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ABSTRACT

THIS PAPER PRESENTS A TRAINING MODEL, SKILL DEVELOPMENT IN TEACHING (SKIT), DESIGNED FOR USE IN IMPROVEMENT PROGRAMS FOR INSERVICE TEACHERS AND IN TEACHER EDUCATION PROGRAMS FOR PRESERVICE TRAINEES. AN INTRODUCTORY SECTION NOTES THE EARLY USE OF FLANDERS' INTERACTION ANALYSIS AS A FEEDBACK TOOL FOR TEACHERS, OUTLINES A 1962 MODEL IN WHICH IT WAS USED IN THE TEMPLE UNIVERSITY LABORATORY ON TEACHER ROLE BEHAVIOR, AND PINPOINTS A 1966 WORKSHOP ON INTERACTION ANALYSIS, NONVERBAL ANALYSIS, AND MICROTEACHING AS THE GENESIS FOR THE SKIT MODEL, WHICH COMBINES ALL THREE TECHNIQUES. THE FIVE STEPS IN THE SKIT MODEL ARE DESCRIBED: (1) STATEMENT OF BEHAVIORAL OBJECTIVES IN TERMS OF THE SPECIFIC TEACHING SKILL TO BE DEVELOPED; (2) SKILL SESSIONS IN WHICH THE PARTICIPANT PLAYING THE ROLE OF THE TEACHER PRACTICES THE CLASSROOM BEHAVIOR IN A MICROTEACHING CONTEXT; (3) DATA COLLECTION (VIA CATEGORY SYSTEMS FOR BOTH VERBAL AND NONVERBAL INTERACTION, VIDEO- OR AUDIOTAPE RECORDINGS OF THE MICROLESSON, AND PERCEPTIONS OF THE STUDENT PARTICIPANTS AND OF THE SUPERVISOR); (4) FEEDBACK SESSION FOR EXAMINING DATA; AND (5) FOLLOWUP PRACTICE. AN EXPANSION OF THE 10-CATEGORY INTERACTION ANALYSIS SYSTEM IS PRESENTED WHICH INCLUDES 29 SUBCATEGORIES TO PROVIDE FOR EXAMINATION OF CERTAIN BEHAVIORS IN GREATER DETAIL. SEVERAL CONSIDERATIONS RELEVANT TO THE MODEL'S EFFECTIVENESS ARE THEN DISCUSSED, E.G., TEACHER MOTIVATION, SUPERVISOR QUALIFICATIONS, ADVANTAGES. (JS)

INTERACTION ANALYSIS AND MICROTEACHING

SKILL DEVELOPMENT IN TEACHING*

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INTRODUCTION

Interaction Analysis, a method for studying the classroom, has been widely used for many years in research and teacher training. Recently its potential as tool in teaching skill development has been greatly enhanced by the development of Microteaching and the availability of the Vidiotape recorder. Interaction Analysis was thought to be a useful technique only in providing feedback to the teacher. Now it can be conceived of as a comprehensive teacher training tool.

Microteaching is actually practice teaching. It is scaled down in that the class, time, teaching objectives and learning objectives are all reduced from what they might be in the typical classroom situation. As microteaching has been used, the vidiotape recorder has been an important part of most programs of microteaching. It is not necessary however, and its use would depend on the teaching skill being practiced. The age of the student is also not prescribed; however, in most microteaching programs, the students have been of either elementary or secondary school ages.

Interaction Analysis was used with teachers as a feedback tool as early as 1959 (Flanders, 1963). The first of Interaction Analysis and Microteaching together seems to have been in 1962, at Temple University, in The Laboratory on Teacher Role Behavior.

THE PROCEDURE USED IN THE LABORATORY ON TEACHER ROLE BEHAVIOR:

1. Memorize the Interaction Analysis categories. Practice associating the category numbers with category definitions. This was done until all participants could make the association with the appropriate number and definition without hesitation.

