teaching. The laboratory instruction and many times the classroom lectures were left in the hands of graduate students. This practice raised many doubts among students and school administrators concerned with excellence of instruction. After fifty or more years of frustration and misunderstanding of the student transfer problems, officials in high schools, state and private colleges, and universities began to look for answers.

A Growing Need for Support

Members of the agriculture departments of various state colleges began discussing the student transfer and credit situation, but little was accomplished since there was no organization among agricultural faculties of the various state colleges. The administrators of these colleges gave little or no support to the agriculture departments, which were, in their minds, small insignificant parts of their institutions. The administrators' chief concerns were in education, sciences, history, and athletics.

The land grant colleges were neither sympathetic nor cooperative with the agriculture departments of state colleges. These departments were considered inferior and inadequate in both physical facilities, and instruction, even though 90 percent or more of the instructors in the agriculture departments of state colleges were graduates, with Masters and Ph.D. degrees from the colleges of agriculture of the land grand institutions.

From 1935 to 1955 meager attempts were made to alleviate the situation by discussions between individuals. However, they were unsuccessful and as Walter Cronkite would say, "That's the way it is" (was) March, 1955.

Notes

1 For further information concerning the controversy among state, private and land grant institutions, see the "President's Address," by Dean M. Hayne Folk, Jr., Third Annual Conference Proceedings, Nacogdoches, Texas, 1957.

2 The author is personally familiar with this controversy in Missouri because of direct personal involvement since 1929. It is quite probably that in virtually all states, the teaching and transfer problem followed the same pattern.

Ticket of Admission A Laboratory Case Study

Charles W. Basham

Abstract

Design of instructional strategy to motivate students to study in advance for laboratories in basic horticulture is explained. Effectiveness was measured. Examples given.

For several years, laboratory exercises for the course in Basic Horticulture at Colorado State University (freshman level, no prerequisites) have been based on handouts given to the students at the beginning of the lab period or a few days in advance. In either case, the instructor felt the necessity for covering the material from the hand-out in lecture fashion before the students could begin the laboratory activities. Either the hand-out material had not been available to students or they had not studied it before the lab period. Because of the seasonal nature of many horticultural laboratory activities, the lecture and laboratory materials cannot always be coordinated. This almost always requires the lab instructor to develop some theoretical background for the students in conjunction with their lab activities. This background material has been incorporated in the hand-outs and a "Ticket of Admission" (T/A) appended to each hand-out[1] which is distributed to students several days prior to the lab period.

The purpose of the T/A is to encourage students to familiarize themselves with information and concepts relating to the lab activities before attending. The T/A is collected by the instructor at the beginning of the lab period, and it is graded and used as an attendance check. The T/A consists of a few questions, typically 2 to 10, which can be answered after reading the hand-out, by making instructed observations, or by referring to the textbook. Most questions require a sentence or short paragraph answer and can be graded objectively. Some questions ask for speculation or are otherwise quite subjective and are graded simply on whether the work is done or not. In some cases, the T/A requires that the student complete some part of the laboratory assignment prior to the class meeting, e.g. list some design objectives and specifications for developing a vegetable garden plan.

Since T/A questions, whether subjective or objective, are based on the laboratory materials and intended to ensure study of those materials, the resulting grades should be, and are, high. T/A grades accounted for 35 percent of the total laboratory grade with 45 percent based on quiz scores and 20 percent on a notebook recording the lab work done. The total lab grade accounted for 20 percent of the course grade.

To document student perception of T/A effectiveness, a questionnaire was appended to the hand-out for week 12, spring semester 1976. The questions and percentage of students making each response are given in Table 1. There were 198 students in the course, of which 167 or 84 percent responded. Students were asked not to sign the questionnaires which were collected in each of the 8 lab sections. Responses were tabulated by lab section, but no differences between sections were apparent on examination of the data which were then combined

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[1] A laboratory manual has been published incorporating the T/A: Basham, C.W., *Laboratory Activities in Horticulture*. Kendall Hunt Publ. Co. Des Moines, Iowa. 1976.

Table 1. Questionnaire statements and percentage of responses for 167 respondents.

