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ABSTRACT

Systematic and reliable feedback are critical elements of microteaching. One system whereby pre-service and in-service teachers may obtain systematic and reliable feedback during microteaching is called the Social Science Observation Record (SSOR). This monograph is intended to meet three purposes: (1) To explain the SSOR as a verbal system for describing behaviors that occur during instruction; (2) To enable pre-service and in-service teachers to organize and interpret data; and (3) To present operational definitions and coding conventions used by persons who code Social Science Observation Record data. Pursuant to these purposes, the monograph is divided into two sections. In Section 1 an explanation of the system is provided, enabling participants in microteaching to organize and interpret SSOR data. In Section 2 operational definitions and coding rules are provided, enhacing further the ability of participants in microteaching to interpret SSOR data. (Author)

THE SOCIAL SCIENCE OBSERVATION RECORD:
A Guide for Pre-service and In-service Teachers Participating in Microteaching

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Introduction

Systematic and reliable feedback are critical elements of micro-teaching. One system whereby pre-service and in-service teachers may obtain systematic and reliable feedback during microteaching is called the Social Science Observation Record(SSOR). This monograph is intended to meet three purposes:

(1) To explain the SSOR as a verbal system for describing behaviors that occur during instruction;

(2) To enable pre-service and in-service teachers to organize and interpret data; and

(3) To present operational definitions and coding conventions used by persons who code Social Science Observation Record data.

Pursuant to these purposes, the monograph is divided into two sections. In Section 1 an explanation of the system is provided, enabling participants in microteaching to organize and interpret SSOR data. In Section 2 operational definitions and coding rules are provided, enhancing further the ability of participants in microteaching to interpret SSOR data.

Section 1

THE SOCIAL SCIENCE OBSERVATION RECORD: AN OVERVIEW

The Social Science Observation Record (SSOR) is an interaction observation system. The system enables its users to engage in interaction analysis. Empiric studies indicate that knowledge of the system enables pre-service teachers in self-selected directions to modify their instructional behavior. The system also provides a conceptual model linking cognitive, affective and management dimensions of inquiry.

The SSOR contains seventeen (17) categories, four (4) realms, twelve (12) sub-matrices and six (6) segments of "wait time". Realm I is comprised of five categories stressing verbal behaviors related to learning subject matter. These subject-centered categories are topical, empirical, interpretive, defining, and clarifying. Five other categories of verbal statements (Realm III) stress the meaning of human experience, knowledge, values, thought, and behavior for man. These man-centered categories are called preferential, consequential, criterial, imperative and emotive. A third set of five categories (Realm II) stresses verbal statements through which inquiry can be managed. These teacher-centered categories are called infirming, commentary, dissonant, interrogative, and confirming. The sixteenth category provides for "wait time" and the seventeenth records disruptive noise. Together these two categories (silence and confusion) comprise the fourth realm (Realm IV) of the SSOR.

The categories included in the system encourage the teacher to think in terms of language configurations. The subject-centered categories yield language configurations symtomatic that knowing and thinking are occurring. The man-centered categories yield language configurations indicating that

values are being clarified. In combination these two realms (Subject-Centered and Man-Centered) generate patterns of language suggesting that value clarification is occurring in the light of accurate conceptualization, and contrary-wise, that efforts at value clarification are being conceptualized and made available for reflective study. The third set of categories (Realm II) provides alternative patterns of influencing behavior that either the teacher or students can use to elicit categories and configurations of language functional to inquiry. The two non-verbal categories indicate the relationship (s) between the nonverbal and verbal behaviors which occur during classroom interaction.

The SSOR can be applied to teacher and student behaviors in a number of ways. The following are illustrative of some of its uses:

1) To become more sensitive to language patterns being employed in the classroom;

2) To collect objective descriptive data relevant in instructional objectives;

3) To operationalize instructional theories, strategies, and techniques; and

4) To help teachers shape their verbal patterns of behavior to fit their purposes.

The intent of the materials in this introductory section is to help you understand the concepts and vocabulary employed by the SSOR and to enable you to interpret SSOR data in the light of instructional objectives.

THE SSOR: AN OVERVIEW OF FUNCTIONS

REALM	CATEGORY OF STATEMENT	FUNCTION*
I. Subject-Centered	1. Topical	identifying the focus
	2. Empirical	stating facts
	3. Interpretive	assigning meaning
	4. Defining	avoiding semantical confusion
	5. Clarifying	elaborating ideas
II. Teacher-Centered	6. Infirming	expressing disagreement
	7. Commentary	consolidating and structuring
	8. Dissonant	requesting clarification
	9. Interrogative	eliciting responses
	10. Confirming	accepting
III. Man-Centered	11. Preferential	assigning value ratings
	12. Consequential	anticipating effects
	13. Criterial	identifying the basis
	14. Imperative	considering decisions
	15. Emotive	expressing feelings
IV. Non-Verbal	16. Silence	wait time
	17. Confusion	adjustment time

*The functions as given are meant to be illustrative but not inclusive.

THE SCALE: SHORT DEFINITIONS

REALM	CATEGORY OF STATEMENT	DEFINITIONS
I. SUBJECT-CENTERED	1. Topical	Student statements identifying the theme, the unit, the concept, the issue, or the problem that is the focus of group discussion.
	2. Empirical	Student statements providing verifiable data from memory, observation, reading, or oral presentation.
	3. Interpretive	Student statements assigning meaning to data or experience and expressed in the form of notions, opinions, comparisions, relationships, and connections.
	4. Defining	Student statements as to the meaning of a word or concept by reference to an accepted source, by context, by examples, by operant criteria, or by ideal type.
	5. Clarifying	Student statements rewording, rephrasing, elaborating on, or expanding on other statements by ways of explanations.
II. TEACHER-CENTERED*	6. Infirming	Teacher or student statements of rejection, criticism, closure, or dissatisfaction expressed in the form of sarcastic, doctrinaire, or negative remarks.
	7. Commentary	Teacher or student statements reviewing or summarizing the directions of a group: or, teacher statements summarizing, consolidating structuring providing new information, new directions, or responding to student requests for information.
	8. Dissonant	Teacher or student statements indicating that what is being said is not understood, is causing confusion, or lacks either internal or external consistency.
	9. Interrogative	Teacher or student questions expressed during group interaction.
	10. Confirming	Teacher or student statements expressing acceptance, satisfaction, encouragement, or praise.
III. MAN-CENTERED	11. Preferential	Student statements assigning a value rating or classification to an idea, person, group, object, etc.
	12. Consequential	Student statements identifying the known or anticipated effects of an action, idea, object, feeling, etc.
	13. Criterial	Student statements identifying the basis for a decision, a judgement, an action, an interpretation, etc.; or, developing a table of specifications for use in decision-making.
	14. Imperative	Student statements of what should or should not be; of what ought or ought not to be done or expressing a decision achieved by the group.
	15. Emotive	Student statements indicating personal feelings; or, efforts to express empathy with regard to the personal feelings of others.
IV. NON-VERBAL	16. Silence	Period indicating quiet, absence of verbal interaction, reading, thinking, non-verbal activities, or work.
	17. Confusion	Verbal or non-verbal interference or commotion making it difficult for members of the group to communicate.