2. Identification of categories in classroom interaction. Practice in classifying the behavior of teachers from tape recorded exerpts of teaching as well as role played classroom sessions. This was continued until the teachers in the laboratory on the average agreed with an "expert" 80% of the time when they classified a teaching segment.

3. Production of behavior. Participants practiced giving examples of the various categories. Participants could all give examples of each of the categories of Interaction Analysis.

4. Analysis of Interaction Analysis profiles. Participants were given practice in interpreting a variety of Interaction Analysis Matrices.

These first four steps comprised that part of the Laboratory on Teacher Role Behavior concerned with the learning of Interaction Analysis. These first four steps took from ten to fifteen hours.

The last part of Laboratory, the skill development part, was termed the skill session. This part hosted the remander of the Laboratory, about ten hours.

The following procedure was used in the skill session.

1. Plan a lession that could be tought in five to ten minutes. The objectives to be accomplished should be very specific and simple. A skill or knowledge that could be tought in a few minutes. The most important part

of the planning is that of planning the teaching behaviors to be used. The teacher plans a specific behavior to be used -- this plan takes the form of an Ideal Matrix, Ideal in the sense that teacher is planning to use a specific category in a certain way. An example, the teacher is planning to practice the use of accepting student ideas. Long acceptance statements that really demonstrate to students the teacher is listening. An example of an ideal pattern for this acceptance would be:

4	4
9	8
9	8
3	3
3	3
4	4
9	8
9	8
3	3
3	3

This type of pattern shows that the teacher plans to accept student ideas by acknowledging the idea and summarizing it or further clarifying it by relating it to other ideas or building questions on the idea.

2. Conduct the Skill Session. The teacher would teach the lession he had planned. The lesson would be five to ten minutes in length. During the session one teacher (Laboratory Participant) would observe using Interaction Analysis. The other teachers would be the students (five to ten). Those teachers playing students were asked to "play it straight," that is act the way they felt rather than to try to "act like a fourth grade student."

3. Data Collection During the skill session, Interaction Analysis data were being collected, and the session was being tape recorded. Immediately following the session the students involved were asked to write down

their reactions to the teacher in terms of Interaction Analysis. For example, was the teacher critical, accepting, did he just give information or did the students do much of the talking.

4. Feedback. This of course was the main function of Interaction Analysis. The teacher who had observed the skill session, summarized the data in a matrix and would give it to the teacher. The teacher also had the tape recording of the session and the reactions of the students to compare with the Interaction Analysis matrix.

At this point the teacher could discuss his plan and his teaching session with the students. In a sense, they would all act as his supervisor giving him feedback about his teaching behavior.

In the next few years a program much the same as the one included in the Laboratory on Teacher Role Behavior, was used experimentally with student teachers at Temple University. It was not until the spring semester of 1964 however, that data was collected about the effect of the program on student teachers behavior (Hough and Amidon, 1964). Between 1964 and 1967 Amidon (1968) systematically evaluated the effects of Interaction Analysis training on the student teachers behavior in student teaching. The results of this study indicated clearly that in terms of the behaviors the student teachers were practicing in microteaching they differed from student teachers in the control group who were not undergoing the Interaction Analysis program.

In the fall of 1966 the A.A.C.T.E. (American Association of College for Teacher Education) developed a workshop for teacher educators that included the components Interaction Analysis, NonVerbal Analysis, and Microteaching. After working in this workshop it became clear to me a single skill development program based on a single model, could include all three of the models

included in the A.A.C.T.E. workshop. (For a discussion of the components as they were presented in the original A.A.C.T.E. workshop see Theory Into Practice, Vol. VII, No. 5, December, 1968. Walter J. Mors Editor. The whole issue is devoted to the workshop). The experience in this workshop resulted in a new mode slightly different from the Interaction Analysis model just described. This model is the skill Development in Teaching Model or SKIT.