Statement	Response (%) Strongly agree	Agree	Disagree	Strongly disagree	No answer
1. The Ticket of Admission on lab handouts causes me to read the handout carefully before attending lab.	34.1	50.9	13.8	1.2	—
2. I have found the lab exercises more meaningful because of the preparation done in completing the Ticket of Admission.	19.1	55.1	19.8	5.4	0.6
3. I would do the same amount of reading and preparation before attending the lab without the required Ticket of Admission.	8.4	13.1	67.1	10.2	1.2
4. I consider the questions asked on the Tickets of Admission too simple.	3.6	9.6	74.8	8.4	3.6
5. I think the Tickets of Admission should not be used in grading.	12.5	17.4	55.7	9.6	4.8
6. I have found the lab exercise handout to contain useful information.	53.9	44.9	0.6	—	0.6
7. I feel the lab instructions on the handouts are clear.	20.9	57.5	15.0	3.6	3.0
8. The lab work has been a worthwhile part of the course.	46.7	43.7	6.0	3.0	0.6

for presentation here. The class was composed of 49 percent students from majors in the College of Agricultural Sciences (including 12.6 percent horticulture majors) and 51 percent students from majors in other colleges; 35.3 percent were freshmen, 26.3 percent sophomores, 19.2 percent juniors, and 19.2 percent seniors.

T/A Effectiveness

Response to statement 1 indicates that the T/A was perceived as effective (85 percent agree or strongly agree) in causing students to read the material before attending lab. The response to statement 2 was less positive, but 74.3 percent agreed or strongly agreed that labs were more meaningful because of preparation required by the T/A. Statement 3 is essentially a re-statement of 1 with responses reversed, 77.3 percent disagreed or strongly disagreed that they would do the same reading and preparation without the T/A. The difference in response to statements 1 and 3 probably results in large part from phrasing of the statements and context of responses, and both indicate effectiveness of the T/A's in accomplishing their objective. The responses to statement 4 indicate satisfaction with the level of difficulty of T/A questions asked (83.2 percent disagree or strongly disagree that questions are too simple). It may appear naive to expect students to indicate that questions are too simple, but they are not notably reluctant to criticize assignments perceived as "busy work" or not challenging. The response to statement 5 is least decisive (65.3 percent disagree or strongly disagree) but seems to reflect a general feeling that when work is required, it should be evaluated and reflected in grading. Statements 6, 7, and 8 are not directly related to evaluation of the T/A's but do give some information on student perception of hand-out information and general worth of the laboratory segment of the course. Lab instructors (6, excluding the author) were asked to respond to the same questions; the modal response of instructors paralleled those of students.

The use of a T/A is perceived by students to accomplish its objective, i.e., it encourages students to read and prepare for laboratory work before attending the class session. The use of the T/A appears to enhance learning in the laboratory, and the T/A can be used as a legitimate grading instrument.

Appendix

Sample questions from Tickets of Admission

Title of Unit:	Questions:
Asexual propagation-Rooting of cuttings	1. Discuss transpiration in relation to rooting hardwood and herbaceous cuttings. 2. What is callus? 3. Why is soil a poor rooting medium? What about water?
Greenhouses	1. If you were adding a lean-to greenhouse to your home, which exposure would you choose, and why? 2. Why would CO_2 be injected into a greenhouse? 3. Make an estimate of usefulness of fan and pad cooling systems in your area, considering summer temperature and relative humidity. 4. List factors limiting or encouraging greenhouse crop production in your region.
Plants in the Landscape	1. List four ways in which plants can be used to modify the environment. 2. Identify two areas on your campus where ground covers other than turfgrass are used. 3. Identify a case on your campus where plants are used as traffic barriers.

Successful MACTA Meeting

Dr. Gary Mc Vey
President, Minnesota Association of Colleges and Teachers of Agriculture
University of Minnesota Technical College, Crookston
Crookston, Minnesota 56716

Dear Gary:

Congratulations to you, the officers, and other members of MACTA for conducting a successful annual conference and a state wide instructional improvement meeting on Monday, December 13, 1976. It was great to note that you had approximately 100 people participating and that all of the educational systems were represented. I believe the instructional improvement conferences are off to a good start in Minnesota.

As President of NACTA, I want to express my appreciation to you and the others for all of the effort in getting the state affiliate off and moving. It is my hope that this concept can catch on and other state affiliates will be developed. The primary value of the state affiliates is to be able to involve more classroom instructors in the teaching improvement workshops.

Best wishes for many years of success.

Sincerely,
Edward C. Frederick
President