

Concluding Remarks

Although the writer does not wish to leave the impression that the function-tasks-competencies approach is a panacea to curriculum development, he does believe it resolves some of the issues raised by the competency approach. The major strength of this approach is that it provides for both the intellectual and functional operations. The FTC approach provides for the intellectual dimensions of developing and examining a philosophy and establishing conceptual relationships between the parts "of the whole." While at the same time, it provides for functional elements (competencies) for operationalizing a curriculum. In this way, it should serve as a compromise between the advocates and critics of competency-based education.

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THE STUDY TOUR AS A TECHNIQUE FOR TEACHING AGRICULTURE

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THE EXPERIENCE OF OTHER OSU DISCIPLINES WITH STUDY TOURS

The Ohio State University has had a long and distinguished program in the study tour area. This program was initiated in 1963 by Dr. Leon Twarog of the Slavic Languages and Literatures Department when he and 22 students spent 6 weeks in Russia studying the language. Dr. Twarog became OSU's first Director of International Programs and has been followed in this position by Dr. Osborn Smallwood. Both of these men have been ably assisted by Dr. Richard Cameron of the OSU faculty. Since this first experience, tours have been conducted annually and approximately 1200 students have taken advantage of this opportunity.

In 1974, the Departments, Divisions or Colleges of: Administrative Science, Botany-Zoology, Classics, German, Humanities Education, Physical Education, Slavic Languages and Literatures, Social Work - Law, and Sociology, conducted tours for 129 students to: East Africa, East Asia and The People's Republic of China, Germany, Great Britain, Greece and Crete, Northern Europe, Northern Europe and the U.S.S.R., the U.S.S.R., the U.S.S.R. and Eastern Europe, at an average student cost of \$1589 per tour.

Having an "International Programs" office and organization of this magnitude on campus certainly is quite an asset to an Agricultural College which is contemplating participation in a study tour program.

STUDENT INTEREST

A recent survey of a Freshman Animal Science Course at OSU was conducted to ascertain student interest in an International Study Tour Program after a previous tour was discussed. The tabulation would indicate that 92% were interested and 65% would sign up to participate if they had to make an immediate decision. The latter percentage is probably overly optimistic but nevertheless indicates the tremendous student interest if the program is described to them in detail.

DESCRIPTION OF AN OSU AGRICULTURAL STUDY TOUR

This report is a description and evaluation of a 1970 Animal Science Student Study Tour of Europe. The objectives of the course were:

1. To acquaint the students with different philosophies of Animal Science.
2. To visit selected Animal Science educational and research facilities in Europe.
3. To meet and visit with European Animal Science personalities so that future reading of their publications would be more meaningful.
4. To view commercial operations of animal industry from the farm to the table.
5. To expose the students to different cultures by meeting the people, listening to their history, observing their government in action, and viewing their way of life.

The foundation on which the course was constructed involved the philosophy of the recruitment of mature, well-adjusted students and the development of a program demanding intensive preparation in the classroom and hard work while on the tour.

The course was one quarter in length and consisted of 5 weeks of preparatory work on campus, 5 weeks of organized formal tour in Europe and 10 days free time in Europe. The students received 15 quarter hours of credit and the course was equivalent to a normal full time academic load for one quarter.

Selection of Students

Students were selected only if highly recommended by their advisor and one other faculty member, and after two personal interviews by the tour leader. Qualities that were stressed were: academic performance, Animal Science background courses and, above all, the ability to function under stress. The students selected were: 1 Sophomore, 3 Juniors, 5 Seniors, 1 B.S. graduate and 1 graduate student and all were in the Department of Animal Science.

Cost

Cost was on a shared basis and totaled \$1076 (1970 dollars). This included the following:

1. A commercial charter flight from Columbus to Europe and return – this plane was filled by the Animal Science tour and other OSU study tour groups.
2. Rail transportation – 2nd class rail – to view the agricultural countryside, to meet the people and to reduce costs.
3. Lodging – 2nd class hotels – to meet more people and to reduce costs.
4. Meals – 2 per day in 2nd class hotels – to reduce expenses and sample native food.
5. Transportation and guide from rail station to hotel and return.
6. Bus transportation to official visit sites.
7. City tour in most major cities.

Pre-Tour Preparations

The pre-tour preparation was both intensive and extensive, consisting of 3 hours of class discussion and a minimum of 6 hours of library work per day for the 5 weeks prior to the tour. The group wrote and listened to 275 topic papers (one per student per day) dealing with areas to be visited. Twenty-five guest speakers were invited to discuss their international agricultural expertise with the class and local tours were conducted for comparison purposes. The students had read the history, latest annual reports and research papers of places and people to be visited. The government, geography, history, agriculture, livestock, food and educational systems of the countries to be visited were studied. Each student was responsible for a speaking vocabulary of a few phrases and the ability to read approximately 100 designated words in an assigned language.