PRETRAINING FOR USING THE SKIT MODEL

The SKIT model for Skill Development in Teaching can be used to develop specific behavioral skills in both teaching improvement programs for in-service teachers and teacher education programs for teacher trainees. The Model might be employed at any or all of a number of points in the pre-service program; for example, it might be utilized as preparation for student teaching, and it might also be employed in conjunction with student teaching.

LEARNING THE INTERACTION ANALYSIS CATEGORIES:

It can be said that an adequate knowledge of the Interaction Analysis categories has been acquired when the teacher can easily (1) associate the category number with the behaviors included in the category, (2) recognize the behaviors (by number) as they occur in the on-going classroom interaction, and (3) role play a teacher using specific categories and category combinations upon request. Obviously, the third requirement for learning the Interaction Analysis categories is the most difficult to fulfill, and mastery of the skill involved in producing behaviors that correspond to category numbers serves also as preparation for the Skits.

THE CATEGORY SYSTEM:

There have been a number of category systems for analyzing verbal interaction in the classroom. Perhaps the best known of these has been the Interaction Analysis system with its ten categories for analyzing verbal behavior. The category system developed for this Model is a modification of the Interaction Analysis system in which each of the ten categories is divided into subcategories for study in greater detail. (Amidon, Rosenshine, and Amidon 1969, Amidon, 1969).

The Expanded Interaction Analysis System:

In the SKIT Model expanded categories in the modified Interaction Analysis system will be used to examine skills to be practiced.

In the Expanded Interaction Analysis system each category is broken down into two to four subcategories that are used to examine the behaviors that fall into each individual category in greater depth and detail. Differences in the ways in which various statements in the same category function in classroom interaction are studied with the expanded system. The Skits provide practice in using behaviors that fall into each of the subcategories and an opportunity to study the differences in the effects of each in classroom interaction.

The subcategories that have been developed for the Expanded Interaction Analysis system have come out of attempts to integrate some of the work of Marie Hughes, Hilda Taba, and James Gallagher and Mary Jane Aschner with work done in Interaction Analysis at Temple University in the last few years.

Category 1 - Accepts Student Feelings

1a - Acknowledges feelings. The teacher simply acknowledges the presence of some feeling in the classroom; she may identify the feeling by name.

1c - Clarifies feelings. The teacher attempts to relate the feeling he observes to a probable cause.

1r - Refers to similar feelings of others. The teacher indicates that the feeling he observes is natural or normal by referring to similar feelings that he has, or that people in general have, in like circumstances.

Category 2 - Praises

2w - Praises with no criteria. The teacher tells the student he is right or that what he has done is good, but gives no reason for the positive evaluation.

2P - Praises with public criteria. The teacher praises the student and gives a reason for the positive evaluation that is publicly verified and acceptable. An accepted authority, like the dictionary, may be used as the criterion for evaluating factual matters.

2p - Praises with private criteria. The teacher praises the student and explains that the praise is based on her private (nonauthoritative) standards or opinions. Statements in this subcategory communicate the teacher's preferences.

Category 3 - Accepts Student Ideas

3a - Acknowledges ideas. The teacher acknowledges a student contribution by simple reflection or a word such as "okay." No evaluation of the student's contribution is included in statements in this subcategory.

3c - Clarifies ideas. The teacher goes beyond simple acknowledgment of the student's contribution by restating the student's idea or speculating on its implications.

3s - Summarizes ideas. The teacher acknowledges contributions of several students by enumerating them or organizing them into a coherent sequence.

Category 4 - Asks Questions

4f - Asks factual questions. The teacher asks for a simple factual response. Questions in this category require recall rather than problem-solving or opinion-giving.

4c - Asks convergent questions. The teacher asks the student to compare or contrast, to relate two or more things in a significant manner, or to follow some formal procedure for solving problems, such as a mathematical formula.

4d - Asks divergent questions. The teacher asks the child to predict, to develop hypotheses, or to speculate on outcomes of actions in a hypothetical situation that does not permit evaluation of student responses as right or wrong.