*All teachers talk must be recorded in one of the teacher-centered categories.

Code No. _____

SSOR DATA COLLECTION FORM

(Casteel and Stahl)

16

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

OBSERVED _____ DATE _____ TOPIC _____

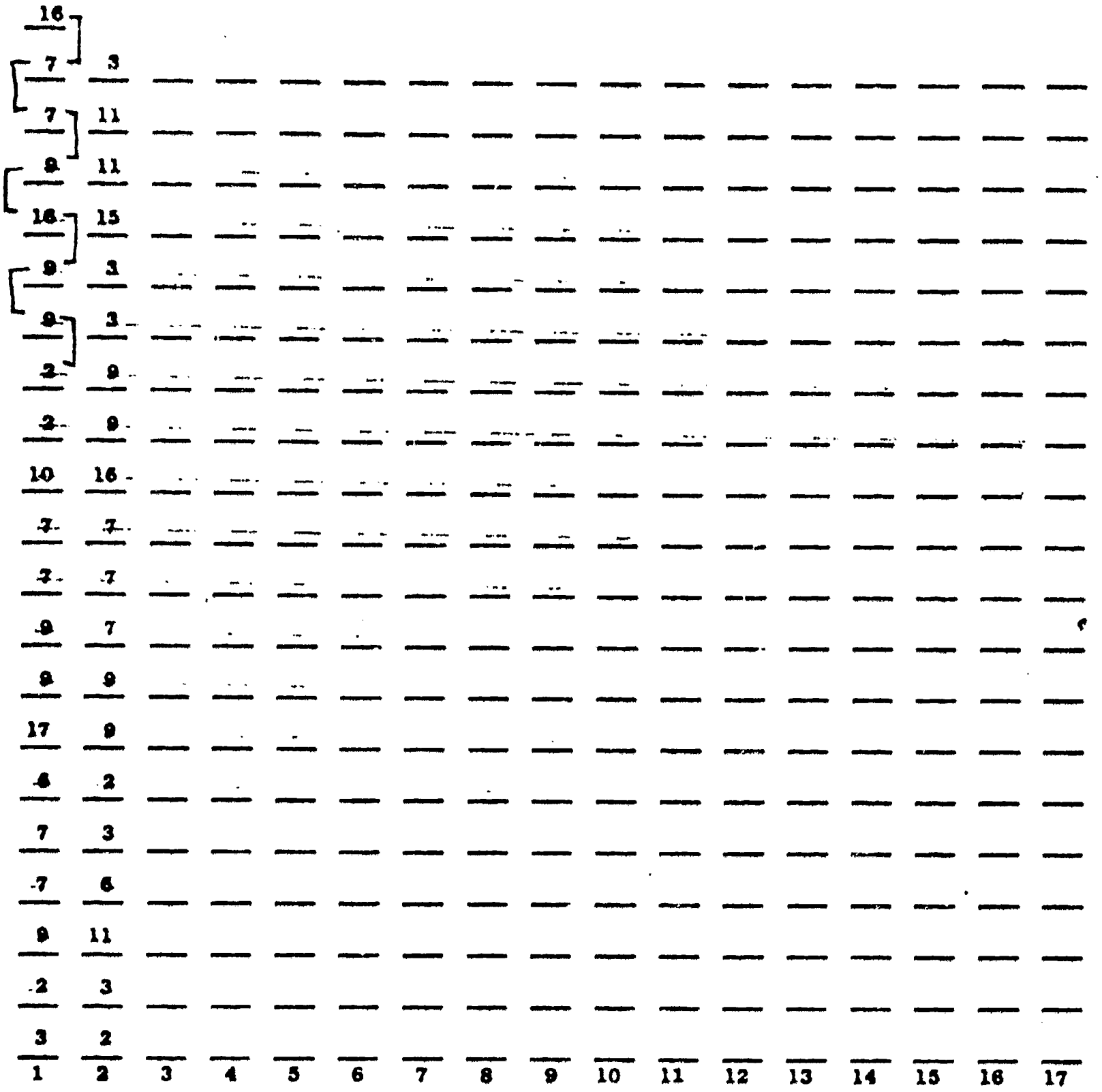
OBSERVER _____ PLACE _____ TIME _____

OTHER _____

Code No. _____

SSOR DATA COLLECTION FORM

(Casteel and Stahl)



OBSERVED _____ DATE _____ TOPIC _____

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SSOR SCATTER DIAGRAM
J. Doyle Casteel and Robert J. Stahl (c. 1972)

Code No. _____

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Total
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Observed: _____ Date: ___/___/ 73 Topic: _____

SOCIAL SCIENCE OBSERVATION RECORD (SSOR) MATRIX

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	1. Topical	2. Empirical	3. Interpretive	4. Defining	5. Clarifying	6. Infirming	7. Commentary	8. Dissonant	9. Interrogative	10. Confirming	11. Preferential	12. Consequential	13. Criterial	14. Imperative	15. Emotive	16. Silence	17. Confusion
1. Topical																	
2. Empirical																	
3. Interpretive																	
4. Defining																	
5. Clarifying																	
6. Infirming																	
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SOCIAL SCIENCE OBSERVATION RECORD (SSOR) MATRIX

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1. Topical		A					D	D				C	C				
2. Empirical																	
3. Interpretive																	
4. Defining																	
5. Clarifying																	
6. Infirming																	
7. Commentary																	
8. Dissonant																	
9. Interrogative																	
10. Confirming																	
11. Preferential		G															
12. Consequential																	
13. Criterial																	
14. Imperative																	
15. Emotive																	
16. Silence		K						K				K					
17. Confusion																	

DESCRIPTION OF SSOR SUBMATRICES*

SUBMATRIX	DESCRIPTION
A	twenty-five (25) cells showing patterns of student Subject-Centered statements following student Subject-Centered statements.-
B	twenty-five (25) cells showing patterns of teacher or student Teacher-Centered statements following student Subject-Centered statements.
C	twenty-five (25) cells showing patterns of student Man-Centered statements following student Subject-Centered statements.
D	twenty-five (25) cells showing patterns of student Subject-Centered statements following teacher or student Teacher-Centered statements.
E	twenty-five (25) cells showing patterns of teacher or student Teacher-Centered statements following teacher or student Teacher-Centered statements.
F	twenty-five (25) cells showing patterns of student Man-Centered statements following teacher or student Teacher-Centered statements.
G	twenty-five (25) cells showing patterns of student Subject-Centered statements following student Man-Centered statements.
H	twenty-five (25) cells showing patterns of teacher or student Teacher-Centered statements following student Man-Centered statements.
I	twenty-five (25) cells showing patterns of student Man-Centered statements following student Man-Centered statements.
J	thirty (30) cells showing patterns of Non-Verbal behaviors following teacher and student verbal behaviors.
K	thirty (30) cells showing patterns of teacher or student verbal statements following Non-Verbal statements.
L	four (4) cells showing patterns of Non-Verbal behaviors following other Non-Verbal behaviors.

