

Classroom Interaction Analysis

By Amrita Datta

Introduction:

The systematic observation is a set of procedures. It uses a system of categories to encode and quantifies classroom behavior of teacher and students. The systematic observation represents a useful means of identifying, studying, classifying and measuring specific variables as they interact within instructional learning situation. The purpose of developing the observational system is that a teacher can be trained to use them for analyzing classroom behavior and for planning and studying his own teaching activities. Since 1960, the efforts have been made in this direction to develop the systems of observation. The works of with all (1949), Flanders and Amidon (1960), Medley and Mitzel (1948) and Galloway (1968) have developed system of observation for studying the classroom teaching activities.

Interaction analysis:

Interaction analysis is a process of encoding and decoding the study pattern of teaching and learning. In the coding process, categories of classifying statements are established, a code symbol is assigned to each category and a trained observer records by jotting down code symbols. In the decoding step, a trained analyst interprets the display of coded data and reconstructs the original events on the basis of the encoded data even though he may not have been present when the data were collected. Although there are many systems for coding spontaneous verbal communication in classroom, a typical system for interaction analysis will usually include,

- a set of categories, each defined clearly,
- a procedure for observation and a set of ground rules which govern the coding process,
- steps for tabulating data in order to arrange a display, and
- suggestions which can be followed in some of the more common applications.

Dimension of Interaction:

According to Daniel G. Bobrow, the three dimension of interaction are

1. Communication
2. Coordination
3. Integration

1. Communication:

The first dimension of interaction is communication. For communication to exist between 2 agents there must be some common ground of mutual understanding. Where does this come from and how does it develop? What techniques are used by people and systems to build and extend this base for communication? Communication between a particular pair of agents might

not always be easy or even possible. In such cases, communication can be facilitated by interposing a mediating agent.

2. Coordination:

The second dimension of interaction is coordination. With multiple agents with multiple active goals, progress requires agent to share resources and work towards some common goals. Various organizational structures, for example, based on market and business hierarchies have been used in the resource allocation process. But resources are not the only thing that must be shared. For independent agents to work together, they must be able to predict other's behavior, but not necessarily in great detail. Joint commitments to future action are a useful way of organizing this information.

Meaning of classroom interaction analysis:

Classroom interaction analysis refers to a technique consisting of objective and systematic observation of the classroom events for the study of the teacher's classroom behavior and the process of interaction going inside the classroom.

Thakur's view: According to Dr.S.K. Thakur, classroom interaction analysis may be defined as "an instrument which is designed to record categories of verbal interaction during, or from, recorded teaching learning sessions. It is a technique for capturing qualitative and quantitative dimensions of teacher's verbal behavior in the classroom."

Ruhela's view: Dr. Satya Pal Ruhela, in his book 'Educational Technology' writes that class interaction analysis may be conveniently divided into two parts:

1. Verbal interaction.
2. Non-Verbal interaction.

Flanders' interaction analysis system:

Flanders' system is an observational tool used to classify the verbal behavior of teachers, and pupils as they interact in the classroom. Flanders' instrument was designed for observing only the verbal communication in the classroom and non-verbal gestures are not taken into account.

Basic theoretical assumptions of Interaction analysis:

The various theoretical assumptions, which are basic to very idea of interaction analysis, are as follows:

