. We should be a part of the class when our students lecture so we can give them our impressions of their work and perhaps learn a few things ourselves.

Students are often responsible for teaching laboratory sections or supervising A-T facilities. As with lectures, feedback from other teachers on what is done right (or wrong) in these situations is important. Whenever possible the students should have a chance to create and implement their own design for a lab or A-T module. It is important that the students have the creative experience of moving from their own concepts through implementation to actually teaching the lab, rather than 'cookbooking' all the concepts they teach. It is crucial they examine a subject area to determine what is important in that area, how it should be presented, and to make sure they are teaching in a way that gives consideration to the undergraduate student's background and goals.

People serving as teaching assistants should be aware of the methods of evaluating the learning process of students in a class. The different types of questions and the different methods for evaluating the objectivity of a test should become familiar to these people. They should make up exam questions, and then grade the questions they wrote. This will give them the experience of composing good, fair questions. If complaints on the questions or the grading are directed back to the student who wrote them, the student will also have the experience of suffering the consequences of poorly written or ambiguous questions. If multiple choice questions are used, it is very useful for the student to write challenging questions with rejoinders that measure the learning process occurring in the classroom. Computer analyses which gives discrimination values are especially useful in evaluating the fairness of a question.

We should also expose students to our 'tools-of-the-trade,' such as the operation of movie projectors and slide projectors, the making of visuals (slides and overhead transparencies), the use of a 35 mm camera, the day-to-day operations of small plot maintenance and/or greenhouses, the use of computers for grading and evaluating test questions, and other techniques that enhance teaching. To train grad students to be good agronomists, animal scientists, or plant pathologists, we give them the background they need to resolve research or production questions. We need, in addition, to have students trained to effectively present the answers to these questions. For this reason, training programs in teaching should be available to graduate students to complement their research training.

As mentioned previously, we should identify courses in our own department, such as those with A-T modules, laboratory sections or courses in need of such sections, where graduate students can be utilized. Then graduate students should be required to take part in the teaching process. For those students desiring additional training, education courses should be identified and incorporated into the student's required course list. These students should also become an integral part of our teaching program, having the opportunity creatively to take part in the instructional process. If we offer our students this type of program, we can move a long way towards making the people we train researchers and effective teachers as well.

IDEA SHARING SESSION

NACTA Conference

Inservice Education For Teachers Of Teachers

James H. Mortensen
Associate Professor of Agricultural Education
The Pennsylvania State University

If you were assigned the task of designing and producing a machine which could analyze farm production records, would you begin by hiring personnel? . . . Purchasing equipment or hardware? . . . Constructing a plant? . . . Or would you begin by obtaining a design or blueprint for the machine you intended to produce?

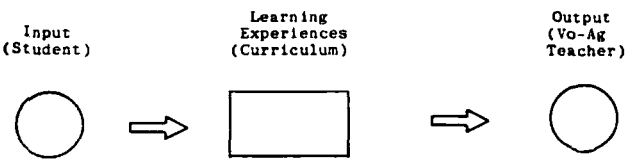
Like a computer manufacturing plant, the systematic development and maintenance of a teacher education curriculum involves specifications of the desired product (a vocational agriculture teacher). Competency-based teacher education in agriculture requires that the roles of a vocational agriculture teacher be conceptualized and that the desired pedagogical and technical agricultural competencies be identified in relation to role conceptualization.

Role Analysis

Role analysis through observation of practitioners is an acceptable procedure for competency derivation. Braden and Paul (1975) defined role (occupational) analysis as the process of determining by observation, study, interview or reporting, the technical skill and attitudinal content of jobs. It may include the study of environments in which jobs are performed, the physical and mental requirements to perform on jobs, and the aptitudes and attitudes required to enter and hold the positions.

Occupational content should be of major concern to curriculum planners. The tasks performed on the job and the preparation required to perform the tasks are two primary concerns in selecting instructional content and performance standards.

As we consider this curriculum development model (Teske, 1972), Figure 1, let us not forget that the needs, maturity, interests, and experiential background of the students serve as the criteria for the selection and sequencing of materials, activities, and learning experiences.



To facilitate this approach to curriculum development and refinement, a two-day traveling seminar was planned and conducted to orient College of Agriculture faculty members with Pennsylvania vocational agriculture programs, instructional areas being taught, teacher roles, and the technical competencies needed to deliver vocational agriculture instruction in public schools.

Participants

College professors responsible for instruction in agronomy; horticulture; agricultural engineering; agricultural economics and farm management; animal, dairy, and poultry production; forestry; wildlife; and environmental resource management were invited to participate. Much interest was expressed for this kind of an observational activity and eleven College of Agriculture professors participated in the two-day traveling seminar.

Seminar

The seminar included on-site visits to the Warwick High School vocational agriculture program, a rural single-teacher department; Eastern Lancaster County and Owen J. Roberts High School vocational agriculture programs, rural multiple-teacher departments; Lancaster County Area Vocational Technical School, a multiple-teacher horticulture program; Western Montgomery County Area Vocational Technical School, an agricultural production program with a school farm; and, W. B. Saul High School of Agriculture, a comprehensive urban high school vocational agriculture program in Philadelphia (see Appendix A).

Participating faculty were afforded the opportunity to interact with high school-aged students of vocational agriculture at Western Montgomery Area Vocational Technical School and Owen J. Roberts High School. The itinerary also included a visit to the home farm of a young farmer in the Owen J. Roberts School District.

Summaries of recently completed studies identifying technical agriculture competencies needed by beginning teachers of vocational agriculture were discussed and made available to seminar participants. A University maxivan was used to transport the group. Lodging, meals, and travel expenses were paid with funds made possible through a project with the Pennsylvania Department of Education.

Summary

Eleven of Penn State's College of Agriculture professors participated in the two-day traveling seminar. Secondary and adult vocational agriculture programs were observed in four public high schools and two area vocational technical schools. Faculty participants were oriented to the roles of vocational agriculture teachers and the teachers' preservice and inservice technical agriculture competency needs. This seminar aided College faculty in conceptualizing the vocational agri-

culture instructors' role and in converting the teachers' tasks and their skill requirements into instructional objectives which in turn can guide in the development of instructional materials and methods. Role analyses techniques have added strength and substance to our curriculum planning process. A professor of horticulture participant provided testimony to the value of this activity when he wrote:

> Thank you again, for the opportunity of visiting the agricultural teachers and learning of their duties and responsibilities to the students and the community. The need for continual inservice training was brought out by the broad spectrum of applied farming skills taught in these schools. I believe all members of the group benefited greatly from the information received. The extra niceties . . . made the trip much more pleasant.

