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ABSTRACT

Thirty-six second semester freshmen students on academic probation were matched according to sex, high school class rank, S.A.T. scores, and IQ. They were divided into two groups: control and experimental. Both groups were administered the Survey of Study Habits and Attitudes, after which the experimental group participated in four one-hour study skills sessions. The members of the control group did not participate in any program. After the last study skills session both groups were again administered the Survey of Study Habits and Attitudes. When the differences in scores of the pre-tests and post-tests of both groups were compared, there was a significant improvement in the scores of the experimental group. (Author)

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received special tutoring, and were housed together, achieved above the predicted grade point average. No significant difference appeared in the grade point average of the remaining two groups which were housed with other freshmen, or on campus randomly.

In a study conducted by Caple, (1969) two groups of second semester freshmen who received less than a 2.0 average in a 4.0 system were matched on the composite score of the American College Test, age, and academic load. One group attended a study session which lasted for two hours in duration each evening. The program ran four evenings a week for a period of eight weeks. At the end of the semester, there was no significant difference in grade point average between the two groups.

This study was repeated in the fall of the next academic year including a third group which underwent not only the study sessions, but also received tutorial help. In this study no significant difference appeared in the grade point average of any of the groups. Caple then concluded that organized study sessions have no significant effect upon the academic achievement of students.

Froman Ed.D., (1971) conducted a study to evaluate the effects of peer tutoring and individual and group counseling, with and without reinforcement, on the academic achievement of high risk students. He reported that those students who received tutoring and reinforced individual counseling earned higher weekly quiz grades than those students who did not receive this treatment. The students' final grades were, however, not significantly affected by these sessions.

Some institutions have offered study skills seminars or classes without first conducting action research or pilot studies. This approach

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1. Title

The research practicum is entitled "The Effects of A Study Skills Workshop on Second Semester Freshmen on Academic Probation".

2. Statement of the Problem

The problem in this practicum poses the question "Is it possible to improve the study skills of second semester Freshmen on Academic Probation through their attendance at four one-hour study skills seminars?".

3. Hypothesis

The hypothesis states that there will be no significant difference in the pre-test, post-test results of second semester Freshmen Students on Academic Probation relative to improvement in their study skills, when compared to a matched control group.

4. Background and Significance of the Study

Colleges and universities across the nation are faced with several problems in today's society. One of the most pressing problems is that of decreasing enrollment. This problem has arisen for several reasons. In today's society there is a smaller college-age population to draw from. More individuals are questioning the importance of a college education when they see the large number of college graduates unemployed, or employed in some capacity other than that for which they have been trained. Many college graduates are earning less money than non-college graduates. Berendzen, (1968) relates a study completed by the Office of Higher Education for New York State. He outlines three identifying factors contributing to this decline in enrollment; (a) the attitude change in high school graduates concerning the need for a college education, (b) a great amount of publicity concerning the limited job opportunities of college graduates, (c) changes in the

military draft law. The problem of enrollment is faced even more dramatically by private institutions, where public support is virtually non-existent, and costs are constantly rising.

Data collected during a survey by William Jellema, (1971) further supports the fact that enrollment has been decreasing in private institutions. Jellema states that decreasing enrollment affects not only institutional size but financial stability as well. In order to survive, they must incorporate in their regular college functions better studies and attractive academic programs.

Several institutions, both public and private, have begun to research the problem of attrition. The significance of this study deals not so much with the overall subject of attrition. It does, however, suggest that a contributing factor in attrition is the number of students who leave college because they are not able to achieve the academic standards of their institutions. Many also leave because they fail to meet their own goals for achievement. Cope, (1968) relating a study conducted by Walker, attributed one-third of college withdrawals for academic reasons, and one-third to motivational forces. The remaining one-third was attributed to financial difficulties.

Elizabeth Shafer Ph.D., (1969) conducted a study at Madison College to determine if a residence-hall student tutorial-counseling program, combined with a systematic method of room assignment according to ability, would have an effect on low ability freshmen women. Shafer used three groups of freshmen women. Only members of the group which

received special tutoring, and were housed together, achieved above the predicted grade point average. No significant difference appeared in the grade point average of the remaining two groups which were housed with other freshmen, or on campus randomly.

In a study conducted by Caple, (1969) two groups of second semester freshmen who received less than a 2.0 average in a 4.0 system were matched on the composite score of the American College Test, age, and academic load. One group attended a study session which lasted for two hours in duration each evening. The program ran four evenings a week for a period of eight weeks. At the end of the semester, there was no significant difference in grade point average between the two groups.

This study was repeated in the fall of the next academic year including a third group which underwent not only the study sessions, but also received tutorial help. In this study no significant difference appeared in the grade point average of any of the groups. Caple then concluded that organized study sessions have no significant effect upon the academic achievement of students.

Froman Ed.D., (1971) conducted a study to evaluate the effects of peer tutoring and individual and group counseling, with and without reinforcement, on the academic achievement of high risk students. He reported that those students who received tutoring and reinforced individual counseling earned higher weekly quiz grades than those students who did not receive this treatment. The students' final grades were, however, not significantly affected by these sessions.

Some institutions have offered study skills seminars or classes without first conducting action research or pilot studies. This approach

was used at the University of Mississippi. Wilson, (1968) explains this study. Two groups of Liberal Arts students were matched, according to the Composite Standard score on the American College Test, matriculation date, age and sex. One group attended the study skills class, one group did not. Wilson reported that there was no significant difference in academic achievement between either groups. Women, however, did achieve an increase in mean grade point average.

Sykes, (1971) reported his study as one whereby five groups of students were treated in various manners to determine possible causes of attrition. He utilized tutoring, reading instruction, and financial assistance to measure their effects on attrition and grade point averages. This study did not indicate that the grade point average for students in any of the groups changed significantly. It was noted that the reading skills of some of the students did improve, but there was not enough evidence to indicate significant differences.

In conclusion, it seems essential to recognize that institutions feel the importance of such investigation as aforementioned. If grade point average does affect attrition, and decreasing enrollments seem to be a trend, for private institutions in particular, it seems significant that York College should also undertake a similar study. It is, however, this authors opinion that administrators must not only consider the dollars and cents aspect of attrition. There also exists a moral responsibility of the institution to admit only those students who can achieve academic success. If students are not achieving academic success, institutions must investigate the problem.

Table I deals with the calculations performed on the differences in the pre-test, post-test scores of the control group. It records the number, sum, sum squared, standard deviation, mean, and variance respectively.

Table II deals with the calculations performed on the differences in the pre-test, post-test scores of the experimental group. It also records the number, sum, sum squared, standard deviation, mean and variance respectively.

Table III records the critical, and calculated -t- values respectively. The null hypothesis can be rejected. The differences in the scores of the pre-test, post-test results of those students undergoing a study skills program, when compared to the differences in the scores of those students who did not, were significantly different.

11. Conclusions and Significance

a. The data clearly indicates that there is a significant difference in the pre-test, post-test results of second semester freshman students on academic probation relative to improvement in their study skills after participating in four one-hour study skills seminars.

b. Implications for Yor College.

1) The results of this study will lead the college to conduct further research in this area.

