

A  
FILE RECORD  
On  
FLANDERS'S INTERACTION ANALYSIS  
&  
DIAGNOSTIC TEST  
&  
TEXT BOOK ANANLYSIS FROM PEACE PERSPECTIVE



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# FLANDER INTERACTION CATEGORY SYSTEM

In reality, the analysis technique and analysis system of teachers and learners is interaction systems only. Among all method of interaction analysis Flander's name is most famous. Flander's thought of this method is 1959. This method was formulated for teachers effectiveness and student welfare. This method is specially used for verbal behaviour and class communication. The communication b/w student and the teacher is generally verbal rather than non-verbal. Flander's believed that verbal behaviour of the class reflects upon the general class-behaviour. Verbal behaviours can be analysed with great faithfulness.

Flander developed this method with his colleagues in Minnesota university with this method. Any activity that take place in 3 second or even in less time, can be systematically analysed. This is a factual and scientific method of analysis. The main importance of this method is the initiation and response b/w two or more individuals. The teaching-learning b/w teachers



and student. The success of a teacher may be judged through the degree of effectiveness of the teaching which may be objectively assessed through his class-room behaviour or interaction. Thus : a systematic or objective analysis of teachers' class-room behaviour or class-room interaction may provide a reliable assessment of what does go on inside the class-room in terms of teaching and learning. So in this way, there is verbal interaction b/w the students and the teacher.

### Objective:-

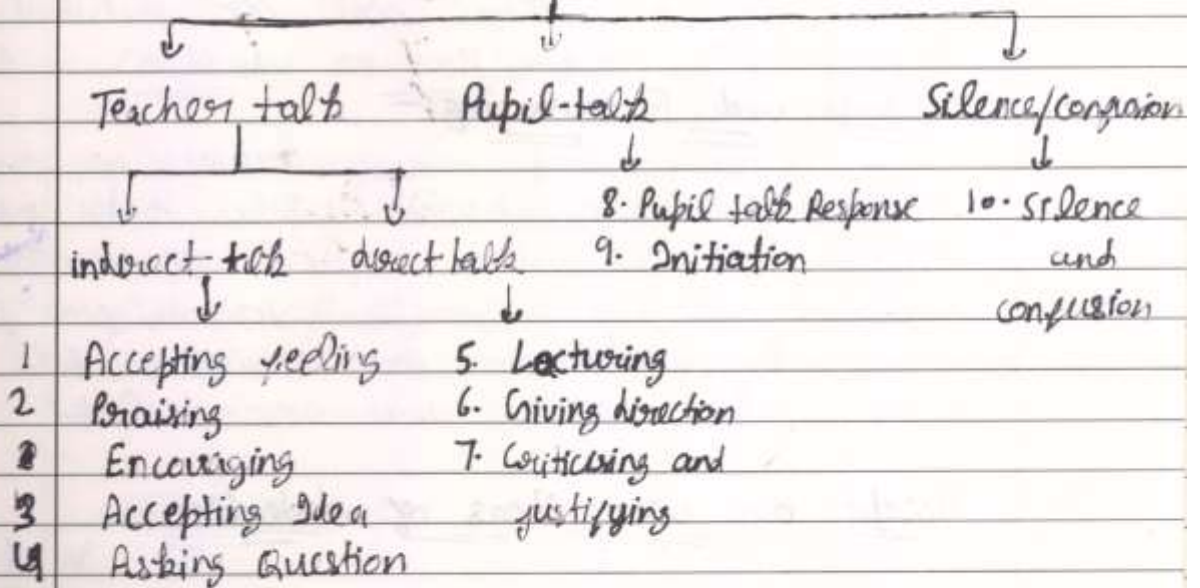
- To recognize teachers behaviour from teachers student interaction.
- To do curricular planning.
- To collect factual figures and systematic information.

### ASSUMPTIONS:-

- The class atmosphere has great effect on all the activity of the student.
- > The interaction b/w teacher and student has great importance.
- The behaviour of the teacher affects the behaviour of the student.
- > Class behaviour can be changed by feedback.

Flanders has divided the class behaviour into the student and teachers into ten categories

### Flanders Ten Category System



Flanders believes that ten category system exhausts all possible teaching behaviours and hence with his system, we can study the minute detail of the teaching behaviours as a class-room interaction. The description of category given below:-

#### Teachers talk- Indirect Teachers Behaviours

The teachers affect the student indirectly in this method in the following category:-

1. Accepting feeling:- In this category, the teacher accepts the feeling of the student.



Accepts and classify the feeling tone of the student in a non-threatening manner. Feelings may be positive or negative. In this the student have the insight to demonstrate their feelings, they are not punished.

## 2. Praising and Encouraging:-

Praises or encourages students action or behaviour. Tries that releases tension, not at the express of another individual, saying "good", "yes", "fine", "go on with what you are saying", tell us more about yours ideas are included.