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APPENDIX A
COLLEGE OF AGRICULTURE INSTRUCTORS
TRAVELING SEMINAR*
June 25-26, 1980

June 25	
8:00 a.m.	Vans to depart from Armsby Building
10:30	Warwick High School, Lititz. Single teacher agriculture production program; Mr. Dale Gerber, Instructor
12:00	Lunch, Akron Diner
1:15 p.m.	Lancaster County AVTS, Brownstown. Two-teacher vocational horticulture program; Ms. Bonnie Levy, Instructor Mr. Charley Patterson, Instructor
3:00	Eastern Lancaster County School District, New Holland. Eight teacher agriculture production, agriculture mechanics, natural resources programs. Comprehensive adult education offerings; Dr. Robert Herr, Department Chairman; Mr. Don Robinson, Instructor; Mr. Robert Anderson, Instructor
8:00	"Blithe Spirit," a live comedy. Peoples Light and Theatre Co., Malvern, Pa.
Overnight	Holiday Inn, Downington — Lionville
June 26	
8:00	Owen J. Roberts High School, Pottstown. Two-teacher agriculture production program; Mr. Chester Raught, Instructor; Mr. John Fair, Instructor
9:45	Western Montgomery County AVTS, Limerick. Agriculture production program with a school farm at an area vocational technical school; Mr. Roger Michelone, Instructor
11:30	Lunch
1:30 p.m.	W. B. Saul High School of Agriculture, 7100 Henry Avenue, Philadelphia. Comprehensive urban high school with school farm; Mr. Robert T. Holley, Coordinator
5:00	Dinner, Zinn's Diner
8:30-9:00	Arrive at University Park

*This seminar is sponsored by the Department of Agricultural Education at Penn State and the Pennsylvania Department of Education.

IDEA SHARING SESSION

NACTA Conference

Visicalc In Student Advisement And Course Scheduling

Thurman T. Thomas and Paul P. Kapp

Northeast Louisiana University, Monroe, La. 71209

A problem occurs when there is a lack of composite data on students by classification and by major when course scheduling and advising time arrives. Lack of this composite data may result in course sections not filling due to a lack of students needing the course being offered and likewise required courses may not be offered when needed for proper progression of the student in his/her academic program. Courses taken solely by majors are more likely to be affected than those courses taken as electives by a wide variety of students in addition to majors within the department.

The solution was to use VisiCalc, a commercially available data processing program, by Software Arts, Inc., that will provide the user an electronic worksheet capable of adding, subtracting, multiplying, dividing, finding partial sums, minimums, maximums, and square roots. This program allows for entries of information in alphabetical or numeric order as depicted in Table 1. This information can be entered as desired in a row and column format with interdependent relationships between coordinates being set up among all of VisiCalc's 254 rows and 63 columns. Most monitors will provide the user with at least a minimum of a 24-line by 40-character visual work area at one time.

The VisiCalc program is compatable with the TRS-80, Apple, Atari, and HP-85 microcomputers. Our usage was with the TRS-80 Model III Microcomputer using floppy disk storage.

Adequate semester-by-semester data is available to our department and advisors on individual student progress by means of an individual status report. The student's major and all required courses are listed on this status report along with grades for all courses completed. The previous semesters are listed across the bottom. Data from these individual status reports were entered into the VisiCalc program both by major and by student classification.

Table I. A Composite Printout for Selected Sophomore and Senior Agricultural Business Majors in Numeric and Alphbetic Order

		AGRIBUSINESS							
	Hrs	AS101/2	AS201/2	AG101/3	AG201/3	AG401/2	AG404	E201/2	E204
SENIORS		(Numeric Order)							
Hopkins,	119	x	1	x	x	1	x	x	x
Childres	110	x	x	x	x	x	x	x	x
Malone,J	108	x	x	x	x	1	1	x	x
Pipes,H	108	x	1	x	x	x	1	x	x
Baggett,	105	x	x	x	x	1	1	x	1
Keahey,B	101	x	x	x	x	1	1	x	1
Prine,M	99	x	x	x	x	1	1	x	1
McDade,J	93	x	x	x	x	1	x	x	1
Sub-Total		0	2	0	0	6	5	0	4
SOPHOMOR		(Alphabetical Order)							
Ainswort	41	x	x	x	x	1	1	x	x
Albritto	56	x	x	x	x	1	1	x	x
Benson,B	57	x	x	x	x	1	1	x	x
Branch,M	40	x	x	x	x	1	1	x	x
Hill,P	50	x	x	x	x	1	1	x	x
Moreno,M	41	x	x	x	x	1	1	x	x
Nerren,D	41	x	x	x	x	1	1	x	x
Petrus,R	40	x	x	x	1	1	1	x	x
Silk,M	39	x	x	x	1	1	1	x	x
Sims,J	39	x	x	x	1	1	1	1	x
Trichell	54	x	x	x	x	1	1	x	x
Towne,R.	39	x	1	x	1	1	1	x	x
Welch,T	40	x	1	x	1	1	1	x	x
Sub-Total		0	2	0	5	13	13	1	0
Totals		0	4	0	5	19	18	1	4

CODES: AS = Animal Science AG = Agronomy E = Agricultural Engineering

Table 1 provides an example of a composite printout for Agricultural Business majors where the seniors are listed in descending numerical order and the sophomores are listed in alphabetical order. The total number of hours completed at the university is entered on the sheet for each student, along with an X in each column under a required course that has successfully been completed. A 1 is placed in each column under a required course that has not been successfully completed. Subtotals are automatically calculated for each classification on each required course with a total calculated at the bottom of the printout. These totals are valuable in determining which courses should be offered for each classification of students and the number of sections that should be offered.

When the worksheet is brought up to date at the end of each semester, an entire line can be moved from one classification to another. A new subtotal is automatically calculated when a line is moved or when an X replaces a 1 on the worksheet indicating the course has been successfully completed. At this time, the VisiCalc program will also automatically calculate new totals at the bottom of the worksheet.

VisiCalc is a very versatile program that can be used within the department to record student grades and individual student records as well as the composite data on students by classification and major as described herein. This is a program that should be considered when decisions are being made regarding record keeping on students.

Student Course Evaluation: A Longitudinal Study

Kelso L. Wessel
Harpal S. Grewal
Ohio State University

Introduction

This paper presents the analysis of student evaluations for an Introduction to Agricultural Economics (Ag Ec 100) course taught each quarter at The Ohio State University. Ag Ec 100 is a 5-credit-hour course, intended mainly for freshmen and sophomores, which meets for one class period, five days per week.