2) Other study skills seminar programs may be established in order to serve a dual purpose - to lower the attrition rate

utilizing lecture/discussion and techniques of practical application focusing on a structured system of study; Survey, Question, Read, Recite and Review, (S.Q. 3R).

j. Survey of Study Habits and Attitudes - Survey developed by Brown and Holtzman. Copyright 1967 by The Psychological Corporation, New York, New York, for the purpose of measuring study habits and attitudes.

k. S.Q.3R. - System of study; survey, question, read, recite and review.

l. S.A.T. - Scholastic Aptitude Test.

6. Limitations of the Study

The following are understood to be recognized limitations of the study.

a. The sample was drawn from a restricted population - only those second semester freshmen on academic probation.

b. The study focused on a relatively small sample - 36 students.

c. The effectiveness of the scale used as a measure in the study should most certainly be recognized as a possible limitation.

i. The intervening variables and basic assumptions will also influence the validity and accuracy of the study.

7. Basic Assumptions of the Study

a. It is assumed that because the students selected for the study are on academic probation that there is a problem with their study skills.

b. It is assumed that the study skills which was presented (S.Q.3R.) focused upon the problem which these students are encountering.

c. It is assumed that the students involved in this study attended all four sessions of the study skills workshop.

d. It is further assumed that the students were sincerely interested in each of the workshop sessions and that their attitudes reflected their recognition of the importance of the sessions.

e. It is assumed that the presentations which the senior education majors made were consistent with the standards of good teaching.

f. It is also assumed that the physical facilities where the workshop was conducted assisted to provide for maximum learning to occur.

g. It is assumed that the limitations of this study as previously stated did not adversely affect the results.

h. It is further assumed that the students accurately reported their responses on the pre-test, post-test.

i. It is finally assumed that this study was of significant importance to warrant the time and effort expended in carrying it out.

8. Procedure for Collecting the Data

a. The study utilized two groups of second semester resident freshman students on academic probation.

b. The College records office and housing office provided the names of the students who will fit into the above mentioned groups.

c. Contact was made with the York College of Pennsylvania Education Department to secure the names of senior education majors who would be interested in partaking in the study. Four of the recommended students were selected and made the study skills presentations. Each student taught one session each and re-

ceived a stipend of ten dollars each.

d. The two groups of freshman students were matched according to sex, high school class rank, S.A.T. scores, and I.Q.

e. After matching they were labeled a control group and an experimental group respectively.

f. Letters were sent to each freshman selected for the study. These letters explained the study, emphasized its importance to them and the college, and invited them to take part in the program or parts of the program (pre-test, post-test for the matched experimental group) - sample letters included in appendix.

g. Dormitory supervisors and floor advisors were utilized for follow-up to the letters.

h. The pre-test and post-test for each group was the Survey of Study Habits and Attitudes (1967).

i. After the results of the pre-test were obtained, the four one-hour sessions of the workshop began for the experimental group. After the last session both groups were again assembled for the post-test evaluation.

j. Each of the senior education majors who made presentations had been assigned material which was to be covered. They also submitted lesson plans and lesson objectives for approval before each session.

9. Procedure for Treatment of the Data

The Survey of Study Habits and Attitudes was hand scored in the

manner suggested in the 1967 survey manual. The pre-test and post-test results of both groups are compared in the following manner.

a. Number = 36

b. Degrees of freedom = 30

c. Null hypothesis = $H_o : \bar{X} = \bar{X}_2$

d. Alternate hypothesis = $H_a : \bar{X}_1 = \bar{X}_2$

e. Level of significance = .05

f. Critical -t- value = 1.697 (one tailed test)

g. H_o will be rejected and H_a accepted if $t > 1.697$.

10. Data Resulting From The Study

The following is the data resulting from the study.

Table I

Control Group

n_x = 18
Σx = 17
Σx^2 = 21
σ_x = 0.53
$\bar{X}$ = 0.94
σ^2 = 0.28

Table II

Experimental Group

n_y = 18
Σy = 42
Σy^2 = 194
σ_y = 2.37
$\bar{X}$ = 2.30
σ^2 = 5.61

Table III

Critical -t- Value	Calculated -t- Value
1.697	2.418

Table I deals with the calculations performed on the differences in the pre-test, post-test scores of the control group. It records the number, sum, sum squared, standard deviation, mean, and variance respectively.

Table II deals with the calculations performed on the differences in the pre-test, post-test scores of the experimental group. It also records the number, sum, sum squared, standard deviation, mean and variance respectively.

Table III records the critical, and calculated -t- values respectively. The null hypothesis can be rejected. The differences in the scores of the pre-test, post-test results of those students undergoing a study skills program, when compared to the differences in the scores of those students who did not, were significantly different.

11. Conclusions and Significance

a. The data clearly indicates that there is a significant difference in the pre-test, post-test results of second semester freshman students on academic probation relative to improvement in their study skills after participating in four one-hour study skills seminars.

b. Implications for Yor College.

1) The results of this study will lead the college to conduct further research in this area.

2) Other study skills seminar programs may be established in order to serve a dual purpose - to lower the attrition rate

cell, or, in the case of a multiple choice test, by the number of questions which fall into each cell. These weights are represented in Table 4 as the a_{ij}'s

For evaluating their own teaching effectiveness, as opposed to evaluating student achievement, GSI's are encouraged to use multiple choice tests. In contrast with matching, essay, or true-false tests, multiple choice tests have the advantages of structuring responses and being most amenable to diagnosis. To obtain student feedback on teaching via multiple choice test item responses, the instructor using self-made classroom tests can use a variant of discriminant analysis. Standardized or cumulative test score norms can also be used to assess teaching effectiveness

In the case of self-made classroom tests, individual test question discriminant analysis is performed by computing a number which is called the test item discrimination coefficient, d. This computation can be done by subtracting the number of students who received total test scores in the lowest third, L, but got the item right, r_L, from the number of students in the upper third, U, who also got this item right, r_U. This difference is then divided by one-half the number of students in both groups, $\frac{1}{2}(L+U)$, i.e.,

$$d = \frac{r_U - r_L}{\frac{1}{2}(U+L)}.$$

Maximum discriminating power would of course occur where $d = 1.0$. This indicates that the test item perfectly differentiated students in accordance with their overall achievement. A zero indicates no discrimination. Individual test item discrimination coefficients are typically used to decide which questions in a test are good segregators of students (Isaac and Michael 1971, p. 50). However, they can also provide the instructor with a basis on which to assess teaching effectiveness in terms of content coverage and student ability to apply concepts learned.

After computing a discrimination coefficient for each test question, the instructor can gain information on his or her teaching effectiveness by computing the average discrimination power of all questions in a cell—that is, the average discrimination coefficient for all questions in the ith application and jth content category of the Table of Specification. Similarly, the instructor can compute the average discrimination coefficient for all questions in the content columns of the Table of Specification—that is, the average discrimination coefficient for all questions in the jth content category.

Although the discrimination power of any given test question falling into one of the Table of Specification cells may be poor, it

among York College students, and to further develop the skills and attitudes of York College students in a most positive way.

c. Implications for other institutions.

1) Being aware of the limitations of this study, along with the varying results which have been published or reported from other institutions regarding similar studies, it should be understood that significant results may occur. It is the opinion of this author, however, that other variables not mentioned in this, or other studies may have an effect on the results. Some of these variables would be the maturation and motivation factors effecting students.

d. Limitations of the study.