*Submatrics enable the teacher or researcher to collect and quantify different aspects of classroom verbal and non-verbal behavior patterns.

J. Doyle Casteel and Robert J. Stahl, (c. 1973)

Section 2

THE SOCIAL SCIENCE OBSERVATION RECORD: EXPANDED DEFINITIONS AND GROUND RULES

The definitions and ground rules presented in this section are intended to increase the reader's understanding of each of the seventeen categories in the Social Science Observation Record. In elaborating the short definitions presented earlier, the authors have attempted to develop category-by-category definitions. Although each category is defined in terms of its own characteristics and functions, the fact that the SSOR does comprise a system of complementary categories means that each category must be thought of within the context of all the categories. For this reason, the reader may wish, first, to read the essay in its entirety for a general understanding and, then, more deliberately category-by-category.

-1-

Topical Statements

Topical statements identify the focus of group discussion. Suppose students are using the theme of fear in order to analyze a number of contemporary reactions to social change: student statements isolating fear as the theme guiding their discussion are topical statements. Suppose students are engaged in studying the American Revolution: student statements identifying the American Revolution as central to their discussion are topical statements. Suppose students are exploring the concept of social system through a discussion of the network of human behaviors associated with the use of interstate highways: student

statements identifying social systems as central to their inquiry are topical statements. Suppose students are selecting and organizing data in order to weigh the importance of law versus morality as this issue relates to such matters as abortion, euthanasia and the draft: student statements identifying law versus morality as the central issue are topical statements. Suppose students are dealing with the problem of how to decrease feelings of alienation among adolescents: student statements pointing to the problem of adolescent alienation as the point of inquiry are topical statements. When students are identifying the theme, the unit, the concept, the issue, the topic, or the problem serving as the focus and boundary of relevant discussion, students are expressing topical statements.

> Ground rule 1. Quite often the topic of discussion is presented as a given condition by the teacher or leader of the group. Later the teacher may request that students restate the topic of discussion as initially given. At other times, a student may volunteer the topic of study. In either instance, student statements identifying the focus of inquiry are coded as topical statements.
>
> Ground rule 2. Once the teacher or a student has requested the topic of discussion, all efforts to identify the topic are coded as instances of topical statements. This holds true, even though students may offer alternative answers that differ from one another as to the correct focus of discussion.

The focus of discussion can be determined by the discussion group or given as a condition within which the inquiry is expected to proceed. Once established, the teacher can elicit topical statements by asking students to name the topic of discussion. Topical statements help members of discussion groups to maintain focus and continuity. At the same time, a student charged with wandering away from the focus of discussion can

use topic statements to examine the charge of impertinence on its own merits and respond, where valid, with an explanation as to the sense in which he believes his comments are germane to the focus of discussion. Because topical statements operate in these ways, they provide members of a discussion group with boundaries within which they can engage in free inquiry.

-2-

Empirical Statements

Empirical statements provide inquiry with an objective thrust. Students use empirical statements to report, to share, and to pool data. When students read for information and state what they have read they express empirical statements. When students view a visual presentation (picture, film, filmstrip, cartoon, etc.) and share data as to what they have seen they express empirical statements. When students listen (lecture, speaker, recording, etc.) and report data as to what they have heard they express empirical statements. When students participate in group activities (role play, games, simulations, etc.) and pool descriptive data with regard to what occurred while an activity was being pursued, they express empirical statements. When students review what they have done, the ideas or values they have expressed, or the feelings that have previously been reported with the intent of summarizing, they express empirical statements. When members of a discussion group make statements reporting verifiable data from memory, observation, participation, reading or oral presentation they express empirical statements.

> Ground rule 3. When a student reports what he has read, observed, listened to, etc., as descriptive data the assumption is that he expects the group to accept and use his statements as factually accurate. At this point the statement that heretofore was correctly coded as an empirical statement (category 2) has become a question of interpretation and is no longer, if repeated, coded as empirical. Do not attempt to change coding for behaviors that occurred prior to the disagreement; these were honestly expressed as empirical and are accurately coded as instances of empirical behavior.

Empirical statements are expressions conveying data that the speaker anticipates will be accepted as factually accurate by members of his discussion group. The teacher can use this category to help students identify, collect, and organize factual data. This can occur in a variety of ways: as a facet of review; as students build a storehouse of data on which they expect to draw during subsequent inquiry; as students discover that they need to add to their factual knowledge during the course of inquiry; or, as students seek to support statements made in other categories with factual data.

-3-

Interpretive Statements

Interpretive statements occur when students assign meaning to data and experiences. When students are assigning meaning, their statements can take the form of notions, opinions, ideas, relations, comparisons, and interpretations. Each of these forms is coded as an interpretive statement.

Students express interpretive statements in order to assign meaning in a number of different contexts. Suppose students have knowledge as

to the topic of study and have expressed an empirical statement: when a student claims (or denies) that his empirical statements are relevant to the topic of study, he expresses an interpretive statement. Suppose students have listed one, two, or more empirical statements: when a student says, "This fact (or the data) means that ...," he expresses an interpretive statement. Suppose members of a discussion group have isolated two concepts (or two ideas, two values, etc.): when a member states a way in which he believes the two concepts are similar or dissimilar, he expresses an interpretive statement. Suppose two concrete human situations have been presented to a discussion group as examples of poverty: when a student states how the two concrete situations differ from or are similar to each other, he expresses an interpretive statement. Suppose a discussion group is studying a suggested policy: when a student says, "I think the man's real goal is to ...," he expresses an interpretive statement. Suppose students have been told to assign meaning to events that occurred during the 1850's in America behaving as they believe conservatives (or moderates, or radicals) perceived these events: each time a student assigns meaning to an event, he expresses an interpretive statement. Suppose students have been given a basis from which data is to be viewed; each time a student assigns meaning to data using the given basis he expresses interpretive statements. Suppose students have identified and pooled data relevant to a topic of study and have been asked to classify: every time a student assigns an element of data to a class he expresses an interpretive statement.