1. In a normal classroom situation, it is verbal communication, which is predominant. (Flanders 1965)

- classroom, verbal behavior can be observed with higher reliability than most non-verbal behavior and also it can reasonably serve as an adequate sample of the total behavior in classroom.
3. We can normally assume that verbal statements of a teacher are consistent with his non-verbal gestures and, in fact, his total behavior. This assumption was sustained in terms of experience in Minnesota studies. (Flanders,1966).
 4. The teacher exerts a great deal of influence on the pupils. Pupil's behavior is affected to great extent by this type of teacher behavior exhibited. (Anderson and others,1946).
 5. The relation between students and teacher is a crucial factor in the teaching process and must be considered an important aspect of methodology.(Haggerty,1932)
 6. It has been established that social climate is related to productivity and to the quality of interpersonal relations. It has been proved that democratic atmosphere tends to keep work of a relatively high level even in the absence of the teacher. (Lewin and other, 1939)
 7. Children tend to be conscious of a warm acceptance the teacher and to express greatest fondness for the democratic teacher. (H.V. Perkins, 1950)
 8. The role of classroom climate is crucial for the learning process. (Perkins 1956)
 9. The teacher-classroom verbal behavior can be observed objectively by the use of observational technique designed to 'catch' the natural modes of behavior, which will also permit the process of measurement with a minimum disturbance of normal activities of the group of individuals. (Wrightstone J. Wayne, 1958)
 10. Modification of teacher classroom behavior through feedback is possible (Flanders 1963), though how much can change occur and more knowledge relating to the permanence of these changes will require further research.(Flanders, 1963,1966)
 11. Teacher influence is expressed primarily through verbal statements. Non-verbal acts of influence do occur, but are not recorded through interaction analysis. The reasonableness of this assumption rests upon the assertion that the quality of the non-verbal acts is similar to the verbal acts; to assess verbal influence, therefore it is adequately a simple of all influences.

These assumptions focus our attention on the verbal participation of teachers and students in teaching-process.

Flander's Ten Category System:

The Flander's system attempts to categories all the verbal behavior to be found in the classroom. It has two main categories: teacher talk and pupil's talk. A third category covers other verbal behavior, i.e., silence or confusion.

Interaction Analysis Categories (FIAC)

	Category number	Activity
Response	1.	Accepts feeling: Accepts and clarifies an attitude or the feeling tone of a pupil in a non-threatening manner. Feeling may be positive or negative. Predicting and recalling feelings are included.
	2.	Praises or encourages: Praises or encourages pupil action or behavior. Jokes that release tension, but not at the expense of another individual; nodding head, or saying "Um hm?" or "go on" and included.
	3.	Accepts or uses ideas of pupils: Clarifying or building or developing ideas suggested by a pupil. Teacher extensions of pupil ideas are included but as the teacher brings more of his own ideas into play, shift to category five.
	4.	Asks questions: Asking question about content to procedure, based on teacher ideas, with the intent that a pupil will answer.
Initiation	5.	Lecturing: Giving facts or opinions about content or procedures; expressing his own ideas, giving his own explanation, or citing an authority other than a pupil.
	6.	Giving directions: Directions, commands or orders to which a pupil is expected to comply.
	7.	Criticising or justifying authority: Statements intended to change pupil behavior from non-acceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extreme self-reliance.
Response	8.	Pupil-talk response: Talk by pupils in response to teacher. Teacher initiates the contact or solicits pupil statement or structures the situation. Freedom to express own ideas is limited.
	9.	Pupil-talk Initiation: Talk by pupils, which they initiate. Expressing own ideas; initiating a new

Pupil talk	Initiation		topic; freedom to develop opinions and a line of thought, like asking thoughtful questions; going beyond the existing structure.
Silence		10.	Silence or confusion: Pauses, short periods of confusion in which communication cannot be understood by the observer.

Procedure of Flander's Interaction Analysis:

Encoding and decoding are the two process of interaction analysis. The encoding process is used for recording classroom events and preparing observation matrix by encoding the numbers of ten category system. The decoding is process of interpreting observation matrix.

a)Encoding Process: The first step in the process of encoding is to memorize the code Numbers, in relation to key phrase or words, which are indicated in capital in ten-category system. An observer sits on the last bench of the classroom and observes the teacher when he is teaching. At an interval of every three seconds he writes down that category number which best represents or communication event just completed. For instance, when teacher is lecturing the observer puts 5; when he asks question he puts 4; when student replies he put 8; when teacher praises he puts 2; when teacher asks to sit down he puts 6; when again the teacher starts lecturing he puts 5. The procedure of recording events goes on at the rate of 20 to 25 observations in per minute.

Ground rules for encoding observation:

Because of the complexity of the problems involved in categorization, several ground rules have been established. The rules of observation add in developing consistency in trying to categorize teacher classroom behavior.