The senior author first taught Ag Ec 100 in 1971 and has taught one or more sections nearly every quarter, excepting summers, since then.[1] A course evaluation instrument was developed for use during winter quarter 1972 by the senior author and an honors student and has been used quarterly since then.[1] In 1981, after a decade of use, it was decided to do a complete analysis of the approximately 2,000 student evaluation forms completed (approximately 80 percent of the 2,500 students taking the course during the decade under Wessel). The number of students enrolled in the course varied from 115 in 1973 to 413 in 1981. The proportion of students evaluating the course relative to those enrolled varied from 43 percent (1981) to 98 percent (1973).

Prior to the early 1970's few university teachers asked or permitted student evaluation of courses taught. However, since then student course evaluation has become an important component of many aspects of the academic community, including salary, promotion, and tenure. Faculty, administrators, and students all agree that student course evaluations are important. However, disagreement proliferates as to when and how it should be done, the weight it should be given, and the best type of instrument to use. Most evaluations tend to be cross sectional within both time and institutions. The value of comparing history teachers, with math teachers is questionable. In addition, cross-sectional course evaluations have not permitted an analysis of the evaluations by students with different characteristics, i.e., intended major, farm or non-farm background, because of insufficient numbers. This study, with its longitudinal scope, has circumvented many of these problems.

Objectives

The primary objectives of this study were:

1. Enumerate students taking Ag Ec 100 with respect to selected characteristics.
2. Relate student characteristics with performance in the course.
3. Determine which characteristics were related to student course evaluation.
4. Determine which characteristics were related to student teacher evaluation.

Analysis

Student Characteristics

Ag Econ 100 is primarily a course taught for freshmen and sophomores, however, on the average 20 percent of the class consisted of juniors and seniors. During some years the ratio of upper classmen exceeded 30 percent of total enrollment. Enrollment in the course reflected very closely the enrollment pattern for the whole College of Agriculture. During the decade studied only 36 percent of the students were reared on farms, 14 percent had some farm experience, 26 percent had only visited a farm and about one-fourth had never been on a farm.

Approximately 60 percent (1,237) of the 2,004 students completing the course evaluation had declared their major. Animal Science and Natural Resources were the two most preferred majors:

Major	Number	Percent
Agricultural Economics	80	6.5
Agricultural Education	69	5.6
Agronomy	85	6.9
Animal Science	266	21.5
Natural Resources	200	16.2
Veterinary Medicine	89	7.2
Other - in College	358	28.9
Other - not in College	90	7.3
Totals	1,237	100.0

The high number of students in Natural Resources and Animal Science partly explains the dramatic increase in non-farm students in the College of Agriculture. Natural Resource majors tend to have urban backgrounds. Animal Science students also tend to be more urban because they use the major as an entry into the College of Veterinary Medicine.

With this diversity of interests and the course being basically required of all majors in the College of Agriculture, one would expect not to find an overwhelming interest in the subject of economics. This was true:

Interest in Subject of Economics	Number	Percent
Very interested	628	31.5
Moderately interested	1,127	56.5
Little interest	240	12.0
Totals	1,995	100.0

As a final factor in student characteristics, hours of study per week was examined. The "rule of thumb" frequently used is two hours study per week outside of class for every hour of credit received. Thus students should have studied about 10 hours weekly for Ag Ec 100. In fact, only seven percent studied nine hours or more per week; nearly 60 percent studied four hours or

[1]See David L. Hague. The Impact of Time on Student Evaluation. An Undergraduate Honors Thesis for the Department of Agricultural Economics and Rural Sociology, The Ohio State University (1974).

less weekly. However, when hours of study per week were examined over time, there appeared to be no significant change in the study habit of students during the 10-year period.

Student Performance

Analysis of performance of students was determined from their expected grade. Students were also asked to put their cumulative grade point hour (CPH) on the evaluation form. No correlation analysis could be made using actual grades given in the course, because the evaluation forms were always autonomous. Previous work by Hague, however, indicates that expected grade is a very good proxy for the actual grade received by students in the course.[2]

The Ohio State University uses the 4.0 point grade system. Therefore, a normal distribution of grades would make a "gentleman's 'C'" the average grade (C = 2.0). Students were asked what their average cumulative grade point hour (CPH) was and what grade they expected to receive in Ag Ec 100. During the 1972-81 decade 1,384 students reported an average CPH = 2.72, and 1,976 indicated they expected to receive grades in Ag Ec 100 with an average of 2.53. During the decade 2,387 grades were actually given in the course with an average of 2.21. The distribution of the actual grades given deviated from the distribution of the cumulative grade point hour by no more than three percent points at any grade level (Table 1). One can conclude that a course which has a 10-year average grade of 2.2 on a 4.0 scale is not contributing to the frequently heard of grade inflation occurring at the university level.

Table 1. Comparison of Distribution of the Cumulative Grade Point Hour (CPH), Expected Grade, and Actual Grade for Ag Econ 100, 1972-81.

OSU	Actual Grade		Expected Grade		CPH	
Grade Points	Grade	Percent	Grade	Percent	Grade	Percent
A = 4.0	A	11	A	13	3.5-4.0	12
B = 3.0	B	28	B	37	2.9-3.4	30
C = 2.0	C	36	C	41	2.3-2.8	38
D = 1.0	D	21	D	8	1.7-2.2	17
E = 0.0	E	4	E	1	1.7	3
Total		100		100		100
Average Grade Point		2.21		2.53		2.72
(Number of Students)		(2,387)		(1,976)		(1,384)

However, students tend to be forever hopeful. Eight percent more students expected an 'A' or 'B' in Ag Ec 100 than their record showed they had accumulated, and hardly anyone expected to fail the course even though three percent had failed a majority of their courses taken at the university. Class rank, interest in the subject of economics, and CPH were significantly related with expected grade in the course. Also, the performance of students appeared to be influenced by the hours of study outside of class, intended major, and whether or not they had taken other courses in economics.

More than 70 percent of the seniors, as compared to 42 percent of the freshmen, expected an 'A' or 'B' in the course. Less than five percent of the seniors, but 13 percent of the freshmen, expected a 'D' or 'E', in the course. This may have occurred for several reasons: 1) With time students become "acquainted" with the system and learn how to prepare for exams, 2) Upperclassmen may have taken courses in related fields which helped obtain a higher grade in this course and 3) Students with lesser abilities are weeded out as they progress through the university.