1) The sample was drawn from a restricted population - only those second semester freshman on academic probation.

2) It focused on a relatively small sample - 36 students.

3) The effectiveness of the scale being utilized as the measure in this study.

4) The intervening variables such as individual values and maturation factor along with the basic assumptions may also effect the validity of the study.

12. Further Studies

After discussion with officials in the student affairs division of the college it is apparent that the results of this study are significant enough to warrant further research in this area. The first

follow-up to be considered will compare the first and second semester grade point averages of the students in the experimental group. Though the pre-test, post-test score results were significantly different for this group, application of those skills apparently learned through the program is equally important to know. The grade point averages would be compared again to those averages of the students in the control group.

It would be interesting to study students in their second and third year who have fallen into similar academic situations. They may be maintaining a grade point average just high enough to remain in school, but far from their possible potential. Is it possible that definite study habits and attitudes might be so ingrained in the individual by his second or third year in college that they would be nearly impossible to change?

There are several other studies, too numerous to mention, which would be warranted as either follow up to this study, or similar to this study. It is the hope of the student affairs division to engage in several of these research projects in the next three years.

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YORK COLLEGE OF PENNSYLVANIA

COUNTRY CLUB ROAD, YORK, PENNSYLVANIA 17405

(Experimental Group)

February

Dear

The Student Affairs division of York College is presently undertaking a pilot study to determine the effects of study skills seminars on freshman resident students. You have been selected to participate in this important research study. It will assist you to evaluate your own study skills as well as present some new ideas for your consideration. The results of this study will be not only of importance to you but also to our college.

Four short study skills seminars will be held on Tuesday and Thursday afternoons during the weeks of February 24 and March 3. The pre-evaluation will be held on Thursday, February 20, 1975. The post-evaluation will be held on Tuesday, March 11, 1975. All sessions will be held in the conference room of the Administration Building at 4:00 P.M. If you will not be able to attend, please notify my office at the earliest possible convenience.

Thank you for your time and effort in this endeavor.

Sincerely,

John J. Pierog
Director of Financial Aid
Student Affairs Office

YORK COLLEGE OF PENNSYLVANIA

COUNTRY CLUB ROAD, YORK, PENNSYLVANIA 17403

(Control Group)

February

Dear

You are being asked to participate in two study skills surveys. These surveys will be held at 4:00 P.M. in the conference room of the Administration Building on Thursday, February 20, 1975 and Tuesday, March 11, 1975. They will take only a short time to complete and the results will be of great assistance to your fellow students as well as the Student Affairs Division of the college.

Thank you for your time and effort in this endeavor.

Sincerely,

John J. Pierog
Director of FinancialAid
Student Affairs Office

equipment is simple to operate and easy to set up and take down. After an hour of instruction and a few supervised tapings any responsible university student is capable of taping an instructor in the classroom. To get consistent results from the taping, however, it is not sufficient that the taper know only how to operate the equipment. She or he must also follow a taping procedure checklist. A checklist of things to do while taping typically includes the following:

(1) Set up equipment before the class starts,
(2) Make sure equipment is operating properly,
(3) Videotape everything written on the chalk board or overhead projector *in closeup*;
(4) Try to pick up anything unusual in the classroom,
(5) Get the students on camera when they speak, and
(6) Follow the instructor at all other times.

At Minnesota an undergraduate does all the actual taping while a junior faculty member does the reviewing and critiquing. The issue of whether the reviewer/critiquer should also do the taping is an open one. A reviewer/critiquer who tapes the class will observe the class first hand. On the other hand, the taping quality is sometimes better if the taper is solely concerned with following the outlined procedure.

The basic problem involved in *arranging for classroom taping* is one of coordination. The GSI must be notified in advance in order to be able to explain to the class what will transpire on the day of taping. If the students are not informed in advance, staff experience has shown that the presence of the camera and equipment will disturb them. This is true even though the video equipment is quiet and requires no extra lighting.

Picking a time to tape the class is not always easy. The chosen time must be satisfactory to both the person doing the taping and the instructor. The reviewer/critiquer should have some time available shortly thereafter, it is usually best to review and critique as soon after the taping as possible. It is also necessary to make sure that the class activity is appropriate—e.g., an exam time is not appropriate. Finally, before taping begins the instructor should have filled out the Daily Teaching Checklist shown in Table 6. This form simply requires the GSI to state, in an objective-setting approach, what will be taught and how it will be taught on the day of taping. As will be shown, this form provides valuable information for the reviewer/critiquer as well as for the instructor being taped.

It is worth noting that the reviewer/critiquer can reduce coordination problems by attending the weekly seminars. Since all GSI's are required to participate in the seminars, videotaping schedules can be arranged prior to or just after the seminar sessions.

Table 7

Videotape Review Coding

Instructor _____ Class: Econ _____ Section _____ Tape No. 1 2 3

METHOD	LEARNING OBJECTIVES	EXPRESSIONS	
		Verbal	Nonverbal
(4) Discussion (Student Initiated)	(5) Complex Application	(5) Supportive	(5)
(3) Questions/Problems (from Instructor)	(4) Simple Application	(4) Receptive	(4)
(2) Lecture	(3) Exposition on Theory	(3) Neutral	(3)
(1) Other	(2) Theoretical Concepts	(2) Unreceptive	(2)
	(1) Knowledge of Facts	(1) Disapproving	(1)

#	Method	Objective	Expressions Verbal	Expressions Nonverbal	#	Method	Objective	Expressions Verbal	Expressions Nonverbal
001					034				
002					035				
003					036				
100					136				
101					137				
102					138				

Reviewing classroom performance

Reviewing consists of three separate procedures. coding, filling out the Summary Checklist, and preparing the critique

Coding The coding process requires the specially developed Videotape Review coding form shown in Table 7 and a device which will deliver beeps at 20-second intervals. On hearing the beep, the reviewer/critiquer records on the coding form what is going on at that moment in the classroom. After doing this for the entire tape, one has a time series index of what methods were used, what type of learning was taking place, and what verbal and non-verbal expressions the instructor projected. This information serves two purposes First, it is valuable information for the reviewer/critiquer to have for subsequent discussion. Second, it provides the instructor with a measure of what he or she did in the classroom to compare with what he or she planned, as recorded on the Daily Teaching Checklist which the instructor filled out before the taping For example, an instructor who planned to lecture 25 percent of the time might not realize he or she actually lectured 75 percent of the time, until convinced by the coding data.

The reviewer's coding form currently used at Minnesota is an observation instrument specially adapted for this project. It is used by the reviewer/critiquer to get a judgmental measure of (a) the method employed by the instructor (discussion, questions/problems, lecture, other), (b) the learning objectives (complex application, simple application, exposition on theory, theoretical concepts, knowledge of facts), and (c) and (d) the verbal and nonverbal expressions (supportive, receptive, neutral, unreceptive, or disapproving).

The following operational definitions are used in coding.

a) Method

Discussion—If during the interval of observation the critiquer observes the teacher primarily listening to a student-initiated point or question and briefly responding to it, it is recorded as discussion (4).