4e - Asks evaluative questions. The teacher asks students for their evaluation of an idea or an event as better or worse, more or less appropriate, and the like.. Evaluation of student response as right or wrong is precluded by the nature of the question.

Category 5 - Lectures

5f - Factual lecture. The teacher communicates factual information or subject-matter content.

5m - Motivational lecture. The teacher attempts to communicate enthusiasm or excitement about subject matter to children or in some other way arouse interest through the use of lecture statements.

5o - Orientation lecture. The teacher describes the procedure for approaching subject matter or presents some framework for what the class has been doing or will do.

5p - Personal opinion lecture. The teacher provides personal opinions or evaluations of ideas or procedures.

Category 6 Gives Directions

6c - Gives cognitive directions. The teacher asks children to do a task primarily cognitive rather than overtly physical, such as writing the answer to a problem on the board.

6m - Gives managerial directions. The teacher directs the student or students to perform a physical maneuver, such as moving chairs.

Category 7 - Criticizes

7w - Criticizes with no criteria. The teacher criticizes with no explanation of the reason for the criticism.

7P - Criticizes with public criteria. The teacher criticizes a student and explains the criticism in terms of public standards for evaluation.

7p - Criticizes with private criteria. The teacher criticizes a student and explains the criticism in terms of his personal preferences or aversions.

Category 8 - Predictable Student Talk

8f - Factual student talk. The student gives factual information, usually in response to a teacher question classified as 4f.

8c - Convergent student talk. The student makes a statement involving use of facts in a specified process, such as following a formula or contrasting events, usually in response to a teacher question classified as 4c.

Category 9 - Unpredictable Student Talk

9d - Divergent student response. The student speculates or hypothesizes on how things might be (or might have been) under given circumstances usually in response to a teacher question classified as 4d.

9e - Evaluative student response. The student gives his evaluation of an idea or event as better or worse, more or less appropriate, etc., usually in response to a teacher question classified as 4e.

9i - Student-initiated talk. The student makes an unsolicited comment.

Category 10 - Silence or Confusion*

10s - Silence. There is a period of at least three seconds in which no one is talking.

10c - Confusion. There is a period of at least three seconds in which more than one person is talking, and it is not possible to hear what a single person is saying.

USING THE CATEGORY SYSTEM IN THE SKIT MODEL:

The procedure for using the category system as a data collection instrument and feedback device in the SKIT Model differs from its use as an observa-

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*Note: Category 10, without a subcategory letter, has a conventional use. All coding sequences begin and end with 10, so that a summary matrix prepared from the raw data will balance. It is also used to indicate a change of student when one student interrupts another student who is talking.

tional technique in the classroom in one respect only - the use of expanded categories for behaviors directly relevant to the objective of the skill session. If the purpose of the skill session is to develop skill in asking several different kinds of questions, for example, teacher question and student answer categories will be divided into subcategories, while for all other classroom behaviors only the basic Interaction Analysis categories will be used. Praise, for example, would simply be coded by the observer as "2," but questions would be coded 4f, 4c, 4d, or 4e, depending on the type of question. The students' responses would also be differentiated through the use of subcategories. The Skit number(s) corresponds to the category(ies) to be coded in the expanded system. Because the category system is expanded through the use of subcategories rather than new categories, data collected in the Expanded Interaction Analysis category system are comparable to all data collected under the basic Interaction Analysis system, but the subcategories enable the teacher to examine certain behaviors in greater detail.

DETAILED EXPLANATION OF THE SKIT MODEL

A few minutes devoted to warm-up activities often make the first skill sessions in the SKIT Model go more smoothly. Exercises in role playing similar to those used for learning Interaction Analysis categories may be used as a transition into the skill sessions. For these warm-up exercises participants may group themselves in threes, with one person playing the role of the teacher, one the role of the student, and the third acting as observer. The teacher practices simple interaction sequences (such as 4-8-2), with appropriate student response, and the observer records the interaction categories. After several category sequences have been practiced, the participants change roles until everyone has had an opportunity to play the teacher. An alternative to a general warm-up prior to beginning the Skits is to have specific warm-up sessions

introducing each Skit individually and giving practice in working with the subcategories.