## 3. Accept or uses ideas of student:-

In this, the teachers students accepts the idea of the student classifying, building or developing ideas as suggested by the student. As teachers brings more of his ideas into play, he shifts to category five.

## 4. Asking Question:- Asking a question about content or procedure with the intent that a student answer.

## Teachers Talk - Direct teachers behaviour

## 5. Lecturing:- This is a kind of verbal interaction and this category is used for giving information or for appraising someone of some opinions or when the teacher is trying to explain something or is discussing something.

6. Given Directions:- Instructing the children to do something in class is giving directions. Like "all students will stand in front", "sit down", and "do the work" etc.
7. Criticising or justifying:- This is used when the teacher criticizes a student for his improper behaviour and says "I don't like this". Statement intended to change student's behaviour from non-acceptable to acceptable pattern: frowning someone out; stating why the teacher is doing what he is doing, external self-reference.

### Student talk:-

8. Pupil talk-Response:- When the teacher asks questions from the students then the student answers, the question and they obey the instruction in a verbal manner than all these response come in this kind of category. Freedom to express own ideas is limited.
9. Pupil talk Initiation:- In this, the student initiate the discussion and are curious to ask question and say something. They express their own ideas, initiating a new topic, freedom to develop opinion and a line of thought, like asking thorough questions going beyond the existing structure.



10.

Silence and confusion:- In this the student comes under this category. Many times such situations arise when in the class, all the children start speaking together and the teacher cannot make out who is speaking. And sometimes in the class such a situation comes when ~~no~~ no one speaks i.e. no verbal activity takes place. So both the cases, Silence and confusion comes in this category.

### Advantage of Flanders Interaction analysis

- It can be used as an observation technique for class-room teaching in teacher education programme. It is used as a research tool for analysing and studying class-room teaching and behaviour.
- It functions as measuring instrument for class room teaching and serves prognostic and diagnostic functions.
- With the help of normative expectations of behaviour it can also be used as an evaluation and supervisory device.
- It may be useful for developing theory of teaching because interaction model of teaching is most popular.



## Limitations of Flanders's Interaction Analysis

- This method is related to the social skills, of organizing and the class arrangement etc.
- This is an expensive method.
- This is not a complete research method in itself.
- In this system, there is no place for class room- interaction in the form of pupil-pupil interaction.
- In this system, only actions of teachers and students are recorded but not their reaction. It is not related to intensity of behaviour. The teaching effectiveness concerns with force and intensity of the teaching events.

## Procedure of Flanders's Interaction Analysis

In a class-room the teacher talks, put questions, writes on black-boards, reads-books, recites a poem, surprise the class, directs to do something and so on. Students raise their hands, offer their answers, put question discuss matter, Create indiscipline etc. One may find moments of pin-drop silence or laughter in the class-room. In short- teachers and students are continuously in the process of interaction in the class-room.

Teaching learning process of interaction is based on such an interaction.

It involves two process:-

1. Encoding Process
2. Decoding Process

Encoding :- Encoding process involve matrix and recording of class-room events and preparation of observations matrix by encoding numbers of ten categories. The observer should keep in mind the following guidelines for the encoding process:-

1. Code Process :- He should memories the ten categories by their code numbers.
2. Place of Sitting :- The observer should sit on the last bench of the class-room and observe a teacher during his teaching.
3. Recording the categories numbers :- At an interval of every three second, he should records the categories number that represent the interaction that has taken place. For example if a teacher is praising the student behaviour he put 4.
4. Instant Recording :- The teacher should instantly recognize and record the events.
5. Recording in uncertainty :- If there is uncertainty



about in which of two or more categories a statement belongs the observer should select a category that is numerically first there from, category 5.

#### 6. Not to shift into opposite classification:-

If the behaviour of the teacher is consistently direct or indirect, the observer may not shift into opposite classification unless there is clear shift in the teacher's behaviour.

#### 7. No biases:-

The observer must not be concerned with his own biases or with the teacher intent. He should be unbiased and objective.

#### 8. Recording Categories after three second:-

If more than one categories occurs during the second interval, then all categories used in that interval should be recorded. If a category continues after a three seconds duration the same, may be recorded again and again and repeated like this until a change in the category occurs.

Decoding:- After recording or encoding the class room events into two category that next task is concerned with the construction of an interaction or observation matrix table for decoding purpose.

The category numbers of the record-sheet are tabulated in the matrix-table. Every number entered in the form of sequences pairs, being used two time, firstly as first number and secondly as second number. The rows of matrix represent the first numbers in the pair and column the seconds. The each pair of number overlaps with the previous pair and such overlapping of observations are entered in appropriate cell of the matrix. It is customary to add 10 to the beginning and 10 at the end of series unless it is already present.

This observations table has been interpreted in two ways:-

### (a) Quantitative Interpretation

- (i) Category wise
- (ii) Behaviour wise
- (iii) Interaction wise

Category wise:- In this method, the total of the column represents the use of various categories are taken for the interpretation. These are converted into percentage which help in ascertaining the relative importance given to the various category by a teacher. It is simplest of interpreting the interaction data.