Questions/Problems—If during the interval of observation the critiquer observes the teacher primarily asking questions to which he or she expects an immediate student response, it is recorded as questioning (3).

Lecture—If during the interval of observation the critiquer observes the teacher primarily "talking at" the student, it is recorded as lecturing (2).

Other—If during the observation period the critiquer observes the teacher doing such things as reading directly out of the text or watching a film with the class, the critiquer records "other" (1).

b) Learning Objectives

Complex application—The discussion, lecture, or questioning observed pertains to utilizing more than one economics principle or concept in analyzing a real world problem (5).

Simple application—The discussion, lecture, or questioning observed pertains to using a single economics principle or concept in analyzing real world or hypothetical problems (4).

Exposition on theory—The discussion, lecture, or questioning observed pertains to proofs, intuitive explanations, or analysis, of economic theory (3).

Theoretical concepts—The discussion, lecture, or questioning observed pertains to introducing and defining economic concepts such as comparative advantage, opportunity cost, or law of demand (2).

Knowledge of facts—The discussion, lecture, or questioning observed only pertains to institutional descriptions, dates, names, and the like (1).

c) Verbal Expressions

Supportive/Receptive—If in the process of lecturing, discussing, or questioning the instructor keeps students on task or reinforces student activity by positive verbal comments or by changing tone of voice, speed of talking, or diction, the instructor is recorded as being receptive. For example, while lecturing the instructor slows down to give students ample opportunity to take specific notes, while questioning students the instructor, through probing techniques, leads the students to the correct answer and then congratulates them for critical thinking. Receptive (5) or highly receptive (4) is used to indicate the degree of support expressed.

Neutral—The instructor is not observed to be changing speech patterns or verbal comments in any way which would tend either to support student activity or to belittle students (3).

Unreceptive/Disapproving—If in the process of lecturing, discussing, or questioning the instructor makes verbal comments which tend to belittle students or show disapproval for students' comments, the instructor is recorded as unreceptive (2) or highly unreceptive (1).

d) Non-Verbal Expression

Supportive/Receptive—If in the process of lecturing, discussing, or questioning the instructor attempts to keep students on task or to reinforce student behavior and comments by using changes in physical position or facial expressions, then he or she is recorded as being receptive. For example, while lecturing about a graph on the chalk board the instructor walks toward the

board and points to the appropriate points on the graph, while students are discussing a given problem the instructor nods and smiles in agreement, while asking a question the instructor takes a step toward the student. Once again highly receptive (5) and receptive (4) are used to indicate degree of supportive instructor action.

Neutral—The instructor does not demonstrate any physical movement or facial expression which would tend to be supportive or discouraging to students (3).

Unreceptive/Disapproving—If in the process of lecturing, discussing, or questioning the instructor uses physical gestures, movements or facial expressions which tend to demonstrate lack of concern for students, or disapproval of a student's comment, the instructor is recorded as unreceptive (2) or highly unreceptive (1).

The coding form is segmented vertically by 20-second time intervals sequentially labeled 001, 002, 003, and so on, to 138. Upon receiving a 20-second beep, the reviewer records what the GSI is teaching. For instance, on the 34th beep (11 min. 20 sec. after the start of class on the videotape) assume the reviewer observes the GSI initiating questions based on a real world problem which involves using one economic principle to obtain a solution. In posing the question the GSI implies that even the "dumbest" student in class should know the answer. Assume also that the reviewer observes the GSI turn and face away from the student in posing the question. Using the operational definitions given above, the reviewer would record such an observation as follows.

	Method	Objective	Expressions	
			Verbal	Nonverbal
034	3	4	1	1
035				
036				

The 3 under Method indicates that the instructor initiated the question or problem. The 4 for Objective indicates that the instructor is looking for a simple application of theory. Under the heading Expressions the two 1's reflect the fact that the instructor gave both nonverbal and verbal signs of strong disapproval and unreceptiveness to the students.[8]

[8]A videotape demonstrating these alternative teaching methods, objectives, and expressions has been developed by members of the project staff (Salemi and Becker 1974).

Table 8

Summary Checklist for Videotape Reviewing

I *Summary of Videotape Review Coding Data*

Score	Method	Learning Objective	Verbal Expression	Nonverbal Expression
5				
4				
3				
2				
1				

II *Exposition Skills and Physical Characteristics*

1 Eye Contact

2. Mannerisms

3 Voice (pitch, rate, volume, articulation)

4 Delivery in general

5 Use of blackboard (neatness, wise use of space)

III *Student-Instructor Interaction*

1 Question techniques (open, closed, directed, reversed, relayed, rhetorical, thought-provoking, pause for answers, clear, preconceived)

2 Attitude projected (positive, negative or indifferent)

3 Motivation of the students

After reviewing the entire tape, the reviewer simply calculates the percentage of time the GSI spent in using different methods, objectives, and expressions

Summary Checklist. Filling out the Summary Checklist for videotape reviewing is a less formal and more subjective procedure than coding. As shown in Table 8, the Summary Checklist is divided into four categories—i.e., summary of videotape review coding data, exposition skills and physical characteristics, student-instructor interaction, and organization and objectives. As one goes down the checklist the categories become increasingly more subtle and difficult to correct. If it is an instructor's first taping episode, the reviewer/critiquer and the instructor should probably concentrate on Category I; by the third taping, they will have dealt with Category II and III problems and they can concentrate on Category IV. The Summary Checklist actually has two purposes: first, it provides important data for preparing the critique, and second, a copy of the checklist can be given to the instructor for reference after the critiquing session.

Preparing the critique. To prepare the critiquing session the reviewer/critiquer must first schedule a time when the GSI is free for at least two hours. Then all the data must be collected and synthesized—i.e., coding forms, Summary Checklist, GSI's Daily Teaching Checklist, student evaluations (if available), any data from previous tapings, and the tape itself. Using all this information the reviewer/critiquer must set objectives for the critique. These objectives will depend on the instructor and how many times that instructor has been taped. A list should be made of all the points to be made as well as when to stop the tape. At this point the critiquer is prepared.

Table 8 (cont'd)

IV *Organization and Objectives*

1 General structure of class
(Introduction: provide reference for starting points,
Sub-parts summarized and referred to outline;
Ending summarized and projected to the next session)

2 Did the instructor meet the objectives he or she set?

3 Are the objectives of the class session consistent with the course goals?

Handling the critique

How a critique is actually conducted depends on the reviewer/critiquer and the instructor. It is a very subjective process and no formula exists for a successful critique. Following is a list of suggested principles which have proven helpful at Minnesota