Teachers use interpretive statements to elicit comparisons, explanations and opinions. The following examples of interpretive statements are less abstract. When a student uses knowledge about Athenian and American democracy to compare the meaning of freedom held by Greeks with the meaning held by Americans he uses interpretive statements. When a student compares the mean of a set of numbers with the mode or median of the set, he uses interpretive statements. When a student compares data about the geographic site of Boston with data about the site of Seattle he uses interpretive statements. When a student uses data about George Washington and data about Abraham Lincoln in order to compare the two Presidents, he uses interpretive statements. When students have learned factual data about business cycles and attempts to use his knowledge in order to explain the Great Depression he expresses interpretive statements. When a student identifies differences and similarities between two sets of genetic characteristics, he uses interpretive statements. When students compare the meaning of modern totalitarianism using two different theories of explanations, they use interpretive statements.

> Ground rule 4. Student statements, especially in response to the teacher or following criticism by another student, are frequently prefaced by such phrases as "I think that ...," "In my opinion ...," "Don't you think that ...," and "Don't you agree that ...". Although statements following these cues are not always interpretive, in most instances students proceed to assign meaning. Unless you have good reason for questioning that a statement prefaced in this way is interpretive, code the behavior as interpretive (category 3).

-4-

Defining Statements

Defining statements enable groups engaged in discussion to maintain semantical agreement and to understand new concepts. The consistent utilization of defining statements stresses that words are symbolic efforts to communicate what an individual sees, hears, thinks, experiences, and values. The word by which one refers to an object is not itself the object to which a speaker is directing attention. Concepts are symbolic inventions intended to convey the message that discriminately different objects (experiences, thoughts, policies) are being treated as though they were equivalent. The failure to develop precise defining statements for words and concepts critical to a discussion curbs the ability of a discussion group to communicate successfully.

Defining statements can be based on an acceptable source. When a student refers to a dictionary to establish the meaning of a word or concept, he expresses a definition. When a student cites a text book or reading to establish the meaning of a word, he expresses a defining statement. When a student uses the context in which a word or concept is employed as a basis for developing a definition, he expresses defining statements.

Defining statements can be developed through examples. When a student lists examples of what he means by a word he expresses definitions. When a student adds examples to others that have been suggested by the teacher or members of his discussion group, he expresses defining statements.

Definitions stated in operational terms often prove to be more functional to a discussion group than the modes suggested above. Concepts are defined operationally when their criterial attributes are listed. For example, by what criteria do we judge that a cat is a member of a class of objects we call cats? Responses to this question such as "four legs," "ability to climb trees," "making the sound meow," and "purring when stroked" are definitional in that they state qualities by which a cat is known to belong to a family of creatures all of whom are called cats and toward which a speaker can address a listener's attention by saying cat. In the classroom a teacher or student asks such questions as, what do we mean when we talk about an open society. In response members of the group can cite such characteristics as "freedom of personal movement," "choice of alternative lifestyles," and "a relatively free flow of information" to begin developing an operational definition of what they mean when they refer to an open society.

> Ground rule 5. At times the teacher may initiate a phase of discussion by citing a word or concept and asking what it means. Unless the stress is clearly one of developing a definition, code student responses as examples of interpretive statements.

Another common form of definition is called the ideal type. Suppose students are studying a unit on the American farmer. Suppose further that students have collected and interpreted data. They know the income, the political philosophy, the educational level, and the social background of the average farmer. Students can proceed to idealize this average farmer giving him a name, a personality, and an

address. They can predict how their idealized farmer will know, think, vote, value, feel and act. Common examples of such idealizations in the classroom are the American Puritan, the robber baron, the Progressive, the New Dealer, and the New Frontiersman. When students are deliberately and consciously building ideal types they are expressing defining statements.

Teachers use defining statements to provide for semantic clarity within the discussion group. Defining statements can be obtained from an acceptable reference, developed through examples, stated operationally, or formulated as ideal types. Each of these approaches represents a means whereby definitions are developed.

Clarifying Statements

Students use clarifying statements to elaborate on or explain what has previously been said. Students clarify statements by expressing them more concisely. Students clarify statements by expounding on them at greater length. Students clarify statements by explaining why apparent discrepancies in previous statements are only apparent. The thrust of clarifying statements is to explain a statement previously made during the discussion.

Imagine a student who has rambled his way through a number of hard to follow statements and concludes by saying, "That's my interpretation." At this point the teacher or another student may indicate that they do not understand his interpretation. When the student responds by

saying, "What I said was ...," and presents a concise statement of his earlier rambling efforts he expresses a clarifying statement. By stating his idea more concisely the student has made it more clear. A student can clarify a defining, a topical, or any other category of statement in the same way.

On the other hand suppose a student who is confronted with a set of data and states a very concise interpretation, "This data means that we live in an intellectual society." Either the teacher or a student can express uncertainty with regard to the meaning of the interpretation. To this the student who stated the interpretation might respond by saying, "I mean we live in a society where ideas are valued, where books and the learning stored in books is respected, and where the ability to understand complex matters is appreciated." By using more words and concepts the student elaborates on his earlier interpretation using clarifying statements. What a student means when he uses any category of statement can be clarified through elaboration.

Suppose again that two students are expressing or arguing a difference of opinion or value. A third student who identifies the elements of conflict between two students can be perceived as helping the two who are in disagreement to begin harmonizing their opinions or values. At the very least he clarifies the differences between their views. In such instances the expressions of the third student are coded as clarifying statements.

Students tend to express clarifying statements using phrases such as: "What I mean to say," "What I'm trying to say," "Let me restate that," "You know," and "It's like this."

Teachers use clarifying statements to help students remove confusion, resolve uncertainty, and alleviate doubt about statements expressed in one or more of the other categories of the system. Teachers elicit clarifying responses with sentences such as the following:

> Would you explain what you meant when you said that ...?
>
> Elaborate on your idea so that we can be sure we understand you.
>
> Try rephrasing what you've just said. I'm afraid we're not too clear as to your meaning.

Students also use clarifying statements as a substitute for stating logical conditions. They preface or accompany statements with phrases such as the following: "to me," "personally," "from my perspective," and "because." These phrases can often be converted to criterial statements (category 13). This conversion makes it more feasible for members of a discussion group to determine what basis a speaker is using and whether or not this basis is to be accepted. Consequently, the teacher needs to be alert to "hear" this category in order to determine if it is important to restructure what a student is saying into a criterial statement (category 13).