It is also called as "Category wise Interaction".  
 In this "Category wise Ratio of interaction",  
 these may be calculated as:-

Category	Formula
Category 1	$\frac{\sum f [\text{column 1}]}{N} \times 100$
Category 2	$\frac{\sum f [\text{column 2}]}{N} \times 100$
Category 3	$\frac{\sum f [\text{column 3}]}{N} \times 100$
Category 4	$\frac{\sum f [\text{column 4}]}{N} \times 100$
Category 5	$\frac{\sum f [\text{column 5}]}{N} \times 100$
Category 6	$\frac{\sum f [\text{column 6}]}{N} \times 100$
Category 7	$\frac{\sum f [\text{column 7}]}{N} \times 100$
Category 8	$\frac{\sum f [\text{column 8}]}{N} \times 100$
Category 9	$\frac{\sum f [\text{column 9}]}{N} \times 100$
Category 10	$\frac{\sum f [\text{column 10}]}{N} \times 100$

We can show the result of category wise ratio as following

Category	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	C <sub>7</sub>	C <sub>8</sub>	C <sub>9</sub>	C <sub>10</sub>
Result										

Area wise :- Interaction wise matrix can be interpreted in term of the area. Flanders (1963) held that for this purpose the tabulated matrix may be divided into ten areas: ~~area~~ namely A to J.

- Area A
- Area B
- Area C
- Area D
- Area E
- Area F
- Area G
- Area H
- Area I
- Area J

Name of the variables	Explanation	Formula of computation
Area A	This area represent the direct influence of teachers take. It is calculated by combining the percentage of teachers statement following into categories one to four.	$\frac{\sum \text{[column 1 to 4]} \times 100}{N}$
Area B	This area represent student talk. It is calculated by adding the categories 8 to 9	$\frac{\sum \text{[column 8 to 9]} \times 100}{N}$
Area C	This area represent student talk. It is calculated by adding the categories 8 to 9	$\frac{\sum \text{[column 8 to 9]} \times 100}{N}$



Name of the variable	Explanation	Formula of computation
Area D	This area represents the silence or confusion category. It is the percentage of the category ten in relation to total failures.	$\frac{\sum f_{[column 10]} \times 100}{N}$
Area E	It represents a block of nine cells involving categories 1 to 3.	$\frac{\sum f [(1,1)+(1,2)+(1,3)+(2,1)+(2,2)+(2,3)+(3,1)+(3,2)+(3,3)] \times 100}{N}$
Area F	It represents a block of four cells involving categories 6 and 7.	$\frac{\sum f [(6,6)+(6,7)+(7,6)+(7,7)] \times 100}{N}$
Area G	This area indicates the teachers responding to the termination of student talks with indirect influence. It represents a block of cell.	$\frac{\sum f [(8,1)+(8,2)+(8,3)+(9,1)+(9,2)+(9,3)] \times 100}{N}$
Area H	This area indicates the teachers responding to the termination of students' talks with direct influence. It represents a block of four cells.	$\frac{\sum f [(8,6)+(8,7)+(9,6)+(9,7)] \times 100}{N}$
Area I	The area indicates the type of teacher statement that triggers student participants. It represents a block of four cells.	$\frac{\sum f [(8,8)+(8,9)+(9,8)+(9,9)] \times 100}{N}$

Area 1 | This area represent the sustained student intention and response. It represent a block of four cells

$$\frac{\sum f[(3,8)+(3,9)+(3,10)+(3,11)]}{N} \times 100$$

### Behaviour Ratio Wise Interpretation:-

These behaviour ratio has been explained and formula for these ratio are organized in a tabular form. This method requires a simple ratio based upon the average of two observation of Matrix. In this fifteen behaviour ratio are considered. The formula for each behaviour is provided.

Name of the Variable	Explanation	Formula of computation
Teachers talk ratio (TTR)	These teachers talk is calculated by adding the frequency 1 to 7 category multiplying by 100 and divided by the total tallies (N) of matrix.	$\frac{\sum f[\text{Column 1 to 7}]}{N}$
Indirect Teacher Talk Ratio (ITTR)	Indirect teachers talk can be operationally defined by nothing down the % of the teachers statements including into categories 1, 2, 3, 4. The indirected influence multiplied by 100 and divided by total N of the matrix.	$\frac{\sum f[\text{Column 1 to 4}]}{N}$



Direct teachers  
talk ratio  
OTTR

Direct teachers talk ratio may be operationally defined by counting the percentage of teachers statement falling into 5 to 7 category

$$\frac{\sum f[(\text{column } 5 \text{ to } 7)] \times 100}{N}$$

Pupil talk  
ratio (PTR)

It is defined as talk by pupil in response to teachers. In this we involve 8 or 9 category

$$\frac{\sum f[(\text{column } 8 \text{ to } 9)] \times 100}{N}$$

Silence or  
omission

The silence or omission is defined as any event not include in other category. In this we involve 10 category.