- The reviewer/critiquer should try to establish a friendly, relaxed atmosphere.
- The reviewer/critiquer should be non-judgmental. The purpose is to improve instructors, not judge them.
- The reviewer/critiquer's role is to make suggestions to the instructor, which may be adopted or disregarded.
- The reviewer/critiquer should not try to change an instructor's style but instead work on improving that instructor's techniques and skills.
- The reviewer/critiquer should follow good communication principles during the critique. It is quite unconvincing to explain to an instructor that eye contact is important while you stare at the ceiling.
- The reviewer/critiquer should take personalities into account. Some people are more defensive than others, and the critiquer must be ready to adjust remarks accordingly.
- The reviewer/critiquer should provide the instructor with motivation.
- The instructor should be encouraged to try to see himself or herself as the students do. Many valuable insights are obtained this way.
- The reviewer/critiquer should make clear from the beginning what is expected from the instructor. Before the first critiquing the instructor must be notified that the Daily Checklist must be completed prior to the videotaping.
- The reviewer/critiquer should make sure that there is an agreement as to what the GSI will work on and make a note of this for the next taping session.
- The reviewer/critiquer should not try to do too much in one session, a critique of a one-hour class should be kept to about two or two-and-one-half hours.
- Experience at Minnesota has indicated that at least three full videotaping episodes are necessary for most of the inexperienced GSI's in the program.
- The reviewer/critiquer should attend the GSI seminars. Teaching skills learned in the seminars can be discussed and reinforced during the critique.
- The videotaping and feedback process should be completely confidential. The instructor should have complete control over who sees his or her tape

3. Evaluating the Effectiveness of the GSI Training Program

This section reports on the results of an evaluation of the effectiveness of the GSI training program at the University of Minnesota.[9]

Throughout the first year in the development of the GSI training program, 1970-71, both participation and feedback from the GSI's had been excellent. However, a basic question remained. Were we having any measurable impact on student and instructor performance in the actual classroom? To resolve this question, the following study was conducted.

Experimental Design

During the 1971 fall quarter, all students enrolled in Economics 1-001 (Principles of Economics—Macroeconomics) were selected as a control population. Students in the course met once a week for a mass lecture, and were divided into fourteen sections which met as sections three times each week. Average section size was 25. Student enrollment in each section was essentially a self-selection process on a first-come, first-served basis. Sections were offered at various times between 8.00 a.m. and 4.00 p.m., Monday through Friday, with no instructors identified in class listings. The mass lecture was handled by senior faculty in the department while the fourteen sections were conducted by seven graduate student instructors, each teaching two sections.

During the fall quarter, the seven GSI's of Economics 1-001 were precluded from participating in or having knowledge about the videotaping, seminars, or any other facet of the training system described in this monograph. Similarly, these seven instruc-

[9]The evaluation design and results of the study reported in this section have been adapted from an earlier article published by D. R. Lewis and J. Orvis (1973).

tors and their students were unaware of both the experimental design and the hypotheses being tested However all of the Economics 1-001 students in the fall term responded to survey questionnaires dealing with student characteristics and were pre- and post-tested on the Test of Understanding in College Economics (Part I, Forms A and B) [10] Post-course student evaluations of each instructor s performance were also collected on the Purdue Rating Scale for College Instructors

In order to control for the experimental training of instructors, the same seven GSI s were used as the experimental group during the winter quarter when Economics 1-001 was again offered. The experimental group of 438 winter quarter students was again divided into fourteen sections with an average section size of 31 As with the control students, all the winter quarter experimental students responded to the survey questionnaire, the Purdue Rating Scale and the TUCE Subsequent tests on selected-student characteristics and Pre-TUCE scores revealed no significant differences between the control and experimental groups (see Table 9 and the study results below) All sections and instructors in both the fall and winter quarters used the same instructional materials and departmental course syllabus, and the same senior faculty gave the mass lectures

The experiment was designed such that the seven instructors were randomly selected from a total of 22 GSI's in the fall of 1971. The seven instructors were then given only a syllabus and section assignments and were not provided with any other assistance or training. However, during the winter quarter these same seven GSI s were systematically exposed to the GSI training system described in this monograph [11]

[10] The Test of Understanding in College Economics (TUCE) is a nationally normed and validated test designed to measure student performance in the introductory economics course Based on recommendations of the American Economic Association s Committee on Economic Education, it was published by the Psychological Corporation (1968)

[11] Although most of the GSI s in this experimental study had teaching experience prior to their participation in the project, a weakness in the design of the study is the possibility that any superior performance in the winter quarter may be attributed to their maturation and/or additional experience However, similar data on student and GSI performance from an earlier study with the introductory course at the University of Minnesota indicated that the additional experience of only one term is not significant (Lewis and Dahl 1972) In fact, the obverse was true in the current study. The GSI who had the most previous teaching experience was the GSI in the fall term with the lowest student and instructor performance and subsequently showed the most improvement as a result of the training system. On the other hand, the two GSI s with the least teaching experience were among the top three in student and instructor performance during the fall term.

Description of Experimental Results

As Table 9 indicates, the winter quarter experimental group of students did not differ significantly from the fall quarter control group in any of five matching variables—i e , Sex, Age, Cumulative Grade Point Average, ACT Score, and Pre-TUCE—at the two-tailed .05 criterion level employed in the study Consequently, with the same instructors teaching in both the fall and winter quarters, the groups were considered adequately matched for purposes of the evaluation study

The Pre-TUCE data in Table 9 also indicate that the Minnesota scores for both the experimental and control groups approximate the national norm of 13 24 at the outset of each quarter term. Post-TUCE scores for the fall quarter control group also approximate the national norm of 19.08, further indicating normality for the control sections (Psychological Corporation 1968).

Impact of the Training System on Student Learning

As Table 9 indicates, the winter quarter experimental students clearly outperformed the control students in economic understanding Not only were the differences between group Post-TUCE scores significant, but the Change-in-TUCE scores (Post-TUCE minus Pre-TUCE) also indicated significant differences The experimental group exhibited a 54 percent gain over their Pre-TUCE score while the control group experienced only a 43 percent gain in output added [12] The gains for the control group are comparable to the national norming data for the TUCE wherein students from four-year colleges showed average gains of 40.3 percent. The experimental group's performance was clearly superior.

Although the significance of the training system's impact on student learning is clearly evident from the above data and discussion, a more controlled analysis of the data was performed by

[12]Any discussion of output added on the TUCE must be qualified with the recognition that the output added function is clearly non-linear, there are easy questions, questions of medium difficulty, and some which are very difficult. In fact, the test was designed this way in terms of cognitive composition It is therefore somewhat inappropriate to compare increments on this test, as constructed For example, at the extreme a student moving his or her total score from 3 to 6 on the TUCE has picked up much less economics than a student moving from 28 to 31 Only on a y linear test can these types of comparisons be safely made

Table 9

Description of Student Characteristics, Performances, and Evaluations: Fall and Winter Quarters

Variables	Fall Quarter N = 323 14 Sections		Winter Qtr. N = 438 14 Sections		t-test Comparing Means
	Means	S.D.	Means	S.D.	
Sex (0, 1) Male = 1	.71	.45	.70	.46	.30
Age (17-38)	20.49	3.09	20.80	2.74	1.43
Grade Point Average (0-4)	2.73	.51	2.77	.48	1.09
ACT Score (0-36)	24.88	3.18	24.46	3.63	1.50
Pre-TUCE (0-33)	13.52	3.70	13.04	3.96	1.71
Post-TUCE (0-33)	19.46	4.70	20.11	4.53	1.97*
Change-in-TUCE	5.94	4.52	7.07	4.67	3.36**
Average Instructor Rating (1-6), 1 = Very Low	4.11	.84	4.46	.78	5.68**
Rating Scale Sub-parts					
1) Personal Evaluation (1-6), 1 = Very Low	4.41	.90	4.76	.85	5.42**
2) Objectivity Evaluation (1-6), 1 = Very Low	4.32	.91	4.70	.86	5.82**
3) Exposition Evaluation (1-6), 1 = Very Low	3.82	1.10	4.32	.99	6.45**
4) Testing Evaluation (1-6), 1 = Very Low	3.89	.95	4.10	.92	3.65**
5) Knowledge Evaluation (1-6), 1 = Very Low	4.26	.93	4.52	.81	4.02**

* Significant at the .05 level
** Significant at the .01 level

fitting the student descriptors, evaluations, and test results to a multiple linear regression model.