> Ground rule 6. If uncertain as to whether a behavior is to be coded as clarifying (category 5) or criterial (category 13), code the behavior as a clarifying statement. (For this reason clauses using the word because are consistently coded as instances of clarifying behavior.)

Periods of silence and confusion (categories 16 and 17) are often followed

by clarifying statements. Apparently students use such periods of time to formulate and structure statements that can be used to clarify earlier statements.

-6-

Infirming Statements

The teacher (or a student) uses infirming statements to express disagreement with, to criticize, and to reject the verbal and nonverbal behaviors of other members of a discussion group. When the teacher use such statements as "stop playing with your pencil," "wait your turn," and "don't interrupt" he employs infirming statements. When the teacher (or a student) labels a statement made by another member of the group as incorrect, wrong, or only partly true he expresses infirming statements. When the teacher (or a student) responds to another member's statement prefacing his comment with such phrases as "yes, but ...," "I see, however, ...," and "that's good reasoning but ..." these brief comments frequently serve as a diplomatic way of disagreeing with, criticizing or labeling a previous statement or series of statements wrong. When a student or teacher expresses sarcastic comments such as "What a delightfully ridiculous notion," or "Try another brilliant idea" these statements are coded as infirming statements.

The teacher (or a student) can use infirming behavior in conjunction with other categories of teacher-centered behavior. The underlined portions of the following examples of teacher talk are infirming statements:

"I'm afraid you're wrong; why don't you try this approach?

"No, that's not hardly it; but keep trying, you're getting there."

"Be quiet so that I can think of a good response; your question was a good one, one worthy of a good answer."

"That's an excellent idea, your logic is good; unfortunately your answer is wrong."

Although infirming statements can be damaging during group inquiry, infirming statements can be used to help a group inquire more effectively.

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Commentary Statements

Although commentary statements can be expressed by either the teacher or a student, this category is used mainly to code teacher behavior. Students express commentary statements when they review directions previously provided by the teacher. Students also make commentary statements when they review written directions prefacing an assignment or developed earlier by the discussion group to guide its behavior.

The teacher uses commentary statements in a wide variety of ways. He uses commentary statements in order to summarize and consolidate inquiry. He uses commentary statements to provide, repeat, or review directions. He uses commentary statements to talk about, add to, and modify the ideas of students. He uses commentary statements to provide new data and ideas for the consideration of the group. He uses commentary statements to identify, remind, to introduce students to the topic of discussion. He uses commentary statements to justify his behaviors. He uses commentary statements to express his opinions, his ideas, and

his values. He uses commentary statements to structure a convergent basis for other forms of teacher- and student-centered behaviors.

The teacher also uses commentary statements to structure the context within which he raises questions and anticipates student responses. If the teacher uses a sequence of commentary statements (category 7) and then raises a question, he increases the likelihood that he will obtain the student responses he anticipates. If the teacher uses a sequence of commentary statements, asks his questions, and waits (silence, category 16), he further increases the odds that anticipated student reactions to his question will occur. If the teacher uses a sequence of commentary statements and then asks his question, the likelihood that he will use questions that elicit student thinking is increased. Thus, not only is the use of this category important; the sequencing of commentary statements to set up (structure) interrogative statements is a critical factor in teacher-led discussions.

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Dissonant Statements

Dissonant statements are used by the teacher or a student in three major ways: 1) to express the need of the teacher or a student for clarification; 2) to inform the group that he is intellectually confused; or 3) to claim that a participant in the discussion is making inconsistent statements.

Each of the following statements illustrates a dissonant statement being used either to request clarification or to admit a lack of

understanding:

"I don't see the point."

"What's the point?"

"I'm lost."

"I'm confused."

"I don't know."

"That doesn't make much sense to me."

"What do you mean by that?" (Conveying the message that the person raising the question feels that he is confused.)

"Where are you going (with your reasoning)?"

"Hey, where are we?"

Either the teacher or students can use this category to point out apparent discrepancies and inconsistencies in the statements, in the behavior, or between the statements and behaviors of members of the group (including the teacher). Examples are:

"Your rank ordering of consequences from most preferable to least preferable is inconsistent with your decision."

"Your definition of life, as you used the concept during our discussion of war, appears discrepant from the definition you are now employing as we discuss poverty."

"Your insistence that it would be good for us if we felt as you do does not square with your unwillingness to discuss the social consequences of, or the public policies following from your claim."

Such comments as these are delivered as invitations to correct inconsistencies, explain or correct apparent discrepancies, and generate congruent beliefs, values, and feelings.

The teacher can set the stage for using dissonant behavior by summarizing the groups' or pupil's statements. This helps both the student

who is invited to explore a possible discrepancy and the group to understand better what the teacher is saying. And quite often, the teacher will confront the total group with the charge that its behavior has not been consistent. In the following example of teacher talk, commentary statements (category 7) are used in order to provide a basis for the italicized use of a dissonant statement (category 8).

> You reacted to abortion by calling it murder. You reacted to euthanasia by calling it merciful. You reacted to capital punishment by calling it a sad but public necessity. I don't see how you can claim any consistency in your reactions.

By reviewing prior behavior and suggesting apparent inconsistency, the teacher has invited the student to 1) accept inconsistency; 2) change his reactions in order to make them consistent; or 3) find some basis on which he can demonstrate that his different reactions are guided by a constant principle. As such, dissonance possesses strong probing qualities as a teacher-centered behavior through which group discussion can be guided.

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Interrogative Statements

The teacher and students use interrogative statements to elicit responses from members of the discussion group. Teachers usually respond to interrogative statements expressed by students by using commentary statements (category 7). Students usually respond with subject-centered, man-centered or non-verbal behaviors.

Examples of questions likely to elicit subject-centered statements are grouped below:

To elicit topical statements:

What is our topic?
What inference are we evaluating?
What problem are we focussing on?
What issue is of central concern to us?

To elicit empirical statements:

What do you see?
What did you observe?
What did you read?
What did you count?
What do you remember?

To elicit defining statements:

How do you define justice?
What do you mean when you refer to human dignity?
What are the major criterial attributes of a political party?
What are some examples of what you mean by being unfair?
What do you mean by the term central tendency?

To elicit interpretive statements:

How does the concept of permutations differ from the concept of combinations?
What does this data mean?
How is this data relevant to the topic?
How is this value relevant to the topic of study?
How is this effect relevant to this cause?

To elicit clarifying statements:

Could you state your opinion more concisely?
Would you mind explaining what you mean further?
Can you restate that idea using smaller words?