Tour

The 5 week tour route was as follows: Columbus, London, Amsterdam, Hamburg, Max Planck Institute, Lubeck, Copenhagen, Roskilde, Malmo, Frankfurt, Kulmbach, Munich, Zurich, Milan, Venice, Bologna, Florence, Rome, Nice, Paris, Brussels, Gent and Zeist. Space does not permit a detailed description of what the tour members saw and learned so a few very general impressions and photographs (selected from 2500) of the agricultural portion will be shared. Many livestock differences were noted such as: Exotic breeds, even familiar breeds are different in confirmation and utilization, much greater emphasis on dual purpose cattle, leanness in cattle stressed, and bulls used as a slaughter animal (Fig. 1). In the slaughter and food processing areas many differences in ownership, control and organization of facilities were observed. Trichina control was noted along with some very advanced processing equipment – for example, the on-the-rail dehairing machine in the Paris slaughter plant (Fig. 2). Uniformity of pork carcasses in Denmark was particularly impressive. Retail food merchandising was found to be quite advanced and differences noted were: sterile bottled milk, very lean meat (but fatness variety was available), a great deal of attention and pride in merchandising (Fig. 3), and a tremendous selection of sausage and frozen food items. Food research organizations were large, well-equipped and staffed with some very excellent research scientists. A great deal of work is being conducted on genetics, processing, chemistry, bio-chemistry, micro-



Fig. 1 – Charolais slaughter bulls at Paris Stock Yards illustrating conformation and emphasis on lean meat. Many dual purpose animals were in evidence and all animals were very gentle.



Fig. 2 – On-the-rail hog dehairing machine in Paris slaughter plant. Scrapers travel vertically as hog carcasses pass through equipment.



Fig. 3 – Meat display in show window in Zurich. Food displays are normally elaborate and show a great deal of pride in workmanship.

biology and pale, soft, exudative pork (Figs. 4, 5). Educational systems were viewed that ranged from very excellent food trade schools to world renowned post-graduate facilities.

In addition to the formal agricultural portion of the tour many famous people and historical places were visited which created a lasting impression on tour members. To average how the time was spent on the tour, the following totals have been calculated:



Fig. 4 – Pietrain pigs at Schoonoord in The Netherlands. This breed of pigs is very muscular and stress susceptible. They are ideal research animals for problems connected with the heart and pale, soft, exudative pork.

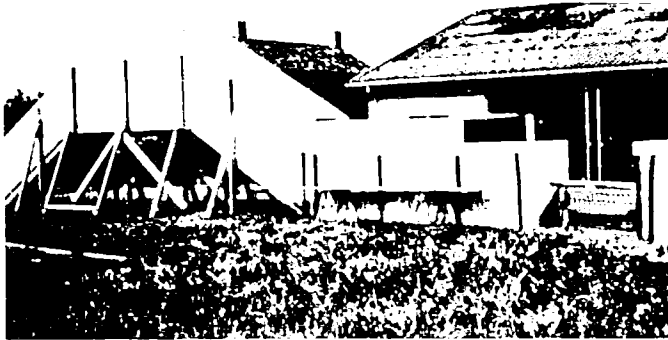


Fig. 5 – Pig Circus at Schoonoord in The Netherlands. Research device used to simulate stress conditions encountered in handling and transporting pigs. Vital physiological data are collected by wireless transmission.

Area covered	Time spent
Livestock production	13.5 hours
Livestock nutrition	5.3 hours
Livestock genetics	6.3 hours
Meat industry	20.0 hours
General food area	32.0 hours
General agriculture	85.0 hours
Basic livestock research	10.5 hours
Animal Science economics	3.0 hours
European education	5.0 hours

This averages 7.2 hours per day visiting agriculturally related areas and a great deal of additional time was used in absorbing the history, points of interest and culture of the regions visited.

After the official portion of the tour the students had an additional 10 days to travel "on their own."

Post-tour wrap up

Several meetings were held after returning to Columbus to crystallize what we had seen and to duplicate and share slides and films. Several seminars were held and are continuing to be conducted with interested faculty and students to share these educational experiences.

PROFESSOR AND STUDENT EVALUATION AFTER 4 YEARS

Student Evaluation

A survey was sent (4 years after the tour was completed) to the student participants and a 100% response was received. The results are summarized in Table 1. From Table 1, it is obvious that the students rated this experience extremely high on their list of educational accomplishments. A few comments from the written portion of the questionnaire will be selected to emphasize their feelings and they are as follows:

Table 1. Survey of Student Participants 4 Years After Tour.