STATING OBJECTIVES:

Many psychologists interested in programmed instruction, along with other researchers, have been trying to impress upon educators the importance of stating objectives in behavioral terms. The argument for behavioral objectives is that if the objective is stated in such way that the behavior specified in the statement of objectives can be observed directly, then it is possible to determine precisely when the objective has been accomplished and when it has not. Further, when coupled with appropriate methods for data collection and feedback, behavioral objectives can help to make evaluation in any educational context free from bias and subjectivity.

Objectives may be expressed either in terms of student behavior or in terms of teacher behavior. The SKIT Model has been designed to help teachers improve certain specific skills that may apply to a wide range of classroom situations with varying objectives for student behaviors. For this reason objectives are stated in terms of teacher behaviors in the Model. Moreover, by stating objectives in terms of teacher behaviors, confusion over how to attain the objective may be eliminated and a more effective learning situation provided for participating teachers. In the SKIT Model, then, the first step in developing teaching skills is to state, in very specific terms, the teaching behaviors the teacher wishes to develop.

The method employed in the SKIP Model for achieving the requisite specificity in stating behavioral objectives is that of expressing skills to be acquired in terms of Interaction Analysis categories of teacher behavior, categories of other observational systems currently available, or new categories

developed in work with the trainee. Teachers are trained in the use of Interaction Analysis or another system of behavioral categories for evaluation of their own attempts to produce specific desired behavioral patterns.

The Model is based on the assumption that, in developing a skill, the teacher cannot be overloaded with a multiplicity of factors to consider. This is the reason why objectives are stated in very specific terms, and ONLY those objectives stated for a specific skill session are considered in evaluating that microlesson.

SKILL SESSIONS:

Teaching skill sessions are sessions in which the participant playing the role of the teacher practices specific classroom behaviors in a Microteaching context. The class size is limited to between five and ten students, and the duration of the lesson is restricted to about five minutes. The content of the lesson is limited as well, and the roles students and teachers are expected to play in the lesson are clearly understood in advance in order to free the teacher to concentrate on developing the specific skill.

Limiting skill sessions in this way is vital to the success of the training program. In a scaled-down Microteaching situation the teacher can focus most easily on specific skills to be developed and, quite significantly, short skill sessions can easily be repeated after feedback has been obtained by the teacher until the skill has been fully developed and made a permanent part of the teacher's repertoire.

DATA COLLECTION:

The nature of the data collection methods employed in a simulated teaching situation determines the nature of the feedback available to the teacher.

Consequently, the four kinds of data collection used in the SKIT Model constitute an important aspect of the model. They are designed to give as complete a picture of the classroom interaction as possible, and they are complementary to one another. The four data collection techniques employed are as follows:

1. Data expressed in a category system for behavioral observation
2. Videotape or audiotape recordings of the mocrolesson
3. Perceptions of the participants who play the role of the students
4. Perceptions of the supervisor
5. Data expressed in a category system lsing the NonVerbal Interaction analysis

The use of a category system such as Interaction Analysis is particularly appropriate for gathering precise and relatively objective data for immediate, quantitative feedback to the person attempting to acquire or improve a particular teaching skill. The primary advantage of this particular approach to gathering data is its potential for precision and objectivity. Through the use of Interaction Analysis categories the teacher can obtain a record of (1) the number of times the desired behavior occurred, (2) the duration of each instance of desired behavior, and (3) the percentage of time employed by the teacher in performing the desired behavior.