When this was done, the significance of the earlier t-statistics was confirmed.[13] While controlling for prior knowledge in economics, mental ability and achievement, maturation, sex, and student evaluations of the instructor, the type of class with experimental involvement in the project did have a significant association with the students' Post-TUCE scores.[14] The model predicts that a student attending a class which was involved with the GSI training system would, on the average, score almost three-quarters of one point (.71) more than non-participants on their Post-TUCE scores.

The regression model also indicates that the six other variables significantly associate with student achievement in economic understanding. Prior knowledge in economics, mental ability and achievement, maturation, sex, and student evaluations of the instructor were all found to be significant. These findings are all consistent with the results of other research in this field (Bach and Saunders 1965, Bellico 1970, Capozza 1973, Gery 1970, 1972; Lee, Kelley, and Weisbrod 1970, Lewis and Dahl 1972, Lewis and Orvis 1971, Paden and Moyer 1969, 1972, Saunders 1970, 1971, 1972; Sloane 1972; Weidenaar 1972; Welsh 1972).

Impact of the Training System on Instructor Performances

The data in Table 9 and Table 10 also confirm that the GSI training system had measurable and significant influences on the instructors actual performances as measured by student evaluations. Not only was there a significant difference between quarters in the total Rating Scale for all of the instructors, but each of the sub-parts to the Rating Scale was also significantly different between the experimental and control groups. In turn, these changes in GSI performance associated significantly with student learning, as confirmed in the regression model by the association of the instructor evaluation variable with Post-TUCE scores

It is important to note that throughout the experimental quarters videotaping review sessions the instructors were presented

[13]Regression coefficients and tests of significance can be found in Lewis and Orvis. *op cit*

[14]All variables in this model were found to have inter-correlations of .21 or less in the correlation matrix except ACT and Pre-TUCE. They had a correlation of .31, a degree of inter-correlation not detrimental to the model's analysis since they were both significantly correlated with Post-TUCE.

Table 10

Student Ratings of Instructors

Sub-Parts	Range	Average: All Instructors	Individual Instructors I	II	III	IV	V	VI	VII
Personal Characteristics	Fall 3.90-4.97	4.39	3.90	4.97	4.09	4.89	4.65	4.18	4.03
(Questions 2-3-6-17-21-25)	Wtr 4.33-5.41	4.74	4.33	5.41	4.55	4.54	4.78	4.69	4.86
Change from Fall to Winter		.35	.43	.44	.46	(.35)	.13	.51	.83
Objectivity	Fall 3.90-4.91	4.30	3.98	4.91	4.19	4.59	4.60	3.95	3.90
(Questions 7-10-19-23)	Wtr 4.26-5.26	4.68	4.46	5.26	4.56	4.26	4.80	4.59	4.83
Change from Fall to Winter		.38	.48	.35	.37	(.33)	.20	.64	.93
Exposition	Fall 2.86-4.59	3.78	3.47	4.59	3.70	4.49	4.12	3.20	2.86
(Questions 11-13-14-15-22)	Wtr. 3.82-5.14	4.30	3.82	5.14	4.16	4.16	4.37	4.17	4.25
Change from Fall to Winter		.52	.85	.55	.46	(.33)	.25	.97	1.39
Tests and Grades	Fall 3.16-4.50	3.87	3.34	4.32	3.63	4.50	4.25	3.84	3.18
(Questions 1-4-9-16-20-27)	Wtr. 3.52-4.62	4.08	3.52	4.62	4.28	3.97	4.12	4.10	3.97
Change from Fall to Winter		.21	.18	.30	.65	(.53)	(.13)	.26	.79
Subject Matter Knowledge	Fall 3.28-4.89	4.24	4.23	4.69	4.15	4.89	4.32	4.09	3.28
(Questions 5-8-12-18-24-26)	Wtr. 4.17-4.98	4.52	4.55	4.98	4.42	4.44	4.46	4.62	4.17
Change from Fall to Winter		.28	.32	.29	.27	(.45)	.14	.53	.89
Overall	Fall 3.45-4.70	4.11	3.78	4.70	3.95	4.67	4.39	3.85	3.45
(Averaging above Sub-Groups)	Wtr. 4.14-5.08	4.46	4.14	5.08	4.39	4.27	4.51	4.44	4.42
Change from Fall to Winter		.35	.36	.38	.44	(.40)	.12	.59	.97

with the Rating Scale (student evaluation) results from their previous course. Suggestions and strategies for improvement were then developed with each instructor for each low-rated item. The instrument and these procedures were apparently effective.

Individual instructor ratings on the Rating Scale and its sub-parts are summarized in Table 10 for each of the two quarters. With one major exception (Instructor IV), all of the GSI's increased their scores for almost all of the Rating Scale sub-parts. It is important to note that the only instructor whose ratings dropped (Instructor IV) developed mononucleosis during the experimental quarter and was the least active and enthusiastic participant in the training system. This illness and behavior undoubtedly carried over into his teaching performance. In testing, for example, he simply pulled old exams from his files. It is also interesting to note that Instructor V was an office mate with Instructor IV and used the same tests as did Instructor IV. Consequently, both instructors went down in their student ratings dealing with "tests and grades." Both the students and the Rating Scale instrument are apparently sensitive to such behavior and circumstances.

The student evaluations, as revealed by the Rating Scale, were also substantiated in early videotape reviews during the experimental quarter. Both the reviewer's observations and the actual videotape coding procedure revealed the same strengths and weaknesses as the student evaluations of GSI performances. High instructor ratings on "Personal Characteristics" and "Exposition" skills were supported by high coding frequencies on "Supportive and "Receptive" categories of verbal and nonverbal expressions, high instructor ratings on "Subject Matter Knowledge" were supported by high coding frequencies on teaching methods other than "Lecture" and on higher level learning objectives such as "Complex Applications." The consistencies between these two instruments, along with the actual videotaped observations, were persuasive evidence in getting the GSI's to change their teaching behavior.

In summary, this study has confirmed that a systematic teacher training program involving Graduate Student Instructors of introductory economics with an integrated series of instructional seminars, student evaluations, and videotaped observations can have a significant and measurable impact on both student and instructor performance in the actual classroom. Specifically, it was found that as a result of the training system, (a) student performance, as measured by the TUCE, and (b) instructor ratings, as measured by the Purdue Rating Scale for College Instructors, both increased significantly. It was also found that instructor ratings, as measured

by student evaluations on the Rating Scale, associate highly with student performances on the TUCE.

The experimental efforts and the results of this study confirm that other institutions and departments similar to the Department of Economics at the University of Minnesota can and should undertake greater responsibilities for providing their graduate student instructors with teacher training.

