MORE and more social scientists are taking a closer look at teacher-pupil interaction in the classroom. This hopeful trend can be documented by referring to the 1960 volume of Psychological Abstracts and to reports of projects now under contract to the National Institute of Mental Health or the U.S. Office of Education.

Increasing Research Activity

A few ambitious research projects involve attempts to quantify the qualitative aspects of spontaneous classroom behavior.

A research team working with elementary teachers in Provo, Utah, (Romney and Hughes, 1958, 1961) believes that patterns of spontaneous teacher action can be identified and that more effective patterns can be distinguished from less effective patterns. The 1958 progress report states that inventories can be developed and administered to prospective teachers and to teachers in service that will predict spontaneous teaching patterns fairly accurately.

Wright and Proctor (1961) have developed a system for analyzing the rigor, or lack of it, in class discussions of mathematics as well as the degree of student participation. They studied four types of classrooms in which rigor was either high or low and student participation was either high or low. Their report expresses some optimism concerning the utilization of their methods of observation for training more effective teachers of mathematics.

Bowers and Soar (1961) exposed experienced teachers to group discussions of one's own behavior and the behavior of others, following a pattern of human relations training that is becoming more prominent, and then traced the consequences of this training in terms of spontaneous verbal behavior in the classroom and other aspects of teaching. They found that not all teachers respond constructively to this kind of training, but that it was possible to predict which teachers would have constructive reactions from inventory scale scores.

B. O. Smith (1960) and his associates at the University of Illinois are working hard at the difficult task of analyzing classroom conversation in terms of models of logical thinking. Thus far they have developed a system of analysis and have isolated examples of classroom communication that illustrate

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sound, logical thought processes as well as unsound, illogical processes. Currently they are engaged in an in-service training program to see whether they can help teachers improve this aspect of teaching high school English and social studies.

There are additional centers at which the spontaneous behavior of teachers is being studied. In the City Colleges of New York, Mitzel and Rabinowitz (1953) have developed a system that includes the recording of types of pupil reactions as well as an analysis of teacher verbal statements. Withall (1961) and his associates at the University of Wisconsin and DeCharms and Bridgemen (1961), at Washington University, St. Louis, are also using imaginative approaches to the analysis of teacher-pupil relationships.

Overview of Research at Minnesota Using Interaction Analysis

The system of observation used at Minnesota made use of a classroom observer who classified verbal statements into one of ten categories once every three seconds. Because teacher influence was of central interest, seven categories were used for teacher statements, two for any student statements, and one category was used to indicate silence or confusion. The ten categories used were: (1) clarify feeling constructively; (2) praise or encourage; (3) clarify, develop or make use of ideas suggested by students; (4) ask questions; (5) lecture; (6) give directions; (7) criticize; (8) student talk in response to the teacher; (9) student talk initiated by the student; and (10) silence or confusion. An observer's record, using this system, is a series of numbers representing the different kinds of verbal events over a particular period of homogeneous classroom activity. The original sequence of verbal events is preserved in the observer's notes and a pair of events (sequence pair) is tabulated into a matrix, giving information about which event preceded—or followed—another. The system is called interaction analysis and is described in detail in an observer's manual (Flanders, 1960a).

The major innovation of this system is the matrix. All the possible systematic inferences from the matrix have not yet been utilized. It does provide a teacher with more information, systematically arranged, about his spontaneous behavior than heretofore was possible. For example, statements that the teacher makes as an immediate response to students are isolated and can be compared with teacher statements that trigger student participation. Even the column totals which indicate the proportion of time spent in each of the ten categories constitute a surprise for some teachers.

The first two years at Minnesota were spent in refining the categories of observation and developing a paper-and-pencil attitude test on which students could indicate their attitudes toward the teacher and the class activities. A study of elementary and junior high classes in Minnesota and elementary classrooms in New Zealand (Flanders, 1959) indicated that there were consistent differences in the pattern of teacher statements when classrooms in which the students had more constructive attitudes were compared with classrooms in which the attitudes were less constructive.

A contract with the Cooperative Research Program, U.S. Office of Education, permitted measures of achievement to be investigated in more carefully controlled field studies. In one project all the materials necessary for a two week
unit in seventh grade social studies and eighth grade mathematics were supplied to teachers carefully selected in order to represent the extremes of teacher influence present in a larger population. The patterns of teacher verbal behavior were compared with gain in achievement as measured by pre- and post-tests. Student attitude inventory scores were also available. It was found (Flanders, 1960b) that the attitudes of students toward the teacher and class were significantly more constructive in classrooms in which achievement was higher. The verbal patterns of teachers in the superior classrooms were significantly different from those in the below average classrooms. These differences tended to support the hypotheses about teacher influence that were proposed in a chapter of the 59th N.S.S.E. Yearbook (Flanders, 1960c).