Students majoring in veterinary medicine, agricultural economics and animal science, in that order, expected higher grades in the course. For example, 77 percent of the veterinary medicine majors expected an 'A' or 'B' in the course. The respective percentages for agricultural economics and animal science majors were 65 percent in each discipline. This may have been a natural selection process because of students majoring in agricultural economics having a higher degree of interest in and capability in economics and, therefore, expecting a higher grade. Also, animal science has a lot of majors who expect to get into veterinary medicine which requires a 3.5 CPH — thus encouraging more intelligent students to major in the discipline.

Another variable which was strongly correlated with course performance was "interest in the subject of economics." For example, 65 percent of those who were very "interested in the subject of economics" expected an 'A' or 'B' and only 5 percent expected a 'D' or 'E' in the course. Whereas only 28 percent of those who expressed little "interest in the subject of economics" expected an 'A' or 'B' and 22 percent expected a 'D' or 'E' grade in the course.

As expected, those students with a higher cumulative grade point hour (CPH) expected to perform relatively better in Ag Ec 100:

	Expected grade			
CPH	A	B	C	D or E
3.5-4.0	48	42	9	1
2.9-3.0	21	46	30	3
2.3-2.8	6	41	46	7
1.7-2.2	2	29	55	15
1.7	5	13	62	20

Correlation of class performance and hours of study was found to be non-random using the chi-square test at the 0.05 level. However, the association was not consistent in any direction. Among those students reporting 11 or more hours of study per week, the proportion expecting an 'A' was considerably higher than for any other category of study time. Surprisingly, 53 percent of the students studying only 1-2 hours per week expected an 'A' or 'B' in the course. Of the total students, 59 percent studied four hours or less per week for this course. And, of all of those expecting an 'A', 58 percent reported studying less than four hours per week outside of class.

Course Evaluation

Student responses to the following three conditions were analyzed and correlated with other factors as the parameters of course evaluation: 1) Agricultural Economics 100 has contributed to my ability in making economic decisions, 2) Rank Ag Ec 100 with respect to the best introductory course taken in the College of Agriculture and with the best introductory course outside the College, and 3) The work demanded for this course was excessive as compared to other five-credit-hour courses.

Contribution to ability to make economic decisions. Farm background, previous courses in economics, and major field of study were found to be randomly distributed relative to whether Ag Ec 100 contributed to their ability to make economic decisions. The X^2 chi-square test between this statement and class rank indicated a non-random association; however, no consistent trend could be found with approximately 62 percent of all class ranks indicating the course would help them make better economic decisions.

A student's interest in economics did tend to be correlated with whether he thought the course contributed to his ability to make economic decisions:

Interest in Economics	Contributed to Ability		
	Agreed	Undecided	Disagreed
	(Percent)		
Very much	81	15	4
Moderate	58	30	12
Little	29	31	40

From this one might conclude that if one can get students interested in the subject matter of a course they will then consider the course to be useful to them.

Expected grade was another factor which was highly correlated with whether the course enhanced their economic ability. The higher a student's expected grade the more he felt the course contributed to his economic ability:

Expected Grade	Contributed to Ability		
	Agreed	Undecided	Disagreed
	(Percent)		
A	71	19	10
B	68	24	8
C	58	27	15
D	43	32	25
E	54	46	0

Although the relationship here is not as strong, it still indicates that course evaluation is strongly influenced by how well a student expects to do in a course.

An inverse relationship was found between cumulative grade point hour (CPH) and whether the course contributed to economic ability. More students with a CPH <1.7 agreed that the course contributed to their economic ability than those with a CPH$>$ 3.5. This may indicate that more intelligent students expected more from the course; however, it also reflects some inconsistency in student responses because frequency analysis showed CPH and expected grade to be highly correlated. Yet CPH was positively, whereas expected grade was inversely, related to whether Ag Ec 100 contributed to one's economic ability.

Ranking of Ag Ec 100 with best introductory course. When Ag Ec 100 was ranked against other introductory courses in the College, it stood the test very well. Forty percent of the students said Ag Ec 100 was better than their best introductory course as compared with only 25 percent who thought it was worse. Freshmen and seniors tended to rank Ag Ec 100 higher than sophomores and juniors.

Student interest in economics, expected grade in the course, and number of study hours outside of class were found to be positively related to how Ag Ec 100 was ranked with other introductory courses. As with previous relationships, CPH was inversely related with the ranking of Ag Ec 100.

Those students who expressed a greater degree of interest in economics also tended to rank Ag Ec 100 much higher relative to other introductory courses in the College:

Interest in Economics	Relationship to Best Introductory Agr. Course		
	Better	About Same	Worse
	(Percent)		
Very	67	26	7
Moderate	31	42	27
Little	9	29	62

Once again, it appears that if students are interested in the subject matter of a course they rate the course better.

Expected grade in the course was also found to be positively related to ranking of the course. One-half the students who expected an 'A' said that Ag Ec 100 was 'better' or 'superior' to any other introductory course they had taken; whereas, only 17 percent said it was worse:

Expected Grade	Rank of Course		
	Better	About Same	Worse
	(Percent)		
A	50	32	17
B	48	34	18
C	32	40	28
D	23	26	51
E	11	34	55

Ranking of the course was also highly correlated with the study hours outside of class. Fifty-eight percent of the students studying 11, or more, hours per week ranked Ag Ec 100 better or superior to their best other course in the College as compared with only 35 percent of those studying only 1-2 hours per week.

As with nearly all correlations, the relationship between cumulative grade point hour (CPH) and ranking of Ag Ec 100 was inversely related.

Work demanded for Ag Ec 100 compared to other courses. As a final aspect of the course evaluation, students were asked to compare the amount of work

required for Ag Ec 100 as compared to other five-credit-hour courses. Freshmen and sophomores argued that the work load was excessive, even though fewer than 10 percent reported studying more than eight hours per week for Ag Ec 100. Also, those students who expressed little interest in the subject of economics thought the work load was excessive. Students with a lower CPH were more likely to think the work load excessive. The same was true for expected grade. Only 12 percent of those expecting an 'A' thought the work load excessive, whereas, 79 percent of those expecting an 'E' thought so:

Expected Grade	Work Was Excessive		
	Agree	Undecided	Disagree
	(Percent)		
A	12	11	77
B	12	16	72
C	23	24	53
D	30	24	46
E	79	21	0

Similarly, the more hours per week students studied for the course the less likely they were to hold that the work demanded in the course was excessive.

Teacher Evaluation

Teacher's Attitude. The majority of the students reported the teacher's attitude as good or excellent. When compared with class rank, freshmen and sophomores tended to rate the teacher better than upperclassmen. Seventy percent of the students expressing a keen interest in economics rated the instructor's attitude toward teaching as excellent. Students expecting a higher grade tended to give the teacher better marks in his attitude toward teaching.