By contrast the audiotape or videotape recording is used to gather a record that is both complete and objective, but altogether undifferentiated. It can be referred to when the teacher wishes to examine specific instances of desired or undesired behavior, especially when the teacher's aim proves to be at variance with the result obtained in terms of behavioral categories.

Subjective data relevant to the objectives of the skill session are gathered in the form of the perceptions of both participants who played the

roles of students and the supervisor who observed the lesson. These data can help to focus the teacher's attention on the effect of certain behaviors on the class and to explain instances when the teacher's behavior as categorized by the observer does not correspond to his intent.

FEEDBACK SESSION:

Immediate, comprehensive feedback is a significant aspect of the SKIT Model. The four types of data collected during the skill session can be made available to the teacher promptly in a follow-up feedback session led by the supervisor of the training program. Further, because so much objective data are available, the teacher can evaluate his own progress toward developing a specific skill with no need for criticism or negative comment from the supervisor.

The data collected by an Interaction Analysis observer, in particular, are presented to the teacher either in a summary matrix or in basic data sheet form with key codings pinpointed. The supervisor may help the teacher to determine from the data sheet the points at which his behavior in the skill session did and did not coincide with the stated objective of the skill session. The teacher can use the data to determine what further practice sessions are required.

After the teacher is familiar with the Interaction Analysis data, he may wish to have the audiotape or videotape recording played back, so that he can examine certain points in the interaction. The supervisor may help by using notes of his perceptions to focus the feedback session on specific instances of desired or undesired behavior, stopping the tape at appropriate points to discuss the relevant behaviors with the teacher.

Students' perceptions of the effect of the teacher's behavior on the class can be written down and given to the teacher on small slips of paper. These may also help to isolate particular interaction patterns to watch for during the playback of the tape recording.

PRACTICE:

Practice is an essential element in any skill development program. Teachers can determine what further work they require to develop a specific skill during the feedback session with the supervisor. They may then decide to repeat the skill session in its entirety or to modify it so that they can focus on one aspect of the skill they are trying to develop. Data are collected again during the practice sessions, and feedback sessions are held after each so that the teacher can evaluate his progress and determine the need for further practice.

GENERAL COMMENTS ON USING THE MODEL:

In using the SKIT Model we have found that there are a number of considerations relevant to its effectiveness. The following seem particularly noteworthy:

1. This Model cannot be used unless teachers are first trained to use an observational category system such as Interaction Analysis, so that they can understand and interpret data representing teaching patterns they are attempting to develop. While Interaction Analysis is relatively simple to learn, other systems, though more complex, are also useful within this Model, as are such modifications of the basic Interaction Analysis category system as the one included in this Manual. The time involved in training teachers according to the SKIT Model is likely to be greater, as a result of the need for

pretraining, than that required for earlier programs in either basic Interaction Analysis or Microteaching.

2. A second factor to be considered is the motivation of the teacher attempting to improve his teaching skill. To analyze his own teaching and to work intensively on specific teaching behaviors require a good deal of commitment on the part of the teacher. When a teacher, a student teacher, or teaching intern is working in a program in which his participation in the skill development sessions we have described is required by a school district or by a teacher-training institution, motivation is to some extent built into the structure of the program. A teacher may decide to take part in the program because he wants a particular grade in the course, or because he is being paid by his school district to improve; or he may decide to participate in a program with other teachers on a voluntary basis. In any of these cases, however, he may expect to have support for his efforts from other teachers and administrators. Moreover, the difficulties he encounters in trying out any given skill will probably not be unique; they may be shared with others and worked out by the group. When a teacher is working by himself to develop and refine teaching skills in the day-to-day classroom situation, he may easily become discouraged. On the other hand, a group of teachers who have all participated in a skill development program may, by working together, maintain their interests in a continuing program of teaching improvement based on the Skit Model. Teachers can meet periodically to develop more complex objectives and team up woth other teachers to collect interaction data and analyze them for each other.