Question	Hedonic scale used			Mean Value	Standard deviation
	1	5	10		
Would you recommend tour	NO	Unsure	Yes	9.4	0.9
Importance of experience	Least	Average	Most	9.0	0.7
Has tour value changed	Decreased	Unchanged	Increased	8.3	1.4
Was knowledge received worth expenditure	Less than time & money expended	Equal to time & money expended	Greater than time & money expended	9.3	0.7
Pre-tour preparation	Unimportant	Average importance	Very important	9.2	1.0
Pre-tour time	Too short	Just right	Too long	4.4	1.1
Tour time	Too short	Just right	Too long	3.6	1.3

"No amount of class work could equal the study tour experience." (Student survey averages were 47.4 ± 19.2 quarter hours).

"Students should be counseled when they return because the experience was such an emotional "high" that it is hard to get up again for regular college classes. The course was such a challenge physically and mentally that coming back to normal classes was similar to going back to high school from a college status."

"The world is as large or small, foreign or homelike, unknown or understood as each student makes it."

"Makes one appreciate the American style and freedoms. How lucky we are! Our government was challenged and I was ready to defend it and preferred it."

"Broadened my horizons and showed me the forest as well as the trees."

"Taught me respect for different attitudes, views, traditions and showed me the way of life for other people."

"Saw many livestock and food principles that would be very useful to United States."

"Tremendous increase in participant's maturity."

"Very few things have affected me personally or given me more satisfaction than this experience – even an M.S. degree."

"Agriculture College should do more to promote this type of tour at least every two years."

"I would be a remiss father if I sent my son to a school that did not offer the full spectrum of educational and cultural opportunities that I know now exist and can be taken advantage of."

"Best thing ever done by College of Agriculture!"

Professor Evaluation (tempered by student survey)

Selection of the "right" students is extremely important for a successful tour (I was very fortunate). The students emphasized that the college's selection of the tour leader is of equal importance and I agree; however, on this tour no selection was attempted.

The pre-tour preparation is one of the most important phases of this project. The students thought that 5 weeks of intensive study was slightly too short but I believe if the time period had been lengthened the intensity would have had to be reduced.

Almost identical comments could be applied to the time spent on tour. The number of countries visited and the miles traveled were about at the maximum level but for a student's first trip I think this is desirable.

Free time is a valuable portion of the tour. The student is preparing himself emotionally for this experience during the 5 weeks of official guidance. A great deal of confidence is gained during this experience when the student is on his own.

Post-tour wrap-up was the one area in which our tour was unsuccessful. We did not or could not informally convince the members of our faculty who are "anti-tour" of the tremendous educational importance of this experience, however, I admit no formal approach was attempted to accomplish this objective. I, and I am sure the students agree, that a B.S. degree without this type of experience is only half a degree.

SUMMARY OF RECOMMENDATIONS FOR SUCCESSFULLY COORDINATING A CONTINUING AGRICULTURAL STUDY TOUR

A number of steps are necessary to accomplish this goal (coordinating a continuing agricultural study tour) and slighting any one of them will weaken and, in some cases, destroy the program.

