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ABSTRACT

To equip new faculty members with all the necessary tools to begin their careers as highly effective and productive college teachers, formal training in pedagogy was made available for all graduate teaching assistants at Texas A&M University. Twenty-five graduate level instructors in college and public school settings or who expressed interest in college teaching were enrolled in the program. The class met once a week for a semester. The students were divided into four subject-affinity groups. Up to 15 hours of skill training were deveoted to Flanders Interaction Analysis, which examines teaching behavior. In addition, students were presented with a series of microlessons in videotape-equipped miniclassrooms. The training program was augmented by lectures that incorporated differing questioning strategies. Program results were encouraging. (Author/KE)

# ENHANCING FUTURE COLLEGE TEACHING

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With the demands for quality being made upon universities, teachers must strive to remove all doubts as to their effectiveness in the classroom. New faculty members must be equipped with all the necessary tools to begin their careers as highly effective and productive college teachers.

One such way to equip the faculty of the future for effective teaching is formal training in pedagogy during their graduate program. Such a course is available for all graduate teaching assistants at Texas A&M University. This report consists of a description of the program for college teacher preparation, followed by an examination of the program's results.

The authors were interested in behavioral changes which might occur during a program involving training in an interaction system and micro-teaching. Twenty-five graduate level instructors in college and public school settings or expressing interest in college teaching were enrolled in the program. The class met each Wednesday evening from 5-8 p.m. for a semester.

The students were divided into four groups which could be defined as "subject affinity groupings", in that the interest and backgrounds of the students merged into the four relatively homogeneous segments. The natural groupings were apparently successful, particularly in the area of role-playing as students for the different microlessons. As the groups gained cohesiveness and teamwork during the course of the semester, an observable "chemistry" became apparent in the group's efficiency at moving through each night's lessons.

Up to fifteen hours of skill training were devoted to Flanders Interaction Analysis attempting to reach a .85 correlation coefficient of interobserver realiability. The ten categories of Flanders system appear on the next page. After training, an observer can record the category in use every three seconds. The numbers can be transposed to a 10x10 matrix for further analysis. Several ratios and percentages for each category can be calculated. If one accepts the idea that teaching involves to some extent the communication between two or more people (one referred to as teacher, the others called learners), then we can study one aspect of many teacher variables-the verbal interaction with students; and we can train people to analyze this aspect of teaching by analysis of data collected via the Flanders system.[1]

While the students in the class continue their training with the Flanders system, they presented a series of microlessons in videotape-equipped mini-classrooms. As a part of their preparation for reaching prescribed levels of competence in utilizing questioning strategies, students viewed Far West Educational Development Laboratory films in the use of probing, synthesis, analysis and evaluation questions. They then taught 10-minute lessons from their field of interest while fellow classmates role-played as their students in the particular subjects.

In addition to the Far Wesc films and the microlessons taught by the students, the training program was augmented by lectures which implicitly incorporated the differing questioning strategies. The students also viewed videotape protocols of recorded mini-lessons which also demonstrated the questioning skills.

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[1] For more detailed information see, Ned A. Flanders, Analyzing Teaching Behavior, Reading, Mass.: Addison-Wesley Publishing Co., 1970.

# SUMMARY OF FLANDERS' CATEGORIES FOR INTERACTION ANALYSIS

| | | |
|---|---|---|
| TEACHER TALK | INDIRECT INFLUENCE | 1. *ACCEPTS FEELING: accepts and clarifies the feeling tone of the student in a nonthreatening manner. Feelings may be positive or negative. Predicting or recalling feelings is included.<br>2. *PRAISES OR ENCOURAGES: praises or encourages student action or behavior. Jokes that release tension, but not at the expense of another individual: nodding head, or saying "um hm?" or "go on" are included.<br>3. *ACCEPTS OR USES IDEAS OF STUDENTS: clarifying, building, or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to Category 5.<br>4. *ASKS QUESTIONS: asking a question about content or procedure with the intent that a student answer. |
| | DIRECT INFLUENCE | 5. *LECTURING: giving facts or opinions about content or procedures; expressing his own ideas, asking rhetorical questions.<br>6. *GIVING DIRECTIONS: directions, commands, or orders with which a student is expected to comply.<br>7. *CRITICIZING OR JUSTIFYING AUTHORITY: statements intended to change student behavior from nonacceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reference. |
| STUDENT TALK | | 8. *STUDENT TALK - RESPONSE: talk by students in response to teacher. Teacher initiates the contact or solicits student statement.<br>9. *STUDENT TALK - INITIATION: talk by students, which they initiate. If "calling on" student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did, use this category. |
| | | 10. *SILENCE OR CONFUSION: pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer. |

* There is NO scale implied by these numbers. Each number is classificatory; it designates a particular kind of communication event. To write these down during observation is to enumerate -- not to judge a position on a scale.

Prior to each lesson, the student turned in a description of his lesson; e.g., one description read: "Define taxonomy; define the species concept. Introduce the Linnaean hierarchy, its importance to taxonomy, and by example illustrate its principal components. Briefly discuss other categories not always utilized."

Prior to training, each participant selected content from his specialization and presented it to the group. After the training program of 14 weeks, the participant used the identical content to re-present the lesson. These two presentations provided the pre- and post-training data. Table I presents data for eight factors we analyzed: percent of teacher talk, percent of student talk, teacher response ratio, pupil initiation ratio, number of questions asked, reinforcement techniques used, number of probing questions and number of higher order questions.

The eight factors identified above were subjected to an analysis of variance to examine for significant differences between the pre-and post-scores. The pre-to-post ratio for teacher talk (TT) was found to have a significant decrease at the .0108 level. There was a corresponding increase in the ratio for student talk (ST) which was also significant at the .0075 level. The teacher response ratio (TTR) achieved a significant increase at the .0275 level. Flanders claims that TRR indicates the teacher's tendency to react to ideas and feelings of students.

The pupil initiation ratio (PIR) increased almost threefold and was significant at the .0001 level. PIR indicates pupil talk observed as an act of initiation. There was an overall increase in the total number of questions asked which was significant at the .0005 level. A breakdown of the question types revealed that probing increased with a significance level of .0150 while higher order questions did not show a significant increase, .1242.

Analysis of the data in the table reveals that the higher order questions almost doubled to a mean of 2.24 in the post-tape, still a marked accomplishment when considering the short 5-10 minute length of the lesson. Reinforcement almost double, with a significant change at the .9286 level of confidence.

Results of this nature have helped lead to the long-range goal of improving teaching effectiveness to enhance learning. It is an encouraging sign of institutional support that effective September 1, 1975, those graduate assistants successfully completing the program will be eligible for consideration to receive an additional monthly increase in their stipends while teaching undergraduate classes at Texas A&M University.

TABLE I

Eight Factors -- Pre and Post Training

| Factor | Mean Prior to Training | Mean After Training | Level of Significance |
|---|---|---|---|
| TT Ratio | 83.876 | 75.800 | 0.0108 |
| ST Ratio | 11.868 | 19.288 | 0.0075 |
| TRR Ratio | 55.212 | 75.504 | 0.0275 |
| PIR Ratio | 22.556 | 62.524 | 0.0001 |
| Total Number of Questions | 8.600 | 18.040 | 0.0005 |
| Number of Reinforcers | 2.760 | 5.000 | 0.0286 |
| Number of Probing Questions | 2.960 | 5.920 | 0.0150 |
| Number of Higher Order Questions | 1.200 | 2.240 | 0.1242 |