Examples of interrogative expressions likely to elicit man-centered statements are grouped below:

To elicit preferential statements:

Of the colonial leaders we have studied, who did the best job?
If you could choose the historical person you would like to use

as a model for your life, whom would you choose?
Of the following learning activities which is your favorite?
Of the four ideas, which is the most ridiculous?
For this purpose, which measure of central tendency is best?
Of these means for protecting man's genetic pool, which do you prefer?

To elicit consequential statements:

What psychological results can be attributed to racism?
What effects are likely to occur if abortion becomes an acceptable form of population control?
How would effective gun legislation influence the freedom of individual citizens?
If we add prior to dividing in a complex problem, what happens?

To elicit criterial statements:

I could just add. Why should I divide?
On what basis did you make your decision?
What assumption must one accept if he is to believe your idea is true?
Suppose you were asked to justify your behavior: what grounds would you use?

To elicit imperative statements:

What should we do?
What ought to be done?
What steps could be taken to solve this problem?
What action are we going to take?

To elicit emotive statements:

How do you feel about this?
What things make you sad?
What words best convey your personal feelings about space flight?

The ability to employ interrogative statements to help students express themselves using categories functional to their inquiry enables the teacher to be elicitative. Almost all teacher and student questions are categorized as examples of interrogative behavior.

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Confirming Statements

The teacher and students use confirming statements to express agreement with, to encourage the further development of, or to praise statements that other members of the group have expressed. By expressing confirming statements the teacher can help students to "open up" and expand on their opinions, ideas, and values. Such expressions as "I see," "Great," "Keep going," "Why stop there," represent behaviors frequently used to encourage further development of thought. Confirming ideas which can also be used as ideas previously generated are accepted and agreed to. Examples are: "I believe you've hit the nail on the head," "I agree," "That's right," and "Correct." Still another means of teacher reinforcement of student behavior is for the teacher to repeat for the group what a student has said in order to stress its worth for the group. Finally, praise of student behavior is coded as confirming behavior.

> Ground rule 7. Teachers sometimes develop and follow habitual forms of behavior: "Yes," "I see," "OK," "Uh huh," "Great." These habitual behaviors are to be ignored by the observer because it is improbable that they encourage, express agreement, reinforce, or praise.

The observer must often be alert to capture instances of confirming statements because they are often quite short.

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Preferential Statements

Students use preferential statements to assign value ratings to ideas, objects, events, behaviors, people, policies, and feelings. Preferential statements frequently serve as a means for labeling things using such words as good, bad, best, worst, most good, least good, most bad, least bad, most beautiful, least beautiful, most true and least true. Preferential statements can also be relative in form: behavior A is better than behavior B; behavior C is less desirable than behavior D; the second interpretation is the best of the lot. Observe that in these relative statements the preferential statements compare the goodness of two or more objects to which a value rating is assigned.

Examples of preferential statements that might be expressed in different instructional contexts are provided below.

During a discussion of ecology:

"Pollution is bad."
"I think non-leaded gasoline is the best kind."
"DDT is the worst kind of pesticide to use."
"Limiting population growth is better than absolute freedom of conscience."

During a discussion of the American Presidency:

"FDR was the greatest President in our history."
"Dolly Madison was a beautiful first lady."
"JFK was the best President since World War II."

During a discussion of urban geography:

"The site of a city is less important than its situation."
"Unplanned cities are worse places to live than planned cities."
"Moving to the suburbs to avoid urban problems is wrong."

"Reliable public means of rapid transit will provide a better way of movement than the current use of cars and trucks.

"To fear life in the city is an ugly behavior."

The key point to remember in observing a group discussion is that value statements place objects on a continuum of good versus bad, either explicitly or implicitly.

When a student expresses his likes or dislikes he expresses preferential statements. Statements such as "I like Spiro Agnew," "I like to study mathematics," "I like winter better than I like spring," and "I enjoy basketball best," illustrates this type of preferential statements.

When the teacher or a student asks a question or directs a student to express a preference and the student responds with a one or two word answer, his response is coded as a preferential statement. When the teacher directs students to name their favorite ice cream and different students respond with such answers as vanilla, chocolate, strawberry, and chocolate mint each flavor so identified is a preferential statement. When the teacher asks students to identify the sport they like best and different students respond with such answers as hiking, camping, hunting, football and soccer each sport mentioned is a preferential statement. When the teacher asks students to identify the Presidents they like least and different students respond Wilson, Theodore Roosevelt, Taft, Harding, Coolidge, Hoover, Truman, Eisenhower, and Kennedy each President listed is a preferential statement. When the teacher asks students to identify their favorite short story writer and different students respond Harte, Poe, O'Henry, and Irving each author mentioned

is a preferential statement. When the students are asked to identify the region they would most like to live in and different students respond the Southeast, the East, the Midwest, and the Northwest each region suggested is a preferential statement.

Preferential statements are also expressed when students rank order events, policies, persons and objects. Examples of rank-order preferential statements are underlined below:

> The four steps that man might take in order to curb population growth are labeled A, B, C, and D. From best to worst I ranked C as 1, D as 2, A as 3, and B as 4.
>
> The four Reformation leaders we have studied are Luther, Erasmus, Loyala, and Calvin. From the best to the worst I ranked Calvin as the best; Erasmus, 2; Luther, 3; and Loyala worst.
>
> The three poems we are analyzing are "War Is Kind," "Dulce Et Decorum Est," and "The Man He Killed." From the one most worth reading to the one least worth reading I rank-ordered the poems in this way: "War Is Kind," 1; "The Man He Killed," 2; and "Dulce Et Decorum Est," 3.

Preferential statements can also assume the guise of classification. Two examples illustrate the point:

> "Of the nine characters with major parts in the play I believe Mary, Bess and John are the worst persons."
>
> "Of the seven means suggested for dealing with the problems of white collar crime, the three worst suggestions are alternatives A, D and E; the three best suggestions are alternatives F, B and C."

If the teacher suggests a list of alternative policies, problem-solving techniques, men, or situations and students classify his list on his request grouping some as best, some as worst, or both the student statements classifying the list given are preferential statements. In these instances, once again, the student classifies objects of valuation according to relative goodness and badness.

The teacher elicits preferential statements that take several forms: 1) students judge the goodness or badness of an object of valuation; 2) students compare the relative goodness of two or more objects of valuation; 3) students identify personal likes and dislikes; 4) students rank order objects of valuation; and 5) students classify objects of valuation into relatively good or bad groups.