Teacher's Faculty-Student Relationship. Students with a keen interest in economics reported the instructor's relationship with students was good or excellent whereas those with no interest in the subject felt otherwise. Also, students expecting higher grades tended to feel a better relationship with the instructor. For example, 38 percent of the students expecting an 'A' said the teacher had an excellent faculty-student relationship and only three percent said it was poor. The same proportions for students expecting a 'D' were 25 and 11 percent, respectively.

Ranking of the Teacher. The students were asked to rank the instructor with all others with whom they had taken courses. Their responses were found to be highly correlated with class rank, interest in economics, cumulative grade point hour (CPH), and expected grade in the course. A relatively higher proportion of lower classmen ranked the instructor among the top third of all instructors whom they had. In total 63 percent of the respondents ranked the Ag Ec 100 instructor in the top third of all instructors and only 9 percent in the lower third. Eighty one percent of the students with a strong interest in economics ranked the instructor in the top third whereas only 29 percent of those with little interest in economics gave him this ranking.

The ranking of the teacher by the students was directly correlated with their expected grade in the course but inversely related to the CPH. Of the students expecting an 'A' in the course, 69 percent ranked the teacher in the top third, as compared with 54 percent of those expecting an 'E'. Of those students with a CPH of 3.5-4.0, 53 percent ranked the instructor in the top third; whereas, for those with a CPH less than 1.7, 73 percent ranked him in the top third. Given the positive correlation between expected grade and CPH, this again shows some of the inconsistent responses to the questions on the evaluation instrument.

Conclusions

This paper presents the analysis of approximately 2,000 student evaluations for an introductory five-credit-hour course in Agricultural Economics at The Ohio State University during a ten-year period (1972-1981). Approximately 20 percent of the students in the introductory course were upperclassmen and 36 percent were reared on a farm, but 26 percent had never been on a farm. Nearly 38 percent were majoring in either Animal Science or Natural Resources. About one-third said they were very interested in the subject of economics and 12 percent said they had little interest in the subject. About 60 percent of the students studied four hours or less per week for the course; there was no significant change in study habits during the decade.

The distribution of actual grades given in the course followed very closely the distribution of the grades received by the students throughout their college careers. Expected grades in the course tended to be higher than either cumulative grade point hour or actual grades given in the course. Upperclassmen tended to be far more optimistic about grades than lower classmen. Students majoring in veterinary medicine, agricultural economics, and animal science expected higher grades in the course than other majors.

Approximately 62 percent of the students thought the course contributed to their ability to make economic decisions. The more one's interest in economics or the higher the expected grade the more likely a student thought the course enhanced his economic ability.

Both the course content and the teaching of Ag Ec 100 ranked very well when compared to other courses. Lower classmen tended to rank the course higher than upperclassmen. Student interest in economics, expected grade, and number of study hours were all positively related to the ranking of the course. Despite the high correlation between expected grade and CPH, the relationship between CPH and selected factors was always inverse to that between expected grade and the same factor. This was the major, and unexplainable, inconsistency in the data.

The better students and those more interested in economics did not believe the work load too great in the course. The less gifted students and those who were uninterested thought the work load too great.

It appeared that students who felt good about economics or their performance in the course gave the instructor good marks as a teacher. For example, 69 percent of those expecting an 'A' in the course ranked him in the top third of all their college teachers, whereas 54 percent of those expecting an 'E' ranked him in the top third. Again, despite the high correlation between expected grade and CPH, CPH and ranking of the instructor were found to be inversely related. Fifty-three percent of the students with a CPH of 3.5-4.0 ranked him in the top third whereas 73 percent of those with a CPH less than 1.7 ranked him in the top third.

The most consistent factors associated with a good course and/or teacher evaluation appeared to be whether a student had an interest in the subject matter and whether the student expected a good grade in the course. Given the current uses by administration of course evaluations the prudent teacher will keep this in mind.

IDEA SHARING SESSION

NACTA Conference

NACTA Membership In Minnesota

Robert M. Collins
Minnesota State Coordinator for NACTA

The impetus for this paper was the requests by A. W. "Tom" Burger, Central Regional Director for a state membership report in 1981 and again in 1982. With the research necessary to make out his annual report form, it seems logical to build on his excellent idea and provide additional information.

Memberships in Minnesota for May, 1981; August, 1981; and May, 1982 are as follows:

Table 1. Number of Members by Institution

	May, 1981	August, 1981	May, 1982
UMC (Crookston)	17	16	15
Granite Falls AVTI	1	1	1
UM (St. Paul)	46	39	41
UMW (Waseca)	45	37	46
Willmar AVTI	1	0	0
Totals	110	93	103

There were 12 new members in May, 1981, none in August and eight new members in May, 1982. An analysis of paid membership by years by campus gives some insights regarding current membership strengths. For May, 1982 the figures are as follows:

TABLE 2. Dues Paid Through Year Listed

Institution	1979	1980	1981	1982
UMC (Crookston)	1	0	1	13
Granite Falls AVTI	0	0	1	0
UM (St. Paul)	1	8	7	25
UMW (Waseca)	3	2	4	37
Totals	5	10	13	75

Payment of current dues is obviously the most desirable membership status, whereas a high percentage of delinquent dues indicates membership weaknesses. However, a number of reasons are possible for non-payment of current dues. At Waseca, one member died during the past year, three moved out of state, two moved from UMW to other positions within Minnesota and one member retired. Table 1 shows a drop in membership of 17 from May to August, 1981, because those who had not paid dues since 1978 were dropped from the mailing list.

As a base for comparison, the NACTA mailing list of January 18, 1977, showed a total membership in Minnesota of 64, with 54 being Institutional Active, one Active, seven Library and two Institutional.

A listing by states, "NACTA Membership at a Glance," showed Minnesota membership at 49 with 9 new members in 1975-76. Total membership for NACTA was 557 with 86 new members.

Some of the factors bearing on membership in Minnesota include:

The formation of the state affiliate, Minnesota Association of Colleges and Teachers of Agriculture (MACTA) in 1976. The ongoing activities of the affiliate each year, particularly the workshop held on an all-day basis the third week in December promotes the improvement of teaching, personal development, and membership.

The annual meeting of NACTA was held in St. Paul, Minnesota, on June 10-13, 1979. This was the Silver Anniversary of NACTA and because of this annual meeting, it was a reminder to all eligible persons in the state that NACTA membership has something important and tangible to offer to the agricultural profession.