4. Suggestions for Implementing the GSI Program

In this final section of the monograph, a number of additional suggestions are offered to any faculty (or student) group interested in beginning such a GSI teacher training program in their own department or school. A number of recommendations are made which are general in nature and not related to the teaching role which might be assigned to a GSI. However, suggestions are also offered as to how the training program could be adapted to a department which employs GSI's as section (discussion) leaders rather than as instructors responsible for a course.

Suggestions in General

Independent of the exact nature of any GSI's teaching role, there is at least one *sine qua non* for the successful implementation of a teacher training program. *It is essential that the sponsoring department commit itself to the program's success.*

Those attempting to introduce a GSI program should recognize that the sponsoring department will likely be motivated by two considerations. First, the department should consider the implementation of any such training program a further commitment to quality undergraduate instruction. Second, the department should consider the program a part of the graduate students' professional training.

During the formative stages of the program, the department chairman and those faculty members directly responsible for curriculum review, the graduate student program, and undergraduate instruction should review the program's design and offer criticism and suggestions. As the program is implemented, these department members should join the program staff and GSI trainees for at least one session to voice their support and expectations, and the department's purpose in supporting the program. Finally, when the training program has matured (perhaps after one or more years) the department should declare that participation in the GSI training program is a condition for employment as a graduate student instructor

A second crucial element for successful implementation of the program is development of motivation and an appropriately positive attitude toward the training program on the part of the GSI's. As a first step in developing this attitude the program director should choose the seminar coordinator and reviewer/critiquer from among the graduate students respected by their peers as excellent teachers and economists. Although most GSI's are highly motivated to participate actively in the training program by their own desire to become good teachers, we suggest that the program director seek additional departmental support designed to appeal to the GSI's developing sense of professionalism. At the University of Minnesota, we have received departmental approval for the GSI training program to be considered as an economics graduate level course which can be formally recorded on the GSI's transcript. In addition, the department has supported efforts to provide GSI's with their "best" videotapes for their own professional use (e.g., as a vivid source of information on teaching performance and effectiveness which the GSI might decide to offer to a prospective employer).

Because of the importance of the GSI's attitude to the success of the training program, it is recommended that the GSI program staff be particularly careful to set a good example of teaching behavior in the sessions which they conduct. They should attempt to recognize the needs of the GSI's (e.g., nervousness before a first day in front of a class or the need to understand university or departmental rules). They should state goals for the program as a whole and objectives for each session, evaluate the participants on the basis of these goals and objectives, and engage in periodic evaluation of program effectiveness on the basis of these goals and objectives. They should demonstrate any good teaching techniques they recommend to the GSI's not only when the techniques are topical but also throughout the program. Staff members should also commit themselves to keeping to the announced agenda and schedule in order to impress upon the GSI's the importance of the agenda items.

It is also important to note that the GSI training program should *not* teach a particular style of instruction. Although we are convinced that good instruction proceeds according to the learning process model described in this paper, we do not suggest a specific set of objectives, traits, or techniques as being correct. Rather, we are convinced that each GSI should be encouraged to develop his or her own strengths and recognize his or her own weaknesses.

The low cost of the program described in this monograph is an additional recommendation for its adoption. Most of the develop-

mental costs have already been assumed in the creation of the instruments for evaluation and codification and the procedures for implementation. The initial purchase costs for the relatively maintenance-free video equipment totals approximately $3,000. At a larger university it might well be possible to rent video equipment from the university audio visual center or share equipment with another department—e.g., at the University of Minnesota all of the necessary videotaping for eight to ten GSI's each year is scheduled within one-and-one-half quarters. The only other direct departmental costs are the part-time salaries for two junior (graduate student) faculty and released time for one senior faculty.

Adapting the GSI Training Program to an Alternative Setting

Any GSI training program must, of course, be designed to help the GSI function in the teaching role assigned by the department. Because at the University of Minnesota, the GSI's in economics serve as course *instructors* responsible for planning and implementing their own courses, the program described in this monograph has been planned to instruct participants in a broad range of teaching skills. At many universities, however, GSI's function as *section leaders*, coordinating discussion and problem-solving for a small group of students to whom a senior faculty person lectures in a large group format. These GSI's will find seminar sessions devoted to lecture skills, setting course goals, or planning examinations less relevant for their immediate use. In what follows, suggestions are made as to how one might adapt the GSI program to a department where GSI's serve only as section (discussion) leaders.

The seminar portion of the program affords a natural opportunity for the seminar coordinator to bring together the senior faculty responsible for lecturing and planning the course and the GSI section leaders. Thus, the seminar coordinator should endeavor to have the senior faculty person discuss with the GSI's the objectives for the large lectures and for the "section meetings." In this way the GSI's can gain some experience in setting objectives for their sections, can better coordinate their section sessions with the lecture sessions, and will have input into decision-making for the course which should motivate their own performance. It should be obvious that the seminar coordinator will be successful in this part of the sessions only with the full support of the senior faculty person(s), especially since the senior faculty person must be able

to state his or her objectives and be willing to accept some GSI input

It is strongly recommended (and obvious) that crucial skills for the GSI section leader to develop are the abilities to engage students in applying principles presented in the lecture and to draw them out with questioning techniques Students seldom participate (except as active listeners) in a large lecture session. Consequently, students will receive supervised practice in applying the concepts they are learning only via discussion in small groups, problem sets, and exams. In each of these cases, it will more likely be the GSI than the senior faculty person who interacts with the students. The seminar coordinator should devote at least 30 per cent of the total seminar time to developing GSI's discussion-leading and questioning skills. As discussed earlier in this monograph, microteaching sessions designed to reinforce probing techniques are particularly valuable teaching devices.

In spite of the focus on discussion techniques, the seminar coordinator should also demonstrate lecture techniques (particularly blackboard skills) since the GSI should be able to make a well-organized presentation during a class session devoted to exam or problem set review. However, if there is a necessary choice between a session in which someone lectures on blackboard technique and one in which the participants first learn some technique and then practice the technique in the group session, the latter approach is recommended.

If the GSI's will be sharing responsibilities for writing examinations, the seminar coordinator should devote at least one session to examination writing and evaluation skills. If possible, the seminar coordinator should time the seminar sequence so that participants can read and comment on one another's exam questions before they are due to submit exam questions to the senior faculty person.

Finally, it is as important for the GSI section leader as for the GSI lecturer to receive feedback on his or her classroom performance. The reviewer/critiquer should be sure that evaluation forms permit students to comment on and answer specific questions about their weekly section meetings. The reviewer/critiquer should take pains, however, to emphasize the developmental rather than the judgmental uses of evaluation results. The reviewer/critiquer should also arrange to videotape the GSI during section meetings. Because the GSI's role as section leader is different, the reviewer/critiquer will emphasize different things in the critique, in particular, how the GSI leads the class in discussion, draws them out with questioning techniques, and, in general, supervises their participation.

Appendix A: Seminar Syllabus Outline

Fall, 1974

I. Meeting One

A. Introduction.

1. Minnesota's participation in the American Economic Association/Joint Council of Economic Education project.
2. Motivation for the project and for the participation of teaching associates in our department.
3. How the teacher training program works.
4. Establishing a seminar schedule.