$$\frac{\sum f[(\text{column } 10)] \times 100}{N}$$

Indirect to  
Direct Ratio  
(IDR)

It can be computed by adding the tallies 1, 2, 3, 4 of category and multiply by 100 and dividing by total tallies of 5, 6, 7 category.

$$\frac{\sum f[1+2+3+4] \times 100}{\sum f[5+6+7]}$$

Pupil Initiative  
Ratio (PIR)

In this category we involve multiplying the tallies of category 9 by 100 and divided by the sum of all pupil to talk category 8 and 9 can be calculated it

$$\frac{\sum f[\text{column } 9] \times 100}{\sum f[\text{column } 8 \text{ to } 9]}$$

Teachers Response  
Ratio (TRR)

In this category, teachers response immediately about the idea and feeling of pupil

$$\frac{\sum f[(\text{column } 1+2+3)] \times 100}{\sum f[(\text{column } 1+2+3+6+7)]}$$

Teacher question ratio (TQR)	In this category, teachers ask question to the pupil	$\frac{\sum f[(\text{column } 4)] \times 100}{\sum f[(\text{column } 4+5)]}$
Content (or) ratio (CCR)	In this category, teachers ask question related to content.	$\frac{\sum f[(\text{column } 4+5)] \times 100}{N}$
Vicious circle ratio (VCR)	Vicious circle defined teachers to as a authority behaviour basic cell are involves in it.	$\frac{\sum f[(\text{column } (6,6)+(6,7)+(7,7))] \times 100}{N}$
Steady state Ratio (SSR)	The steady state ratio can be determined by calculating the percentage of all tallies that lie within steady state cells. The SSR can be computing by nothing down the tallies of steady state ratio cells.	$\frac{\sum f[(1,1)+(2,2)+(3,3)+(4,4)+(5,5)+(6,6)+(7,7)+(8,8)+(9,9)+(10,10)] \times 100}{N}$
Pupil Steady state Ratio (PSSR)	The PSSR pupil responding again and again.	$\frac{\sum f[(8,1)+(9,9)] \times 100}{\sum f[\text{column } 8+9]}$
Spontaneous Teachers Response Ratio (STRR)	It is defined as the teacher tendency to praise an integrate ideas or telling in the class discussion as the moment the Pupil stop talking.	$\frac{\sum f[(8,1)+(8,2)+(8,3)+(9,1)+(9,2)+(9,3)] \times 100}{\sum f[(8,1)+(8,2)+(8,3)+(9,1)+(9,2)+(9,3)+(8,6)+(8,7)+(8,8)]}$
Instantaneous Teacher Question Ratio (ITQR)	ITQR is defined as the tendency of teachers to respond to pupil talk with questioning based upon his own idea compared to his tendency of lecture	$\frac{\sum f[(8,4)+(9,4)] \times 100}{\sum f[(8,4)+(9,4)+(8,5)+(9,5)]}$





Decoding Process:-

10, 4, 4, 10, 10, 8, 8, 8, 1, 1, 4, 4, 8, 8, 1, 1, 2  
 4, 4, 10, 10, 8, 8, 8, 7, 7, 6, 6, 5, 5, 5, 5, 5, 5  
 5, 5, 5, 5, 4, 4, 8, 8, 8, 1, 1, 5, 5, 5, 5, 5, 5  
 5, 5, 4, 4, 8, 8, 8, 1, 1, 6, 6, 6, 5, 5, 5, 5, 5  
 5, 5, 5, 5, 4, 4, 8, 8, 8, 6, 6, 9, 9, 9, 4, 4, 8, 8  
 1, 1, 6, 6, 10, 10, 10, 4, 4, 8, 8, 8, 1, 1, 6, 6, 6, 4, 4  
 8, 8, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 4, 4, 10, 10, 6, 6  
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 8, 8, 8, 9, 9, 8, 8, 8, 7, 7, 4, 8, 8, 8, 7, 7, 4  
 8, 8, 1, 1, 2, 2, 5, 5, 5, 5, 5, 5, 5, 5, 5, 4, 4  
 8, 8, 8, 1, 1, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 4, 4  
 10, 10, 8, 8, 1, 1, 2, 2, 3, 3, 6, 6, 6, 5, 5, 5, 5  
 5, 5, 5, 4, 4, 8, 8, 1, 1, 4, 4, 8, 8, 7, 7, 6, 6  
 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 4, 4, 8, 8, 1, 1, 5, 5  
 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 4, 4, 8, 8, 1, 1, 9, 9, 1  
 1, 6, 6, 6, 10