1. At the University level there must exist a strong international program. Staff members are needed who can handle the many time-consuming jobs that have to be done with precision. Directors are needed who know how to assist a tour leader when trouble arises at some distant location.
 2. A college international tour coordinating program is needed with sufficient power to accomplish a number of very difficult tasks.
 - A. To encourage, assist and enforce if necessary the high quality of all college tours.
 - B. To enlighten administrators and faculty on the tremendous advantage of a tour as an educational vehicle. Extremely important for the continued success of the tour program.
 - C. To recruit competent tour leaders.
 - D. To encourage tours on a regularly scheduled basis for continuity and planning purposes.
 - E. To establish and encourage scholarship so that needy students may also participate.
 3. Specifics on conducting a tour – a lot of which are based only on personal opinion:
 - A. Specific or general tour – it is much easier to recruit students for a specific tour and they will be better satisfied with the results and the end of the tour; however, I am not sure which fulfills the greatest individual student needs.
 - B. Route for successful recruiting of students:
 - (1) Convince faculty advisors of the tremendous educational benefits. This can best be accomplished by a strong hard-working program. Do not waste time on “non-believers” since student feedback and time are the only possibilities of their being converted.
 - (2) Personally explain the tour in detail to recommended students on a one-to-one basis.
 - (3) Let student in turn explain program to parents.
 - (4) Make sure advisor, student and parents are all convinced of the program’s opportunities before proceeding.
 - C. Student faculty ratio – one faculty for 10-15 students. Of course a lower ratio would be better but costs make it prohibitive. For a specific type tour, larger groups should be subdivided into separate tours.
 - D. Student age. Maturity is the important quality but generally a Junior college level is desirable.
 - E. Two universities cooperating or drawing students from other schools to participate in a tour – this will work provided the following are accomplished:
 - (1) Educational standards as outlined are maintained.
 - (2) One university should be in charge because bi-leadership on a tour might be disastrous.
 - (3) The university supplying the students will need to be personally responsible for screening their participating students.
 - (4) Some system has to be worked out for waiving out-of-state fees since it is to the advantage of both universities to have a cooperative system. This could be handled on an individual school basis, or a regional basis by some organization such as the Committee on Institutional Cooperation (Big Ten + U. of Chicago) or a special coordinating body may be needed.
- (5) It will work much better if coordination is between schools on the same academic system (semester vs quarter) and with approximately the same time schedule.
- F. Should on-campus and tour portion be separate courses? From an administrative standpoint this would probably be an advantage provided the pre-tour preparation is an absolute pre-requisite for the tour portion.
 - G. Time spent – specific tour type – time spent on this tour was appropriate. I would under no circumstances reduce the pre-tour time. If the tour members were younger, I would reduce the time on the tour by one week.
 - H. Cost – average second class works well with some modification for individual country variations. Pre-payment of two meals per day is desirable to relieve tour leader of some of the problems of student budgeting and starvation.
 - I. Should culture be included in an Agricultural tour? The answer to this appears obvious since the culture has a major influence on the agriculture; however, a few students and many agriculturists are not convinced of the value of a culture exposure. It is probably fair to say that academic faculty in Colleges of Agriculture would rate the culture experiences to be derived from a tour of this type second to the academic discipline benefits when they consider time limitations. The students can be shown the relationship between culture and agriculture in the pre-tour preparations but some faculty members do not have this advantage. For these reasons, I would certainly include cultural opportunities on a free choice basis after the agricultural portion has been completed but I would not emphasize this portion of the education in the recruiting or post-tour seminar phase.
 - J. Assistant tour leader – an assistance tour leader should be designated (I chose a graduate student) in case the tour leader becomes ill.
 - K. Tour itinerary – areas of the world to be visited should not be too great a cultural shock for students involved. For the current, average, College of Agriculture student, I believe Western Europe is suitable. Some areas of the world are not different enough and many are much too different for a maximum learning experience for the student.
- The agricultural tour will definitely change student as well as faculty outlook and I personally, believe for the better.
- Go ahead and try it – if you don’t have enough students to fill a tour contact other colleges for available slots for your advisees – all good Colleges of Agriculture will one day be participating in this excellent educational vehicle.

NACTA J. Manuscript No. 11/2/74/34

AN ANALYSIS OF STUDENT ATTITUDES AND PERFORMANCES IN THE USE OF COMPUTER ASSISTED INSTRUCTION FOR TEACHING PRODUCTION ECONOMICS

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[The use of Computer Assisted Instruction (CAI) for supplementing the traditional classroom and textbook presentations of production economic principles and the related cost concepts was evaluated. The study indicates that the use of CAI is an effective supplemental instrument that enhances the learning process of students.]

The beginning course in Agricultural Economics at The Ohio State University introduces the student to basic economic principles. It is a required course for most of the students in the College of Agriculture and in the School of Natural Resources, being taken during the student’s freshman or sophomore year. The course is taught in sections of approximately 75 students, meeting five days per week with the same instructor. The approximate annual enrollment is 1000 students.

An important segment of the course deals with production principles and the related cost concepts. These concepts are difficult for many of our students to master. Many students, therefore, need a supplement to the text and classroom discussions to adequately grasp the material in the allotted time.

After consideration of a number of alternative methods, Computer Assisted Instruction was selected as the method for providing supplemental teaching of production principles. CAI met a number of important criteria:

1. It could provide realistic problem situations that reinforced the learning process;
2. It provided the opportunity for the student to schedule his own learning experience;
3. It permitted the student to proceed through the material at his own pace;
4. It provided comparable treatment of subject matter topics in a multisection course;
5. The programs could be authored by the instructors themselves;
6. The programs and language were very flexible allowing personalized interaction;
7. It provided extensive record keeping and evaluative capabilities; and
8. It provided a review tool for students enrolled in advanced courses in agricultural economics.

The CAI Program

The instructional material includes four major segments on the basic production principles and the related short run cost concepts. While these segments are logically sequential, each one is self-contained and may be taken independently of the others.

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