B. Objectives and goals.

1. By the conclusion of today's meeting, all participants should be able to demonstrate in discussion their willingness to participate actively in the program.
2. By the conclusion of today's meeting all participants should feel less anxiety in anticipating their first day in class.

C A model of education—how the learning process is accomplished.

D Some data and questions in anticipation of first day needs.

1. The needs of the principles students.
2. Your needs as instructors.
3. Some University resources and how they work.

E. A consideration of potential future topics.

1. Discussion: "How should we use the seminar time to meet our needs?"
2. Extrapolation: "How can we gauge the needs of our students?"

II. Meeting Two

A. Discovering the needs of students.

1 At what level should we teach the principles course?
2 Assumptions about the backgrounds of students.

B. Setting course goals.

C Using behavioral objectives to reach goals.

D How setting objectives makes testing and evaluation easier

III. Meeting Three

A Further discussion on implementing the objective-setting approach to class preparation.

1. Integrating the audiovisual program and the seminars.
2. Data collection.

B. Some notes on the importance of teaching skills.

C Lecture skills.

IV. Meeting Four

A. Discussion of our objective-setting experiment and the use of the daily teaching checklist.

B. Lecturing skills.

1. Discussion of guest lecturer's comments at meeting three.
2 Lecturing and the use of advanced organizers.

C. The use of audiovisual tools in lecturing.

V Meeting Five

A. How to write, give, and interpret effective examinations

B Discussion of questions and problems submitted by participants.

1. What should an instructor do when his class slows him up with trivial questions?
2 How should we grade our students? What are good rules for giving grades?
3 Does each section instructor have an obligation to grade alike?

VI. Meeting Six

A Continuation of our idea exchange—specific techniques, problems, situations, and questions relevant to our teaching experience thus far.

B. What kinds of feedback do we as teachers get from our students?

1. What kinds of student feedback give us information useful in making midcourse corrections in our courses?
2. The use of student evaluations of instructors.

C. The art of stimulating student feedback by asking questions.

1. What is probing? How can probing shift the emphasis from instructor talk to student talk?
2. What are the kinds of probes? What is each kind of probing good for?
3. When should an instructor probe students?

VII. Meeting Seven

A. Analyzing the feedback we get from our students.

1. Test results.
2. Videotape.
3. Instructional evaluations.
4. Feedback via class dialogue.

B. A videotape example of probing.

VIII. Meeting Eight

One of the most difficult things about a discussion is starting it with a common experience or a controversy. Thus, all members of the group should bring to the seminar one "discussion starter" they have used successfully or think they might use successfully. In addition to beginning discussions, we will talk about:

A. The purpose of discussion

B. How to get participation.

C. The instructor's role in discussion.

D. How to keep discussion from degenerating into arguments.

IX. Meeting Nine

Obtaining participants' feedback on the seminar portion of the Teacher Training Program and other unresolved issues.

Appendix B:
Categorical References

The following list, while not exhaustive, categorizes references which the authors have found to be helpful. The most useful have been starred and italicized.

Topics dealing with **instructional planning and design** (Davies 1973, Gagne and Briggs 1974) and the construction and use of **instructional objectives** (Ausubel 1960, Biehler 1974, Bloom 1968, **Gronlund 1970*, Kelley 1973, Krathwohl 1964, Mager 1962, Nelson 1970, Phillips 1972, 1974, Thompson 1970, Travers 1973) have an extensive and cumulative body of literature in the field of education. And, of course, the "general education" literature of higher education is very significant to the goals and objectives of any **introductory course** (Axelrod 1969, **Barzun 1970*, **Bell 1966*; Bruner 1963, Dressel 1968, 1969, Freedman 1967, Mayhew 1968; Postman and Weingartner 1969, Schwab 1969, Thomas 1960, Wormald 1964). More recently, a growing body of economic education literature has examined and reported on the goals, objectives and outcomes specific to the **principles course in economics** (Attiyeh and Lumsden 1972, **Bach 1965*, 1966, 1967, Bellico 1970, Clayton 1964, Crowley and Wilton 1974, Dawson and Bernstein 1967, Leamer 1950, 1965, Lewis 1970, 1973, Lewis and Dahl 1972, Moyer and Paden 1968, 1970, Paden and Moyer 1971, 1972, Saunders 1970, 1971, Saunders and Bach 1970, Siegfried and White 1973). Even the roles of and effects upon attitudes and values have been examined as outcomes of the **principles course** (Horton 1972, Jacob 1958, Karstensson and Vedder 1974, **Luker 1972*, Mann and Fusfeld 1970; Sloane 1972; Thompson 1973).

In addition to a number of excellent sources on the higher education literature dealing with **general tips for teacher training** (Allen 1968, Beard 1970, Bligh 1972, Eble 1970, 1971, 1972, Flournoy 1972, Hansen 1973, Highet 1954, Lee 1967, MIT 1974, **McKeachie 1969*, Miller 1972, Morris 1970, Nowles 1968, Pace 1973, Peterson 1946, Travers 1973), other references are directed to the specific skills and use of *lectures* (Beard 1970, Bligh 1972, Buckles and McMahon 1971, **McKeachie 1969*), the construction and use of **tests and measurements** in the classroom (Buckles and Welsh 1972, **Ebel 1962*, Fels 1967, 1970, Furst 1964, Gery 1972, **Gronlund 1968*, 1971, Isaac and Michael 1971, Lewis and Dahl 1971, Matten

1972, Psychological Corporation 1968, Rothman and Scott 1973, Sanders 1966, Welsh and Fels 1969, Whitney 1970, Wood 1961), **discussion techniques** and **interpersonal communication skills** (Greenberg 1969, Gregory 1972, Lyon 1971, *McKeachie 1969*, Phillips 1966, Potter 1969), and the evaluation and use of **teaching assistants** as discussion leaders and teachers (Chase 1970, Lamphear and McConnell 1970, Lewis and Orvis 1973, Nowles 1968, Oates and Quandt 1970).

A significant number of articles have recently appeared in the economic education literature which give systematic review and evaluation to a host of other **special techniques**—i.e., games and simulations, programmed learning, audiovisual, computer assisted instruction, laboratories, etc —which have been employed in the principles course (Attiyeh and Lumsden 1965, Ault and Rutman 1974, Bach 1969, Booms 1974, Brown and Finch 1973, Calkins 1970, Danielsen and Stauffer 1972, Dawson 1974, Dubbin and Taveggia 1968, Emery and Enger 1972, Gordon 1969, Fels and Starleaf 1963, Fusfeld and Jump 1966, Haley 1967, Hansen, Kelley, and Weisbrod 1970, Havrilesky 1971, Kelley 1968, 1972, Kourilsky 1972, Levin 1967, Lewis and Orvis 1971, Lloyd 1970, Lumsden 1967, 1970, Maurizi 1972, McConnell 1964, 1968, Meinkoth 1971, Muhkerjee and Loughlin 1971, Nelson 1959, Paden 1969, 1970, Porreca 1971, Ramsett, Johnson, and Adams 1973, Scriven 1965, Soper 1973, Staff 1972, Tiemann, Paden, and McIntyre 1966, Villard 1969, Widenaar 1972, Welsh 1972, Wentworth and Lewis 1973)

Appendix C:
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