3. Skill training in this type of modular program may be thought of as artificial in some respects. A number of people have suggested that

any kind of skill development program that utilizes a setting in which certain conditions present in the real classroom situation are eliminated has a kind of unreality about it. This may, in fact, be the price one has to pay when he participates in a program designed to isolate teaching skills as specific behaviors that can be practiced and developed to the point at which they can be integrated into a total teaching style. Data collected on student teachers who had participated in programs at Temple University (Amidon, 1967) and at Ohio State University (Lohman, Ober, and Hough, 1967), which used the basic elements of this Model, have confirmed the potential for transfer of teaching skills into the actual classroom situation, however. Student teachers trained in these programs were found to be more accepting of student ideas and feelings, to ask more broad questions, and to criticize students less frequently than student teachers who had participated in more traditional programs. Their teaching behavior was generally more flexible than that of the control group.

4. The Model outlined here is often alleged to inhibit creativity or free expression in teaching, and some regard this is a real danger. For example, in developing one appropriate listening behavior through reflection or summary of what the other person has said, does the teacher totally extinguish from his repertoire other desirable responses such as spontaneous insight, excitement, or enthusiasm? Questions such as these are often raised, and this issue can easily be clarified.

An important objective of training programs developed according to the SKIT Model is to free participants from stereotypic reactions to student behaviors. If a teacher or student teacher going through such a training program finds himself stuck in the rut of repeating

such phrases as "I guess you're saying...," "I understand how you feel," "You may be suggesting, then...." or "That's very interesting..." then the goals of the training have certainly not been achieved. The SKIT Model has been developed to produce behaviors that are the antithesis of dull repetition of stock phrases.

5. It should be noted that in actual use of the procedures described here the various steps are not always as clear-cut as they may appear to be on paper. In all areas of applied social science models that seem to be useful on paper fail in practice, and one essential ingredient in the development of training programs based on the SKIT Model is the skill of the consultant or supervisor to the program. A skilled supervisor will to a degree tailor the program to the specific needs of the group in order to increase the effectiveness of the skill development program. Before beginning the skill sessions, he will wish to provide ample opportunity for members of the group to express their ideas about what specific training needs they have. As the skill sessions progress, he will be sufficiently sensitive to the situation to know when to adjust the number and kind of practice sessions to the needs of the participants. He should see when it is necessary to shift from one kind of skill session to another or repeat the same skill session. Objectives of any one skill session may be easily met by members of one group, while another group may require a considerable amount of practice and repetition. In any event, practice should continue until the objectives have been met. The supervisor may find it advisable in some cases to go on to a different skill and return to the more troublesome one after some time has passed, or he may get at the problem by suggesting different supplementary skill sessions related to the problem area.

6. A word or two might be said about the qualifications of a skilled supervisor, since extensive general academic training in theoretical and applied behavioral sciences is not a requirement. Teachers and others concerned with education can easily use a training program based on the SKIT Model as a first step in short but intensive training to gain the necessary skills to assume the role of SKIT supervisor. The supervisor should:

   A. Have extensive experience in observing and categorizing classroom interaction, using Interaction Analysis and other behavioral category systems.

   B. Have some knowledge of the related research on teaching in order to understand thoroughly the potential as well as the limitations of the Model.

   C. Have advanced knowledge of methods of interpreting data representing classroom interaction patterns, in addition to data analysis methods learned in SKIT Model training program.

   D. Have undergone sufficient training to be able to model (demonstrate) any of the skills that may be developed in a training program that he supervises.

7. Advantages of the Model: Many questions that have been difficult to answer in teacher education seem answered by either microteaching or Interaction Analysis. Either method by itself leaves room for improvement. The Skill Development in Teaching model combining Interaction Analysis and Microteaching provides a framework for increasing almost any verbal or non-verbal teacher skill.

   A. Specification of teaching behaviors to be learned.

      Both verbal and non-verbal behaviors can be identified for practice in microteaching sessions. This can be done objectively

using the Interaction Analysis system both to "model" the behavior and also to access its production.