State members have held leading positions in the national organization. Dr. E. C. Frederick, Provost, University of Minnesota Technical College, Waseca was president in 1976-77 and presided over the annual meeting held that year at Penn State. Dr. Stanley Sahlstrom, Provost of the University of Minnesota Technical College, Crookston, was one of the active regional Directors in the middle 1970s. Dr. Keith McFarland, now Dean of the College of Home Economics, but formerly Assistant Dean and Director of Resident Instruction, Institute of Agriculture, University of Minnesota, was one of the active members during the 1960s. (Leland M. Arneson, Austin Junior College was probably the first Minnesota member. He was listed for 1962 membership.)

Dr. Keith Wharton, now Acting Dean of the College of Agriculture, was active on the Improvement of Teaching Committee serving as chairman and also has been instrumental in developing membership on the St. Paul Campus along with several others such as Dr. Vernon Cardwell, Agronomy, Dr. Roland Peterson, Agricultural Education and Dr. Earl McDowell, Department of Rhetoric.

Dr. Gary McVey, Chairman of the Agricultural Division, and Erman Ueland of that Division have been active at the University of Minnesota, Crookston. McVey, Wharton, Peter Fog (UMW), Roger Wagner (UMC), Tom Lindahl (UMW) and McDowell have been presidents of MACTA.

Dr. Wesley J. F. Grabow continues to write the **NACTA Journal** feature "Resources for Teaching and Learning." The Assistant Provost for Academic Affairs at Crookston (Dr. Donald Sargeant), and at Waseca (Harland Hasslen and Dr. Jim Gibson) have supported NACTA and MACTA with Gibson also serving as chairman of the Improvement of Instruction Committee.

Great credit should be given to the national President, Dr. Russell Miller, the Vice President, Dr. Lee Doyen, Dr. Murray Brown, Secretary-Treasurer and Dr. Jack Everly, editor of the **NACTA Journal** for stressing the importance of NACTA to the agricultural profession. Timely mailings and articles gain the attention of potential members.

Minnesota has operated for some time on the basis of having campus coordinators similar to the system that was formally adopted at the annual meeting in 1981 at Baton Rouge. Talks by the State MACTA President to faculty groups at the MACTA workshop and at other meetings, plus the state affiliate presidents' contacts with the other campuses are important to membership.

On the local campuses, individual contacts and packets of information to prospective members are important. Follow up notices and daily bulletins, such as the "Ram Post" on the Waseca Campus, and special mailings to prospective members are especailly useful in continuing membership. Never to be discounted are individual contacts with prospective members and/or delinquent members.

With membership in Minnesota at approximately 100, it is a challenge to retain and increase the numbers. Current membership lists are important on a campus such as UMW, where 70% or more of the faculty are NACTA members. Knowing who the members are permits concentration of membership efforts toward nonmembers.

Nonpayment of current dues is a concern. Twenty-eight in Minnesota were delinquent in May, 1982. Since they are billed for back dues, there is a tendency to "lose" those members. Even though the state has obtained eight new members in 1982, total membership declined seven from 1981, dropping from 110 to 103.

In summing up, probably the most important reasons for joining NACTA and for being an active member are the fact that the organization has something to offer to the membership, for example, the excelletn **NACTA Journal** that we are privileged to receive. The annual meetings are the umbrella for the improvement of teaching and professional development in agriculture. This single mission is a great source of strength for the organization.

IDEA SHARING SESSION

NACTA Conference

Experiencing World Hunger and International Agriculture Through Special Coursework

Steve Forsythe
Mid-America Nazarene College
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Introduction

We at Mid-America Nazarene College have a commitment toward alleviating world hunger. Students in agriculture can help solve the problems of world hunger. Our institutional and agricultural efforts go beyond the biblical teaching that admonishes us to help the widows and the needy.

Professors Charles Morrow, Lawrence Goodman, and I have worked toward establishment of two courses geared toward hunger and third world development. I will discuss one of these courses. It is our strategy to send trained young men and women overseas in an integrated effort to encourage self-help. One of our graduating seniors in agriculture has applied to World Vision and desires to serve overseas. Two of our former students now serve in Nepal at a location that is an eight-day walk beyond the Himilayas.

Special Interim Course

A special course, initiated two years ago, is offered each January and it features a 3-5 month exposure to third world agriculture. This course, Third World Development 484, permits students to travel to one of the poorest nations of the world, Haiti. There the students live with, observe, and help the rural poor establish agricultural self-development and self-help projects while meeting specific evaluative criteria.

The main purpose of this course is to enable the learner to make informed personal and church-related decisions about world hunger and third world development problems. These decisions will be based upon factual information and actual living experiences.

As a result of working through the learning experience and course materials, the learner should be equipped to make a contribution toward alleviating the world food problem and understand the basic concepts of third-world development. These personal actions may range from changing your own lifestyle to influencing national and international policies through political channels.

Each student brings to the class a rich background of experience. This is the basis of continuing and valued input to the class. In addition, since this cross-cultural class aims at increasing skill proficiency, we

expect students to participate fully in each work assignment, in evangelistic services, and in helping with the daily housework. Each provides practice in developing a collaborative style in a cross-cultural situation. In all cases, the student conducts him/herself in an appropriate manner both in the cultural and evangelical sense. In addition to agricultural emphasis, social, political, and cultural applications and observations are made.

Special requirements in the course include required readings, keeping a daily journal, and a major final oral presentation. These requirements are overseen by Charles Morrow, himself a former agricultural missionary with eight years' field experience.

Conclusions

You must understand that Mid-America Nazarene College is a private, church-related college with a special uniqueness — it has an academic program in agriculture (traditionally vocational in its orientation) rather than the liberal arts usually found in church-related institutions. By combining missions and goals of Christianity within the church college structure with agriculture we strive to create an "agrimissionary" or international agriculturist. This is a person who can literally, we believe, feed a whole man, making him more receptive to something internal and very real — a relationship with God.

Students trained in agriculture and wishing to serve overseas can have their commitment strengthened and can receive the necessary practical training through this unique and special coursework.

There is an allegory that says that if we give a man a fish he remains dependent and is soon again hungry. If instead, we give him a fishing pole and teach him to use it he can achieve self-sufficiency. The point is this: before a person can effectively help others he or she must first be immersed both in the necessary technology and in the nature of the problem we hope to use the technology to solve. We at Mid-America Nazarene College believe that simply offering students on-campus coursework in third world development does not sufficiently prepare students actively to participate in solutions to the problem. Rather, students need to see, experience, and feel the heartbeat of the problem and that is what our students are able to achieve via Third World Development 484.