Series of Proving

1	10,4	31	5,5	61	8,8	91	8,8	121	5,5	151	3,5	181	5,5
2	4,4	32	5,5	62	8,1	92	8,8	122	5,5	152	5,5	182	5,5
3	4,10	33	5,5	63	1,1	93	8,1	123	5,5	153	5,5	183	5,5
4	10,10	34	5,5	64	1,6	94	1,1	124	5,5	154	5,5	184	5,5
5	10,8	35	5,5	65	6,6	95	6,6	125	5,5	155	5,5	185	5,5
6	8,8	36	5,5	66	6,6	96	6,6	126	5,4	156	5,5	186	5,5
7	8,8	37	5,5	67	6,5	97	6,10	127	4,4	157	5,5	187	5,5
8	8,1	38	5,5	68	5,5	98	10,10	128	4,10	158	5,5	188	5,5
9	1,1	39	5,5	69	5,5	99	10,10	129	10,10	159	5,5	189	5,5
10	1,4	40	5,4	70	5,5	100	10,4	130	10,6	160	5,6	190	5,4
11	4,4	41	4,4	71	5,5	101	4,4	131	6,6	161	6,6	191	4,4
12	4,8	42	4,8	72	5,5	102	4,8	132	6,5	162	6,6	192	4,8
13	8,8	43	8,8	73	5,5	103	8,8	133	5,5	163	6,5	193	8,8
14	8,8	44	8,8	74	5,5	104	8,8	134	5,5	164	5,5	194	8,8
15	8,1	45	8,1	75	5,5	105	8,1	135	5,5	165	5,5	195	8,1
16	1,1	46	1,1	76	5,5	106	1,1	136	5,5	166	5,5	196	1,1
17	1,2	47	1,5	77	5,5	107	1,6	137	5,5	167	5,5	197	1,2
18	2,4	48	5,5	78	5,4	108	6,6	138	5,5	168	5,5	198	2,3
19	4,4	49	5,5	79	4,4	109	6,6	139	5,5	169	5,5	199	3,3
20	4,10	50	5,5	80	4,8	110	6,4	140	5,4	170	5,5	200	3,6
21	10,10	51	5,5	81	8,8	111	4,4	141	4,4	171	5,4	201	6,6
22	10,8	52	5,5	82	8,8	112	4,8	142	4,10	172	4,4	202	6,6
23	8,8	53	5,5	83	8,6	113	8,8	143	10,8	173	4,8	203	6,4
24	8,8	54	5,5	84	6,6	114	8,5	144	8,8	174	8,8	204	4,4
25	8,7	55	5,5	85	6,9	115	5,5	145	8,8	175	8,1	205	4,8
26	7,7	56	5,5	86	9,9	116	5,5	146	8,1	176	1,1	206	8,8
27	7,6	57	5,4	87	7,9	117	5,5	147	5,1	177	1,6	207	8,8
28	6,6	58	4,4	88	9,4	118	5,5	148	1,2	178	6,6	208	8,4
29	6,5	59	4,8	89	4,4	119	5,5	149	8,3	179	6,6	209	4,4
30	5,5	60	8,8	90	4,8	120	5,5	150	3,3	180	5,5	210	4,6



211	10,10	241	5,5	271	4,6	301	5,5	331	10,8	361	7,7	391	8,8
212	10,9	242	5,5	272	6,10	302	5,5	332	8,8	362	7,6	392	9,9
213	9,9	243	5,5	273	10,10	303	5,5	333	8,1	363	6,6	393	1,9
214	9,7,6	244	5,4	274	10,4	304	5,5	334	1,1	364	6,5	394	9,9
215	6,6	245	4,4	275	4,4	305	5,5	335	1,2	365	5,5	395	9,1
216	6,5	246	4,8	276	4,10	306	5,5	336	2,2	366	5,5	396	1,6
217	5,5	247	8,8	277	10,8	307	5,5	337	2,3	367	5,5	397	6,6
218	5,5	248	8,8	278	8,8	308	5,5	338	3,3	368	5,5	398	6,6
219	5,5	249	8,1	279	8,9	309	5,4	339	3,6	369	5,5	399	6,6
220	5,5	250	1,1	280	8,9	310	4,4	340	6,6	370	5,5	400	6,6
221	5,5	251	1,2	281	9,9	311	4,8	341	6,6	371	5,5		
222	5,5	252	2,3	282	9,8	312	8,8	342	6,5	372	5,5		
223	5,5	253	3,3	283	8,8	313	8,8	343	5,5	373	5,4		
224	5,5	254	3,3	284	9,8	314	8,1	344	5,5	374	4,4		
225	5,5	255	3,6	285	8,7	315	1,1	345	5,5	375	4,8		
226	5,5	256	6,6	286	7,7	316	1,5	346	5,5	376	8,8		
227	5,4	257	6,6	287	7,4	317	5,5	347	5,5	377	8,8		
228	4,4	258	6,5	288	4,8	318	5,5	348	5,5	378	8,1		
229	4,8	259	5,5	289	8,8	319	5,5	349	5,5	379	1,1		
230	8,8	260	5,5	290	8,8	320	5,5	350	5,4	380	1,5		
231	8,8	261	5,5	291	8,7	321	5,5	351	4,4	381	5,5		
232	8,6	262	5,5	292	7,7	322	5,5	352	4,8	382	5,5		
233	6,6	263	5,5	293	7,4	323	5,5	353	8,8	383	5,5		
234	6,6	264	5,5	294	4,8	324	5,5	354	8,1	384	5,5		
235	6,5	265	5,5	295	8,8	325	5,5	355	1,1	385	5,5		
236	5,5	266	4,4	296	8,1	326	5,5	356	1,4	386	5,5		
237	5,5	267	4,8	297	1,1	327	5,4	357	4,4	387	5,5		
238	5,5	268	8,8	298	1,2	328	4,4	358	4,8	388	5,4		
239	5,5	269	8,8	299	8,2	329	4,10	359	8,8	389	4,4		
240	5,5	270	8,6	300	3,5	330	10,10	360	8,7	390	4,8		