Further experiments were conducted in which teacher influence was controlled by training a teacher to role-play particular patterns of teacher influence. Filson (1957) showed that when the learning goals are unclear, as in a new task, lecturing and giving directions increase the dependence of students on the teacher. Amidon (1959) showed that the achievement of dependent-prone students in geometry is lower when teacher control is maintained by an above average use of lecturing, giving directions, and criticizing. On the other hand, when the teacher's control was maintained by an above average use of questions, followed by the development of the students' ideas, achievement was significantly higher. Anderson (1960) showed that dependent-prone students see teacher behavior differently than do the less dependent-prone, and they both have different expectations concerning the teacher's role.

The last project at Minnesota was an in-service training program in which teachers were trained to use interaction analysis in order to obtain information about their own spontaneous behavior. Participation in a ten week course produced significant changes in the spontaneous verbal patterns of teachers. The use of interaction analysis as a method of feedback (Flanders, 1961) for teachers showed considerable promise.

Part of the in-service training project included the design and production of five sound filmstrips for use in the in-service training of teachers (Flanders and Clarke, 1961). The set was produced by the Audio Visual Education Service, University of Minnesota; the filmstrips vary in length from 15 to 45 minutes, are in color and include tape recordings for sound reproduction. Number one deals with the attitudes of teachers toward in-service training. Number two introduces the basic concepts used in interaction analysis. Number three defines and gives examples of the ten categories. Number four demonstrates how to tabulate and interpret a matrix. Number five shows an application of interaction analysis to a teacher-pupil planning session in ninth grade social studies. Companion instructional materials for the use of filmstrip viewers are not yet completed.

The filmstrips were used successfully as part of observation training in a Minnesota school system during 1960-61. They also have been used for workshops at Temple University and the Teachers Laboratory, National Training Laboratories, Bethel, Maine, during the summer of 1961.

The extended research program at Minnesota has involved arbitrary value judgments which guided research activities, including what was studied and (Continued on page 178)
how it was studied. One value was that educational research should be practical in an engineering sense and make use of techniques that can be carried out in classrooms. Another set of values concerned superior and inferior teaching—it was decided that in a superior classroom: (a) student achievement of the content objectives should be higher than average, in spite of the limitations of our measuring instruments; (b) student attitudes should be more constructive, giving above average scores on an inventory that includes scales of teacher attractiveness, interest in doing schoolwork, fairness of rewards and punishments, less dependence on teacher direction, and less disabling personal anxiety; and (c) the students’ perceptions of the educational objectives and alternative classroom activities should be taken into consideration as part of the social situation, especially in planning work.

This value system operated to give us hunches about what is important in the teaching-learning process, what instruments to develop, and what comparisons might give us the most information. These values were somewhat like an insurance policy designed to protect our research interests but, like all insurance, there was no guarantee of positive or negative research results. Some of our hypotheses about teacher influence were rejected, others supported, even though all were “insured.”

Conclusions about Patterns of Teacher Statements

Although most of our research made comparisons of above average and below average classroom situations, the total six year program does permit some conclusions that reflect the current practices of teachers in general. During each cycle of research, the small group of teachers selected for costly interaction analysis were originally part of a larger teacher sample. Classes were selected which had the highest and lowest averages on a student attitude inventory. Thus, the generalizations to follow are based on the observation of only 147 teachers at all grade levels, from six different school systems—one in a foreign country. These teachers came from the extremes of a distribution involving several thousand persons. The total bits of information collected by interaction analysis observation was well in excess of 1,250,000.

The classroom interaction data all come from so-called academic learning situations not involving a foreign language. In the elementary classrooms rhythms, choral reading, physical education, folk dancing, and similar activities were not observed. Classes excluded from secondary school observations include physical education, shop, home economics, band, orchestra, glee club, foreign languages, and similar classes. No value judgment is implied; the interaction analysis data in these classrooms were too variable for efficient analysis.

Our research staff suggested “the rule of two-thirds,” in three parts, as an estimate that fits the average data from all classrooms. The rule is, about two-thirds of the time spent in a classroom someone is talking. Next, the chances are two out of three that the person talking is the teacher. Finally, when the teacher is talking, two-thirds of the time he will be expressing his own opinions or facts (lecturing), giving directions, and criticizing students.

The rule of two-thirds, as a commentary on current practice, should be compared with conditions found in superior classrooms. In superior classrooms
the first part of the rule holds; that is, two-thirds of the time someone will be talking. The second part is slightly modified since the percent of teacher talk is likely to be between 50 and 60 percent of the talking time and much more variable over short periods. That is, for short periods of time, the superior teacher may be almost a verbal non-participant or, on another occasion, be talking most of the time. The third part of the rule, involving the analysis of teacher talk, changes most in superior classes. Here, lecturing, direction giving, and criticism approach 40 percent of all teacher statements. Asking questions, clarifying and developing student ideas and opinions, giving praise and encouragement will approach 60 percent. Again variability of teacher influence is characteristic of superior classrooms. Compared to teachers in below average classrooms, the variability within the seven teacher categories in superior classrooms is 10 to 20 times greater.