Radio Can Strengthen Your College Program and Help Develop Student Leadership

Steve Forsythe
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Introduction

Regardless of the size or kind of academic program in agriculture in which you may be involved, the opportunity to promote a positive, productive image is available to you. An unsung ally to you as club advisor, as program coordinator, as FFA Chapter Advisor, or in whatever capacity you may fulfill, may be radio.

Using regularly scheduled or sequenced "spots" can do wonders for you. That "Agricultural Spotlight" aired each Thursday morning at 6:00-6:30 a.m. or maybe a three-minute "Agricultural Airwaves" each Monday may be just what is needed to pick up your department or program and to give it community standing. As Uncle Bob Elmore said repeatedly as the occasion demanded: "Tell 'em where ya got it," meaning simply you must make your patrons aware of what your program and your people are doing.

Advantages

Radio can develop **community awareness** that can lead to a sense of pride in your program, and, incidently, might broaden your financial base. Radio can **sell your program.** It may sound bold, but you ought to give your people and your programs that public "pat-on-the-back," and do it regularly. Tell the public what is going on in your program. Radio can also contribute to that idea called **accountability.** What are you and your college programs doing? Are you doing what you say you are doing? How can the public know what you are doing? Tell them about it!

Radio can also **strengthen the leadership skills and develop responsibility among your students.** Get your club officers or some of your best (and interested) students involved in radio scheduling. How? By contacting local station managers, by committing yourselves to regular taping sessions, by developing program materials, by assuming responsibility for delivery, and for programming.

Conclusion

In today's "hard times," belt-tightening and budget-cutting are facts of everyday life. The public and government want more for their money, and they want to be able to appraise the effectiveness and the activity of programs and academic units. It behooves us to tell them what we are doing and to thereby win their continued support. Radio can help in this vein. And, if we employ the time and talents of our students here it can help build their maturity and responsibility. Use radio — your airwaves of agriculture can make a big difference in garnering support for your programs and in fostering the development of your students.

IDEA SHARING SESSION

NACTA Conference

The Value Of Group Activity In Advanced Courses

Blanche Cournoyer Haning
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One objective of higher education is the development of broadly-educated persons capable of analyzing and synthesizing information and ideas — ideally from many sources. This objective, of course, promotes best-informed personal opinions, decisions, and recommendations. Its achievement often requires interdisciplinary activity and communication. In college courses, properly planned group projects can simulate these experiences.

Many institutions, especially 4-year land grant institutions, have courses and curricula that are inherently interdisciplinary. Examples are agronomy, farm management, ecology, biomathematics, integrated pest management (IPM). My experiences and my presentation relate to IPM curricula, but my thoughts apply to any subject area in which graduates are expected to integrate information from numerous disciplines, sources, and experiences.

IPM is an integrative holistic concept. It describes an ecological, social, and economically sound approach to the acceptable resolution of pest problems. It considers these problems and the consequences of management decisions regarding them in both long and short term time frames. It seeks to utilize all relevant sciences and technologies that impact in any way on the pest problem.

IPM courses and curricula, especially at the undergraduate and entry graduate level, are generally oriented towards agricultural plant crops. Ideally, they include study in the principles and practices of crop production, ecology, soil science and fertility, pesticides and their application technology, economics, phytopathology, weed science, entomology, and one or more courses in IPM as well as courses in humanities and social sciences, mathematical and physical sciences, language and a healthy number of free electives. Since many of these topics can bear on the successful resolution of a pest problem, IPM is innately multidisciplinary and can require interdisciplinary efforts. IPM students consequently should benefit from a course structured to both test their individual knowledge of IPM theory and practices and to share and learn from others. These two factors — 1) personal knowledge and 2) ability to communicate effectively with others — constitute the objectives of formal IPM instruction.

The need for an integrative IPM course became very apparent to me after several years of teaching a senior level IPM course in which students are exposed to the origins, objectives, components, state of the art, application systems, delivery mechanisms, constraints, future opportunities and expectations of IPM in general. Such a course, however, generally is lecture-based, perhaps with some field trips, discussion sessions, student projects. It cannot offer adequate time for students actually to test their understanding of functional agricultural biology nor is it the best time - opportunity. Such application should come later.

My first approach was to initiate an IPM seminar using the typical format of an in-depth analysis of an appropriate subject, e.g., an IPM principle, technique, program, or the original development of an IPM system for a crop. There were several problems with this approach: (1) adequate literature is lacking in many of the areas with which these students are concerned; (2) undergraduate students often do not have the time during a normal semester to do justice to the development and delivery of a good seminar — often their first effort at such; and (3) if the class population fails to get involved in the seminar topic, it is impossible to produce and maintain a creative learning atmosphere.

I've now settled on the following course structure, still called Pest Management Seminar, and which students admit is challenging, productive, and actually fun. Students are given pertinent data from an actual farm: aerial photographs, farm and field sizes, owned and rented acreages, soil fertility reports; crop (including animal and timber) histories, equipment, building, and labor inventories, financial assets; market outlets **and** summaries of pest problems. The assignment is twofold: (1) to develop an IPM plan for the farm, and (2) to evaluate the proposed management plan of the farmer.

To an individual student, the project is likely to seem overwhelming. In fact, that's rather how the whole class receives it on the first day. Little do they know how deeply and sincerely I feel their frustration! Each one knows bits and pieces of the answer, but how to put it all together! Yet, either in practical agriculture or IPM systems research, the holistic settings is where best management decisions will be made, and research conceived and performed. Experience shows that it takes several weeks for students, despite numerous years of disciplinary course work, and good grades, to actually decide how to approach working on the project. Their salvation is the following: Students work in groups, generally of 3-5, throughout the semester. They meet at a prescribed time every week to share ideas and information, discussing, arguing, and dividing up the work load between weekly meetings. Peer pressure forces each student to do his/her share. Course instructors also monitor individual as well as group student activity and progress.

All pertinent and available resource materials are provided to the students: current crop production

guides, fertility and pesticide recommendations; economic threshold levels, scouting procedures. Names of resource faculty who can help with various aspects of the project are provided; and many faculty graciously agree to stop by the classroom periodically to answer questions and offer advice so that students don't proceed throughout a term with faulty assumptions or out-of-date information. At the end of the semester, students, again as a group, present and defend their management plan before a group of interdisciplinary faculty. At that time individual abilities and perspectives, sometimes different from the group consensus, can become apparent and add interesting highlights to the session. But to the very end, students rely on each other and learn from each other. It's an occasion for life-long friendships to be made; and hopefully, pleasant memories to be recalled. It's a capstone course designed and tested to help launch students into the next step of their careers. Its operational mechanism is interdisciplinary communication effected by group activity.