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Consequential Statements

Consequential statements are expressions of known or anticipated effects. Once students have interpreted the meaning of a situation they can identify effects (using consequential statements) that they would expect as a result of the situation. When students are considering alternative ways of dealing with a problem they can list the possible effects (using consequential statements) that they believe would follow from the selection or rejection of each alternative. Once students have identified instances of inconsistency in their reasoning, they can weigh the relative effects (using consequential statements) of choosing to live with inconsistency or attempting to achieve consistency. Where students have classified certain political leaders as relatively good and others as relatively bad, they can explore the likely effects (using consequential statements) of both groups of behavior.

Some common examples of directions and questions likely to elicit consequential statements and illustrative consequential statements are

presented below:

Eliciting Statements	Consequential Statements
If strict gun control legislation were passed, how would current crime statistics be effected?	1. Fewer Policemen would be killed; 2. There would be fewer assassination attempts on public figures; 3. Only outlaws would have guns; 4. Men would use other instruments of violence; 5. Fewer lives would be lost in riots; 6. The gun lobby would become less important in Congress.
List some of the possible psychological effects on a woman who obtains an abortion.	1. Depression. 2. Feelings of guilt. 3. Dignity because the right to an abortion gives her power over her own body. 4. She will be a better mother to her other children. 5. She will be a worse mother to her other children. 6. She will go to Hell. 7. She'll lose the comfort of her religion. 8. She'll lose the respect of her husband.
What would happen if we all felt the way Joe feels?	1. We'd burn the school. 2. None of us would try to evade the draft. 3. We'd study Shakespeare more seriously. 4. Teaching would be revolutionized. 5. No one would go hungry. 6. Men would lose their incentive to work and our society would fail.

Teachers and students can employ eliciting statements such as those listed in the left-hand column to stimulate consequential statements such as those listed in the right-hand column.

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Criterial Statements

Students use criterial statements to identify the grounds or norms implicit in or deliberately being used to guide their thinking, their valuing, and their decisions. When enunciated, criterial statements serve as public frames of reference that student use to locate, pool, cite and interpret data. They also serve as public frames of reference through which value ratings can be assigned, consequences expressed, and feasible policy alternatives identified. The italicized portions of the following student statements are criterial statements:

> *Since we only have fifteen minutes left*, let's focus our attention on the second question.
>
> *Let's suppose that most of the students who want to be in the play have no stage experience*, a one-act play would be a better idea for our first production than a three-act play.
>
> *If the Confederate Flag and the song Dixie harm the feelings of some of our students*, we should choose a new school flag and symbol.
>
> *Assuming that history should be personally meaningful to those who study it*, students should consistently compare how they interpret, value, feel, and act with the way men and societies of the past interpreted, valued, felt and carried out decisions.
>
> *Given the need to curb population growth in underdeveloped countries*, it is likely that contradictions between public policies and church doctrines will arouse controversy in Latin America.

> If one believes that the siring of children will continue to be important to Latin American men as a symbol of their manhood, the resistence of Latin Americans to birth control pills cannot be interpreted as a religious problem.
>
> Since our instructions were to achieve consensus as a group if possible; we cannot settle our differences by voting.
>
> If we are to compare the French and the American Enlightenment, we must locate data about the Enlightenment in both countries. And we will need to define the Enlightenment carefully before we can bogin collecting information.

In these examples students state a basis (as italicized), and on the basis of their criterial statements they presume that the subsequent portion of their statement is logically true.

During inquiry a student can pose interpretations, make policy decisions, assign value ratings, or identify consequences without articulating (or even being aware) of his criteria. In this event the teacher can elicit criterial statements in the form of conditional phrases using such questions as the following:

> What assumptions must we accept if we are to agree with your interpretation?
>
> Under what conditions would the consequences you have listed follow the adoption of this public policy?
>
> On what basis can you say that mathematical knowledge is more useful than geographic knowledge?

Criterial statements can also take the form of norms. Norms are deeply held values, commitments and beliefs that tend to guide an individual's behavior in widely different circumstances. (A list of the kinds of statements that students can use as a basis for interpreting, valuing, and deciding will be listed below.) Quite frequently,

the listener or observer cannot judge whether a student is using these kinds of statements as criteria (class logic) or expressing interpretive, preferential or imperative statements. The teacher can check this out by asking the student such questions as:

> Are you expressing a preference or identifying the grounds on which you make value judgments and decisions?
>
> Are you expressing a policy for us to consider or identifying the basis by which you will interpret and judge policy alternatives already suggested?

The following are examples of statements that students can be using as norms:

> Democracy is always good.
>
> All human life is valuable.
>
> Rational behavior is better than absurd behavior.
>
> All decisions should be made freely, in the light of consequences, and affirmed publicly through action.
>
> Due process of law is fundamental to human safety.
>
> All men are created equal and gifted with rights they cannot surrender or lose.
>
> The earth is man's to exploit.
>
> Men are born good and made evil by society.
>
> To use authority is bad; to be permissive good.
>
> To be humane is more important than to be effective.
>
> To apply industrial and management techniques to teaching and learning is bad.

Students are often unaware of the norms influencing their behavior. Various teacher-centered behaviors such as dissonance and interrogative statements can be used to help students express and become aware of their norms.

Ground rule 8. If uncertain as to whether a statement is to be coded as a criterial or as a preferential statement code the behavior preferential (11). If uncertain as to whether a behavior is to be coded as criterial or interpretive, code the behavior as interpretive (3). If uncertain as to whether a behavior is to be coded as imperative or criterial, code the behavior as imperative (14). If uncertain as to whether a behavior is criterial or clarifying, code the behavior as clarifying (5).

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Imperative Statements

Imperative statements focus on decision-making. Through the use of imperative statements members of a discussion group can: 1) identify alternative policies that they want to consider in making a decision; 2) describe what they would consider to be an ideal or better set of conditions; 3) state the actions that believe should or should not be taken; and 4) formulate their decision as individual members or as a group. Each of these purposes warrants amplification.

Students identify alternative policies when they list those actions that might be taken in order to improve a situation or resolve a problem. When students list potential steps that might be taken in order to improve the conditions of the migrant laborer, they are using imperative statements. When students list alternative actions that might be taken in order to achieve prison reform they are using imperative statements. When students list alternative means that might be used to harmonize the interests of industry, labor, and consumer, they are using imperative statements. Imperative statements thus enable members of a discussion group to identify a range of alternative means for further consideration.

Studonts can use imperative statements to describe an ideal or better set of conditions. When students describe what the American prison system should be they express imperatives. When students describe what the American prison system should not be they use imperative statements. When students describe what school ought to be or ought not to be, they express imperative statements. Should be and should not be as well as ought to be and ought not to be statements tend to yield a description of more ideal or ideal conditions.