In effect, the rule of two-thirds becomes the “rule of three-fourths or more” in classrooms in which the measures of student attitudes are below average.

It is clear, from our research that many factors affect patterns of teacher statements. Teachers of different grade levels and of different subject matter will produce radically different patterns of verbal behavior. There is also a source of variation observable over the academic year that may be due to teachers and pupils getting used to each other. For the same teacher, differences in verbal patterns can be expected at successive stages of problem solving, for different formations and classroom activities, even within a single one hour observation. Factors that influence the verbal behavior of teachers must be controlled in research of this kind.

Subjective Reactions to Research Efforts

The most pleasant surprise in the six year program has been the usefulness of interaction analysis as a training device, even though it was conceived as a research tool. Teachers and research observers report that they learn more about teaching during observer training and subsequent observations than at any other time.

For example, after an observation it is possible to engage in lengthy discussions about the use of praise and encouragement. Is the praise given in immediate response to student contributions more or less effective than praise buried “inside” a monologue? On another occasion an observer decided that a teacher was using praise to improve his power position and increase student dependence. In the ensuing argument we discovered the importance of the word because in giving praise. It was decided that when the criteria for the praise are made public, often following the word because, this decreases dependence. A mere, “Oh! I like that, Johnny!” without revealing the criteria, may increase dependence. The same insights may also apply to giving directions and criticism.

Often examples of brilliant teaching reveal themselves to an observer as difficult problems of classification. When a teacher pretended to act out possible difficulties a student might experience in carrying out a task, thus, in effect, helping the students anticipate and plan, how is this classified in a ten category system? Or, if a teacher is so clever in developing a student’s suggestion or idea that the observer cannot decide whether or not the teacher has shifted to lecturing, then the observer is in a
position to learn teaching skills that are new to his experience.

Participating in this kind of research has also helped many of our staff members take a second look at many clichés about teaching. We decided that if concepts about teacher behavior are to denote consistent patterns of teacher action, then there are no such things as democratic and authoritarian teaching. There is only a mixture. Superior teachers in our studies sometimes restricted and at other times expanded the freedom of action of their students.

Teacher-pupil planning is supposed to increase motivation and student commitment to participation. It may not do so if the plans that result are unrealistic or inadequate. When our superior teachers encouraged student participation during planning early in a unit, during the introduction of new material, or during the diagnosis of difficulties, they maintained their control or guidance by skillfully reinforcing some ideas that were on target and requesting further clarification of ideas that were off target. The net effect was to move the class toward desired goals by helping students test more adequately their perceptions and understandings. These same skills proved most effective in dealing with the few discipline problems that arose.

Our research experiences made us most intolerant of the "let's get tough" type of education critic. In terms of our data, most teachers dominated more than they realized, achieved more compliance than seemed necessary to coordinate activities, and established levels of dependence that stimulated some students to aggressive counter-dependent acts. If the average teacher reacts to the "get tough" plea with higher domination, our research results indicate that less learning, poorer attitudes, and even higher dependence will most likely result.

A frequent question of teachers who participated in our projects was whether or not the extra time required to share the planning and organizing of learning activities with students decreases content achievement. This is not easily answered. The superior and below average teachers both spent time in planning, but the quality of the planning was different. Planning in superior classrooms is likely to produce more sustained work later on because there are fewer interruptions and periods of replanning. In below average classrooms, planning was likely to involve giving an assignment and then lecturing about how it should be done. In superior classrooms, planning involved more questions by the teacher, more student participation, and more teacher responses to student ideas.

Taking into account these differences in planning, then, the answer from our data is that it depends on how you do the planning. Proper planning takes time, but not a great deal more than does less effective planning. Proper planning, as evidenced by the superior teachers in our study, is associated with greater content achievement.

References

which an effective program of evaluation may be judged:

1. Evaluation is comprehensive. The major objectives of instruction are evaluated by a variety of appraisal methods, including standardized tests and scales, but especially teacher-made tests, observations, questionnaires, anecdotal records, and sociometric techniques.

2. Evaluation is a continuous process. A teacher with a clear concept of instructional objectives evaluates throughout every day the behavior of the children.

3. Evaluation necessitates, on the part of the teacher, alertness and close observation of children in all types of situations in and out of the classroom.

4. Evaluation requires that the teacher interpret appraisal data in terms of the background, the level of maturity, and the personality of each child, for the purpose of guiding his growth and development.

Teacher Behavior
(Continued from page 180)