B. Objective assessment of behavior.

The Interaction Analysis is a procedure that according to numerous studies indicates very high reliability (in observer agreement). A trained observer acting as a supervisor will rarely make an error in assessing the skill the teacher is trying to develop.

C. Self evaluation of teaching skill.

The teacher himself, once he has learned Interaction Analysis is able to determine whether he has been able to use a specific teaching behavior. By using the vidio or audio tape playback of his microteaching, a teacher can evaluate his own attempts to develop a specific teaching skill.

D. Step by step development of skills.

The (SKIT) program provides practice at first in very simple uses of teaching behavior. When the teacher understands the behavior, i.e., he is able to produce it and distinguish it from other teacher behaviors then he practices the behavior in a microteaching session.

E. Psychological safety in skill development.

The Skill Development in Teaching Program (SKIT) provides a degree of safety and freedom from threat that are not possible in the real classroom. This is necessary in the development of any skill - but particularly crucial in anything as complex as human communication skills.

F. Clear definition of role for the supervisor.

The use of Interaction Analysis and microteaching gives the

supervisor a role that frees him from the traditional role of evaluator. The role becomes one of data collector. He also can help focus the teacher on what he feels are the critical points in the lesson.

G. Clarification of discrepencies involved in the development of a skill.

An example of this was seen recently when a number of teacher educators were seeing a demonstration of the SKIT model. The Interaction Analysis (Verbal) indicated that the teacher had achieved the objectives for the microteaching. This was a SKIT involving the use of category three. The data collected from the students indicated that several students were uncertain about whether student ideas were being accepted. Further, a Nonverbal Interaction Analysis would indicate that the teacher was not completely congruent while accepting ideas verbally. Certain non-verbal behaviors that teacher used while using verbal acceptance were not accepting. Some of these such as a hesitancy in tone of voice, turning away as a student is speaking, and lack of eye contact were observed by a student acting as non-verbal observer. The audio and vidiotape replay offered further evidence that the teacher needed further practice in the use of this category.

H. Teacher and Supervisor role rotation.

Because the data actually provide the supervision - it is the preferred situation when the supervisor is himself a member of the the group undergoing the program.

APPLICATION OF THE MODEL IN THE CLASSROOM:

The SKIT Model, once it has been learned by the teacher, can be adapted for use in the classroom in a continuing teaching improvement program. There are several advantages to using the Model in this way. First, although skill sessions provide an opportunity for practicing basic teaching skills, practice in a microlesson is not the same as practice in actual classroom situations. Most people would agree that there are many conditions present in the real classroom that do not exist in the microlesson or in the student-teaching class. Consequently, while the skill development program outlined here can increase the range as well as the depth of the participant's teaching repertoire, it does not guarantee complete transfer into diverse teaching situations.

The SKIT Model can be expanded and adapted for use by the teacher in his own classroom as a follow-up to successful completion of a skill training program. Objectives can be stated for a particular teaching style suited to a specific curriculum; for example, a complex set of objectives could be drawn up by the teacher in terms of behavioral categories and category sequences suitable for a science discovery lesson, a new mathematics lesson, or a social studies inquiry lesson. Data collection can be accomplished in a way similar to that described above; that is, the teacher can make arangements to have his lesson put on tape, and the taped interaction can be coded in behavioral categories by another classroom observer or by the teacher himself. The teacher can then analyze the coded data in terms of the objectives he has established for the lesson. In this way the teacher can give himself feedback about the extent to which he has accomplished the objectives for each recorded lesson. When discrepancies between objectives and behavior are isolated, he will want to practice the specific teaching skills in question.

Application of the SKIT Model in the classroom can thus give the teacher a valuable tool for continuing self-evaluation, experimentation, and improvement. By adapting the model for use in his own classroom, the teacher can direct the course of a personally tailored skill development program consistent with his own objectives for greater teaching effectiveness.

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