Members of a discussion group can use imperative statements to state the actions that they believe should be taken and should not be taken in order to improve a situation, work a mathematical problem, or conduct an experiment. Statements as to how population control should or should not be achieved are coded as imperative. Statements as to what our environmental policy as a nation ought to be or ought not to be are coded as imperatives. Statements concerning those alternatives that ought to be or ought not to be used on order to obtain a set of conditions that should be are coded as imperatives. Using imperatives in these ways, members of an inquiry group can identify the means for obtaining conditions that they value.

Finally, members of a discussion group can use imperatives to formulate courses of action they intend to follow. The decision to collect more evidence before making a final decision is coded as an imperative statement. The decision to participate in a voter registration drive is coded as an imperative. The decision to develop and validate an inference that would explain American migration patterns

is coded as an imperative. When members of a discussion group obtain consensus, they can articulate their decision using imperative statements.

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Emotive Statements

Students express emotive statements when they reveal how they have felt, how they currently feel, or how they might feel with regard to a person, an object, idea, or a situation. Emotive statements concern themselves with the feelings of students or the physical sensations of students expressed in such a way as to denote a sense of feeling.

Emotive statements are recorded when a student announces: "I feel fine." "I feel relaxed." "I certainly feel good about that." "I feel like a million dollars." Emotive statements are recorded when a student expresses his fellings through statements revealing his feelings such as: "Wow!" "I love you, dear." "I despise that man so much it pains me to think about him." "Hot Dog!" "We won!" "I hate geometry." Emotive statements are recorded when students try to state their feelings in terms of sensations they have experienced or are experiencing through their physical body. Examples of this form of emotive statement include: "That's hot!" "Br-r-r-r, it's cold in here." "I get goose bumps when I see him." "Ouch! I'm hurt." "Your touch is so soft and re-assuring." Finally, emotive statements can take the form of laughter when it is an expression of the students emotional involvement rather than a means of deliberate disruption.

Emotive statements have a tendency to be overlooked by the teacher. The teacher may ask a student how he feels about a particular issue and the student replies with an "I think..." statement and the teacher will accept this response without question. At other times, the reverse is true. The teacher asks for a subject-centered response and receives an "I feel ..." statement. It may be that the teacher is not aware of his acceptance of both interchangeably or that the students may not know the difference between them.

Sometimes students will seek to protect themselves by responding with an emotive statement and then proceed to claim that he can not fully explain or describe his feelings, or state that his feelings are a private matter, or that they are unchallengeable. Many students pick this escape routs and use it to avoid further participation in inquiry. Teachers who are aware of this behavior may want to ask students to disclose the basis for their feelings, to state the consequences for them and others if they continue to hold such feelings, or to recommend some course of action based upon their particular feeling. The teacher closes off feelings as escape mechanism by legitimatizing expressions of feelings and sensations. He is also more likely to deal effectively with the emotions of his students as they impinge on inquiry.

Feeling and sensation statements expressed by students are recorded in the emotive category. The observer must be alert for non-verbal cues to this category since a student may disclose his feelings through body movements or reference to felt-sensations as he makes statements that otherwise would be statements [illegible] of the other categories in the system.

Silence

Silence is the absence of verbal statements during inquiry and is referred to technically as wait-time. Silence is recorded when students and teacher have paused to think about what was said or done, what is currently going on, or what they are going to do or say. Silence is recorded when the group or the teacher waits for a verbal or non-verbal response from another student or the teacher. Silence is recorded when the group becomes quiet before or during the inquiry because they are told to do so, because they need to hear what is being said or because they are engaged in non-verbal behavior relevant to the inquiry episode such as reading, observing an experiment, or listening to an audio tape. Silence is recorded when the group becomes quiet as a result of the teacher's demand for silence to discourage other forms of behavior received as being irrelevant or disruptive to the inquiry. The intention is obviously infirming in nature, but the pause time is recorded as silence. Sometimes this period of silence is in reality a time of non-verbal confusion or anxiety on the part of the group. Again, this silence is recorded if it occurs less than three seconds when that shorter period of time is noticeably felt by the group as being present.

Silence occurs in the classroom when the group pauses to think, to observe, to read, to study, to get their ideas and facts organized, etc. A teacher may have given students an assignment that requires some time to engage in non-verbal behavior (read, write, observe, etc.) before engaging in verbal behavior and students would have to wait until a later time to respond. A teacher may have asked a question that requires his students to think first about the question before trying to consider an

adequate response. The teacher would expect his students to pause for a few moments and reflect upon the situation before beginning their verbal responses. The absence of silence would suggest that his students did not take time to think about either the question or their answers to the degree the teacher perceived as being necessary. Then too, some students require longer periods of time to think about a response. For the teacher to ask the entire class to refrain from speaking for fifteen or twenty seconds while formulating ideas is often quite appropriate.

Ground rule 9. The first and last coding for every observation is silence.

Ground rule 10. When group interaction is to be stopped for a period of two to three minutes or longer while members of the group are reading, viewing a film, or engaging in some other activity, the appropriate way to code is to mark the end of discussion with a 16. Then when the discussion is renewed, resume coding with a 16.

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Confusion

The confusion category allows for the disruptive noise that prevents or hinders inquiry from continuing. Confusion records that verbal and non-verbal noise that accompanies, interferes with, disrupts, or interrupts the discussion. When the noise level of a group becomes such that the coder cannot accurately code statements made by the teacher or students, then the confusion category is coded. When the nature of the noise is so disruptive that it makes meaningful dialogue and critical listening impossible, the confusion category is used. This noise level can occur in a number of ways among which the following are not uncommon:

rapping the table or desk with one's knuckles;
scrapping of chairs;
tapping a pencil on a hard surface;
laughter;
several students talking at once;
"shouting matches" between proponents of different positions;
horseplay; etc.

These behaviors can be incidental, worthwhile (laughter), or deliberate efforts to interrupt discussion.

Confusion is also used to code student statements stated so quietly that the observer cannot hear his statements. The presumption here is that members of the discussion group (incommon with the observer) are confused in the sense that they do not know what the speaker is saying.

Summary

Participants can use the seventeen categories of the SSOR to plan lessons, conduct group discussions, and analyze their teaching behaviors. Teachers can use data generated by the SSOR to become more sensitive to and to modify their behavior during tasks involving group discussion such as value clarification activities, consensus games, and problem-solving episodes. This essay has presented operational definitions and ground rules useful to the reader who wishes to learn to code discussions according to the categories of the SSOR and use the SSOR as a theoretical construct for analyzing the behavior of teachers. This section has also attempted to stress how classroom teachers can elicit and use each of the seventeen categories in order to teach systematically.