IDEA SHARING SESSION

NACTA Conference

Hands-on Experience: The Applied Approach To Teaching Animal Husbandry Management Techniques

Craig Hill, Gary Brubaker, Rod Gilbert, and Joel Markeveys
Animal Husbandry Department
Delaware Valley College

Animal Husbandry Techniques I and II are courses designed to provide practical experience with beef cattle, swine, and sheep. Through the utilization of a one-hour lecture and three-hour laboratory, subject material is offered that is very practical in nature and serves to supplement principles and production courses. Every student, regardless of his or her previous experience, is required to use several techniques with each species. The livestock and equipment at the college serve as laboratory materials. Field trips and outside resources are also utilized. Small class size and low student-instructor ratios are of utmost importance.

Sample Lecture Topics In Animal Husbandry Techniques I and II at Delaware Valley College

Large animal handling and restraint
Animal Identification
Injections and bleeding
Animal docking, castrations, and dehorning
Feed additive and growth stimulants; ear implanting
Parasite control techniques
Emergency first aid for large animals
Practical considerations in animal facilities:
- Fences, gates, corrals, and shutes
- Housing, flooring, and bedding
- Ventilation and insulation
- Manure handling and utilization

Livestock feed transport, storage and utilization:
- Hay
- Silage and haylage
- Small grains and supplements
- Drying, processing, and mixing
- Pasture establishment, renovation, and maintenance

Rectal palpation and artificial insemination
Technique and theory of sheepshearing
Special health programs:
- Pennsylvania and Federal certification programs
- Shipping and transporting livestock

Other Requirements in AH Tech. I and II
- Scientific review (style and form) paper
- Parturition observation and procedures
- Laboratory participation grading system
- Lecture exams
- Lab equipment identification and use practical

Teaching and Community Interaction

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Introduction

I have always held a strong feeling that college instruction should not be restrained by the confines of four classroom walls, or even the college campus for that matter. Classrooms should have no walls or obstacles to education. Rather, instruction should spill out onto the campus, into the surrounding community and industries, and in turn the world outside the classroom should be drawn within. This is not a new concept but a classic one that I feel needs to be used more often today. Too often we see classrooms that are isolated learning factories, nonstimulating environments deprived of the richness that outside industry and community offer. Also, the community loses out on the excitement of the education process when it is ignored as a teaching resource.

I would like to share with you examples of how I have used the classroom-without-walls approach to college teaching over the years. My area of specialization is Floriculture, so my examples reflect this. While these ideas are by no meat s revolutionary, they have worked for me and may be of some value to you in your teaching.

Mock Weddings

It is one thing to talk about, demonstrate, or even practice wedding floral design in a classroom or laboratory, but it's quite another thing actually to service a wedding. Since 1977, I've used realistic mock weddings for teaching purposes. These have varied from simple projects to major undertakings. The most ambitious of these 'weddings' involved courses in three departments, the entire student body, local business and industry, area clergy, and the press. Students in a Family Planning class worked with advanced floral design students to plan the non-wedding, and represen-

tatives from the bridal party met with the floristry students as they would a commercial florist for a wedding consultation. Students in the Family Planning course investigated financial, legal, and organizational stages of a formal wedding. Formal gowns and white on white tuxedos, formal engraved invitations, a catered reception, candelabras, flowers, and supplies were donated by local florists and businesses. An actual minister performed the ceremony (no one was actually married), students from the music department supplied the music, the ceremony was video taped and guests representing hundreds from the campus and surrounding community packed the college chapel for this exciting learning experience. If asked whether they had had floral wedding experience, floriculture student participants in these mock weddings can truthfully answer yes! Everyone involved gets caught up in the excitement — the learning.

Florist-For-a-Week

The differential between lectures on florist shop work and the actual florist shop experience is considerable. Floriculture students do not always need or want the opportunity to work in a retail florist shop for any long period of time, but most should have a short quality exposure to real florist work. For the last seven years I have been offering students a florist-for-a-week mini intern program. Students are placed in area florist shops and must work from 15 to 40 hours in the shop. Florists cooperate by providing a wide array of experience in exchange for free labor. Many students get full or part time employment through their mini experiences.

Window Display and Merchandising

Since as much as 35 percent of a retail store's sales may be influenced by attractive eye-catching window display, it is important that future florists develop skills and confidence in this and other merchandising techniques. For years we have been using area businesses as a resource in teaching merchandising skills. After all they have stores, display windows, props, a display budget, and many times display experts. From 1977-1980 my students and I worked with Belk department stores in Virginia, decorating one of their department stores each year. Recently I've been working with local florists, having student teams design and execute all the town's florist windows for one display period. The students get real experience with florist window display and work with professionals in their chosen fields. Florist participators get fresh imagination and eager labor and a chance to help young future florists.

Starting a Florist Business

A recent project in my Florist Business Management course is a good example of community-teaching interaction. Many students have in the back of their mind the prospect of opening their own business. So that's exactly what the class decided to do in a 'real world' semester-long project. Student teams worked with the local Chambers of Commerce and other business groups to compile a market analysis and choose a town that would successfully support a new florist shop. Another student team worked with area realtors to find a store location, while another designed the layout and the marketing strategies for the shop. Other students worked with local banks, the Small Business Administration, and an accountant to set up a business plan and financing for the new business. The class also heard from a local lawyer and numerous florists as they worked on this real-life educational project.

Conclusion

There are too many examples to present in such a short presentation. Others on which I will not elaborate include involving students in trade organizations by attending trade programs, by staging trade programs, and by participating in trade publications; involving the campus community in courses by employing secretaries, faculty, students, and others in various educational role playing parts; involving students in community works and charities; involving students in adult education to sharpen their own knowledge by teaching others.

In closing, let me use an analogy to sum up the effect of involving the community in the educational process. It's very much like plant breeding. By crossing numerous species, the result is often a superior, more vigorous progeny. The same phenomenon holds true in college teaching; by utilizing community teaching resources and by making the classroom and students a community resource, the end is a more vigorous, more interesting educational experience — one which is better able to survive the challenges of the real world.

"Hands-on Experience: The Applied Approach To Teaching Dairy Husbandry Management Techniques."

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DAIRY TECHNIQUES I
DAIRY HUSBANDRY 3226

Dairy Husbandry Techniques I was designed to provide training for students in four areas:

1. Student awareness of dairy management problems and recent technology in the dairy industry.
2. Advancement and improvement in the feeding and feeding management of dairy cattle.
3. Improvement of dairy management and dairy management techniques.
4. An understanding of the importance of various breeding and dairy improvement programs.

The objectives of Dairy Techniques I are:

1. To give students a broader view of the recent advancements and improvements that have been developed in the dairy industry.