Observation Matrix Table

	1	2	3	4	5	6	7	8	9	10	Total
1	 								1		32
2											8
3											9
4				       				 			53
5				                   							150
6				 		       					42
7											8
8	 							       			71
9						-					9
10											17
Total	32	8	9	53	150	42	8	71	9	17	400

## Interpretation of an Observation Matrix Table

For interpretation the matrix table intelligently. The percentage of teacher talk, student talk and silence or confusion are work out.

If the table behaviours observed are 400.

S.No.	Behaviour talk Ratio	Formula	Result
1	Teacher talk ratio	$\frac{\sum f (\text{column 1 to 7}) \times 100}{N}$ $= \frac{302}{400} \times 100$	75.5%
(a)	Teacher Indirect Influence Ratio	$\frac{\sum f (\text{column 1 to 4}) \times 100}{N}$ $= \frac{102}{400} \times 100$	25.5%
(b)	Teacher Direct Influence Ratio	$\frac{\sum f (\text{column 5 to 7}) \times 100}{N}$ $= \frac{200}{400} \times 100$	50%
2	Student talk Ratio	$\frac{\sum f (\text{column 8 to 9}) \times 100}{N}$ $= \frac{80}{400} \times 100$	20%
3.	Silence or Confusion ratio	$\frac{\sum f (\text{column 10}) \times 100}{N}$ $= \frac{18}{400} \times 100$	4.5%



Interpretation Regarding Quantitative Aspects of  
Teacher Behaviours:-

Category Ratio:-

Category	Formula	Calculation	Result
Cat. 1	$\frac{\sum f [\text{column 1}] \times 100}{N}$	$\frac{32}{400} \times 100$	8%
Cat. 2	$\frac{\sum f [\text{column 2}] \times 100}{N}$	$\frac{8}{400} \times 100$	2%
Cat. 3	$\frac{\sum f [\text{column 3}] \times 100}{N}$	$\frac{9}{400} \times 100$	2.25%
Cat. 4	$\frac{\sum f [\text{column 4}] \times 100}{N}$	$\frac{53}{400} \times 100$	13.25%
Cat. 5	$\frac{\sum f [\text{column 5}] \times 100}{N}$	$\frac{150}{400} \times 100$	37.5%
Cat. 6	$\frac{\sum f [\text{column 6}] \times 100}{N}$	$\frac{42}{400} \times 100$	10.5%
Cat. 7	$\frac{\sum f [\text{column 7}] \times 100}{N}$	$\frac{8}{400} \times 100$	2%
Cat. 8	$\frac{\sum f [\text{column 8}] \times 100}{N}$	$\frac{71}{400} \times 100$	17.75%
Cat. 9	$\frac{\sum f [\text{column 9}] \times 100}{N}$	$\frac{9}{400} \times 100$	2.25%
Cat. 10	$\frac{\sum f [\text{column 10}] \times 100}{N}$	$\frac{17}{400} \times 100$	4.25%

Result :-

Category	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	C <sub>7</sub>	C <sub>8</sub>	C <sub>9</sub>	C <sub>10</sub>
Value in %	8	2	2.25	13.25	37.5	10.5	2	17.75	2.25	4.5

Pupil teacher gave more stress on C<sub>5</sub> category that is lecture method during teacher-learning process.

Area of Interaction

Area	Formula	Calculation	Result
Area A	$\frac{\sum f[\text{column 1 to 4}]}{N} \times 100$	$108/400 \times 100$	25.5%
Area B	$\frac{\sum f[\text{column 5 to 7}]}{N} \times 100$	$200/400 \times 100$	50%
Area C	$\frac{\sum f[\text{column 8 to 9}]}{N} \times 100$	$80/400 \times 100$	20%
Area D	$\frac{\sum f[\text{column 10}]}{N} \times 100$	$18/400 \times 100$	4.5%
Area E	$\frac{\sum f[(4,1)+(4,2)+(4,3)+(4,4)+(2,2)+(2,3)+(3,2)+(3,3)]}{N} \times 100$	$31/400 \times 100$	7.75%
Area F	$\frac{\sum f[(6,6)+(6,7)+(7,6)+(7,7)]}{N} \times 100$	$32/400 \times 100$	8%
Area G	$\frac{\sum f[(8,1)+(8,2)+(8,3)+(9,1)+(9,2)+(9,3)]}{N} \times 100$	$17/400 \times 100$	4.25%