Rule 1: When it is not certain in which of two or more categories a statement belongs, choose the category that is numerically farthest from the category 5. For e.g., if an observer is not sure whether it is 2 or 3 then choose 2. If in doubt between 5 and 7, he chooses 5.

Rule 2: If the primary tone of the teacher's behavior has been consistently direct or consistently indirect, do not shift into an opposite classification unless a clear indication of shift is given by the teacher. This rule is often called the rule of the biased, unbiased observer.

Rule 3: An observer must not concern with his own biases or with the teacher's intent. If a teacher attempts to be clever, pupils see his statements as criticism of pupils; the observer sees category 7, rather than category 2. This rule has particular value when applied to the problem of

helping teachers to gain insight by their own behavior, e.g., 'I was trying to praise them' I wanted them to answer that question'.

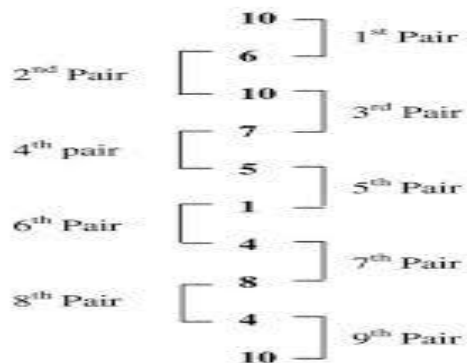
Rule 4: If more than one category occurs during the three seconds interval, then all category used in that interval are recorded. If no change occurs within three seconds, then repeat category number.

b) Decoding process: After encoding the classroom events into ten-category system 10x10 matrix table is prepared for decoding the classroom verbal behavior. The generalized sequence of the pupil-teacher interaction can be estimated in this matrix table. It indicates, what form a pair of categories. The first number in the pair indicates the row and the second number shows the column for example (10-6) pair would be shown by a tally in the cell formed by row 10 and column 6. **For example** the observer has written down the code numbers beginning with 6 as follows: 6,10,5,1,4,8,8,2,3,6,4,8,9,7.

Tabulating a matrix:

To tabulate these observations in a 10 into 10 matrix, the first step is to make sure that the entire series begins and ends with the same number. The convention is to add 10 to the beginning and end of the series, unless 10 is already present. So our earlier series now become 10,6,10,5,1,4,8,8,2,3,6,4,8,9,7,10. The observations are now entered in a 10x10 matrix so that the sum of column one equals the sum of row one, the sum of column 2 equals the sum of row 2, etc. The numbers are tallied in the matrix one pair at a time. The first pair in this case is 10-6; the tally is placed in row 10, column 6 cell. The second pair is 6-10, tally this in row 6, column 10 and so on. 'N' always will be tabulated by N-1 tallies in the matrix. In this case, we started a series of sixteen numbers and the series produce 15 tallies in the matrix .

	1	2	3	4	5	6	7	8	9	10	Total
1				1							1
2		1									1
3						1					1
4							11				2
5	1										1
6				1						1	2
7										1	1
8		1						1		1	3
9							1				1
10					1	1					2
Total	1	1	1	2	1	2	1	3	1	2	15



- ❖ Sequence of the pair: (10, 6), (6, 10), (10, 7), (7, 5), (5, 1), (1, 4), (4, 8), (8, 4), (4, 10)
- ❖ While preparing matrices, one pair is marked at a time.
- ❖ The matrices have rows and columns.
- ❖ The first number of the pair represents 'row' and second number of the pair represents 'column'.
- ❖ For example, in the first pair (10, 6), the number 10 represents row and the number 6 represents column.
- ❖ Every pair overlaps the other pair. Total tallies of the matrices (N).
- ❖ In the matrices (N-1) i.e. one less number is marked. In the above example, N=10, (N-1) i.e. 9 numbers will be marked.
- ❖ Each matrix has 100 cells.

		Row →										
		1	2	3	4	5	6	7	8	9	10	Total
Column ↓	1				/							1
	2											0
	3											0
	4								/		/	2
	5	/										1
	6										/	1
	7					/						1
	8				/							1
	9											0
	10						/	/				2
Total		1	0	0	2	1	1	1	1	0	2	9 (N)

INTERACTION MATRIX TABLE.

Thank you