Area	Formula	Calculation	Result
Area H	$\frac{\sum P[(3,6) + (8,7) + (9,6)]}{N} \times 100$	$\frac{8}{400} \times 100$	2%
Area I	$\frac{\sum P[(4,8) + (4,9) + (5,8) + (5,9)]}{N} \times 100$	$\frac{20}{400} \times 100$	5%
Area J	$\frac{\sum P[(8,8) + (8,9) + (9,8) + (9,9)]}{N} \times 100$	$\frac{52}{400} \times 100$	13%

Result :-

G/H	G	4.25/2	2.12
	H		
A/B	A	25.5/50	0.51
	B		

Value of preparation of G/H and A/B are quite different. So, pupil teachers index related as flexible teachers influence.

Behavioural Ratio

Behavioural Ratio	Formula	Calculation	Result
Teacher talk Ratio	$\frac{\sum f [\text{column 1 to 7}]}{N} \times 100$	$\frac{302}{400} \times 100$	75.5%
Indirect Teacher talk ratio	$\frac{\sum f [\text{column 1 to 4}]}{N} \times 100$	$\frac{102}{400} \times 100$	25.5%
Direct teacher talk ratio	$\frac{\sum f [\text{column 5 to 7}]}{N} \times 100$	$\frac{200}{400} \times 100$	50%
Pupil talk ratio	$\frac{\sum f [\text{column 8 to 9}]}{N} \times 100$	$\frac{80}{400} \times 100$	20%
Silence and confusion Ratio	$\frac{\sum f [\text{column 10}]}{N} \times 100$	$\frac{18}{400} \times 100$	4.5%
Indirect to direct Ratio	$\frac{\sum f [\text{column 1 to 4}]}{\sum f [\text{column 5 to 7}]} \times 100$	$\frac{102}{200} \times 100$	51%
Pupil Initiative Ratio	$\frac{\sum f [\text{column 9}]}{\sum f [\text{column 8 to 9}]} \times 100$	$\frac{9}{80} \times 100$	11.25%
Teacher Response Ratio	$\frac{\sum f [\text{column 1+2+3}]}{\sum f [\text{column 1+2+3+6+7}]} \times 100$	$\frac{49}{99} \times 100$	49.49%
Teacher Question Ratio	$\frac{\sum f [\text{column 4}]}{\sum f [\text{column 4+5}]} \times 100$	$\frac{53}{203} \times 100$	26.10%
Content Cross Ratio	$\frac{\sum f [\text{col. 4+5}]}{N} \times 100$	$\frac{203}{400} \times 100$	50.75%



Behaviour Ratio	Formula	Calculation	Result
Vicious Circle Ratio	$\frac{\sum f [(6,6) + (6,7) + (7,6) + (7,7)] \times 100}{N}$	$\frac{33}{400} \times 100$	50.75% 8%
Steady State Ratio	$\frac{\sum f [(6,6) + (6,7) + (7,6) + (7,7)] \times 100}{N}$	$\frac{39}{270} \times 100$	67.5%
Pupil Steady state ratio	$\frac{\sum f [(8,8) + (9,9)] \times 100}{\sum f [(8,8) + (9,9)]}$	$50/80 \times 100$	62.5%
Instantaneous teachers response ratio	$\frac{\sum f [(8,1) + (8,2) + (8,3) + (9,1) + (9,2) + (9,3)] \times 100}{\sum f [(8,1) \times (8,2) + (8,3) + (8,1) \times (8,7) + (9,1) + (9,2) + (9,3) + (9,1) \times (9,7)]}$	$\frac{17}{25} \times 100$	68%
Instantaneous teachers question ratio	$\frac{\sum f [(8,4) + (9,4)] \times 100}{\sum f [(8,4) + (8,5) + (9,4) + (9,5)]}$	$2/3 \times 100$	66.66%

## Interpretation of Behaviour Ratio

The standard normative expectation as developed by Flanders and its calculated value are as under:

S.No	Behaviour Ratio	Norm Developed by Flanders	Calculated Value (%)
1	Teacher talk Ratio	67	75.57
2	Pupil talk Ratio	21	20
3	Silence and confusion	12	4.5
4	Teacher Response Ratio	26	49.49
5	Teacher question Ratio	19	26.10
6	Pupil Initiation Ratio	12	11.25
7	Steady state Ratio	46	67.5
8	Pupil Steady State Ratio	37	62.5
9	Contact Cross Ratio	72	50.8
10	Instantaneous Teacher Response Ratio	48	68
11	Instantaneous Teacher Question Ratio	42	66.66

Conclusion:- Pupil teacher exhibit greater value of behaviour ratio, mentioned ratio on teacher response ratio, teacher talk, teacher question ratio, steady state ratio, pupil initiation ratio, instantaneous teacher response ratio, silence and confusion and pupil teacher exhibit smaller value of behaviour



ratio mentioned on pupil talk, content cross ratio, instantaneous teacher question ratio. So teachers exhibit an average category.

### Suggestions:-

- Pupil talk ratio should be increased
- The Teacher question ratio should be increased
- Silence / confusion should be increased
- Instantaneous teacher question ratio should be increased
- Content cross ratio should be increased
- Pupil steady state should be increased.

## Flanders Interaction Analysis - II

Name of the Pupil teacher: - Roma

Class: - VI

Subject - Science

Roll no. - 30

Duration - 20-25 min

Observer - Habbu

Topic: - Metal

### Encoding Process:-

4, 4, 6, 6, 6, 8, 8, 8, 1, 1, 2, 4, 4, 8, 8, 8, 1, 1, 2, 2, 4, 4  
 10, 10, 6, 6, 6, 8, 8, 8, 1, 1, 5, 5, 5, 5, 5, 5  
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Decoding process :-

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 6, 6, 5, 5, 5, 5, 5, 5, 10

Series of Raising

1	10,4	31	8,1	61	5,5	91	10,10	121	6,6	151	5,6	181	8,7	211	5,5
2	4,4	32	1,1	62	5,5	92	10,10	122	6,8	152	6,6	182	7,7	212	5,5
3	4,6	33	1,5	63	5,5	93	10,6	123	8,8	153	6,6	183	7,4	213	5,5
4	6,6	34	5,5	64	5,5	94	6,6	124	8,8	154	6,4	184	4,4	214	5,5
5	6,6	35	5,5	65	5,5	95	6,6	125	8,1	155	4,4	185	4,10	215	5,6
6	6,8	36	5,5	66	5,5	96	6,8	126	1,1	156	4,10	186	10,10	216	6,6
7	8,8	37	5,5	67	5,5	97	8,8	127	1,4	157	7,10	187	10,4	217	6,5
8	8,8	38	5,5	68	5,5	98	8,8	128	4,4	158	10,4	188	4,10	218	5,5
9	8,1	39	5,5	69	5,5	99	8,9	129	4,10	159	4,8	189	10,8	219	5,5
10	10,1	40	5,5	70	5,5	100	9,9	130	10,10	160	8,8	190	8,8	220	5,5
11	11,2	41	5,5	71	5,5	101	9,7	131	10,9	161	8,8	191	8,8	221	5,5
12	2,4	42	5,8	72	5,5	102	7,7	132	9,8	162	8,8	192	8,8	222	5,5
13	4,4	43	8,8	73	5,5	103	7,7	133	9,8	163	8,8	193	4,8	223	5,5
14	4,8	44	8,8	74	5,5	104	7,6	134	9,6	164	8,6	194	8,1	224	5,9
15	8,8	45	8,1	75	5,5	105	6,6	135	6,6	165	6,6	195	1,5	225	9,9
16	8,8	46	1,1	76	5,5	106	6,6	136	6,8	166	6,8	196	5,5	226	9,9
17	8,1	47	1,5	77	5,4	107	6,5	137	8,8	167	7,8	197	5,5	227	9,4
18	1,1	48	5,5	78	4,4	108	5,5	138	8,8	168	8,6	198	5,5	228	4,4
19	1,2	49	5,5	79	4,8	109	5,5	139	8,1	169	6,6	199	5,5	229	4,8
20	2,2	50	5,5	80	8,8	110	5,5	140	1,1	170	6,5	200	5,5	230	8,8
21	2,4	51	5,5	81	8,8	111	5,5	141	1,1	171	5,5	201	5,6	231	8,8
22	4,4	52	5,6	82	8,8	112	5,4	142	1,2	172	5,5	202	6,6	232	8,8
23	4,10	53	6,6	83	8,7	113	4,4	143	2,5	173	5,5	203	6,5	233	8,6
24	10,10	54	6,9	84	7,7	114	4,8	144	5,5	174	5,5	204	5,5	234	6,6
25	10,6	55	9,9	85	7,6	115	8,8	145	5,5	175	5,5	205	5,5	235	6,6
26	6,6	56	9,7	86	6,6	116	8,8	146	5,5	176	5,5	206	5,5	236	6,5
27	6,6	57	7,7	87	6,6	117	8,7	147	5,5	177	5,4	207	5,5	237	5,5
28	6,8	58	7,5	88	6,4	118	7,7	148	5,5	178	4,4	208	5,5	238	5,5
29	8,8	59	5,5	89	4,4	119	7,7	149	5,5	179	4,8	209	5,5	239	5,5
30	8,8	60	5,5	90	4,10	120	7,6	150	5,5	180	8,8	210	5,5	240	5,5



241	5.5	271	1.1	301	5.5	331	4.4	361	4.8	391	5.5
242	5.5	272	1.1	302	5.5	332	4.8	362	7.8	392	5.5
243	5.5	273	9.9	303	5.5	333	8.8	363	7.8	393	5.5
244	5.4	274	9.9	304	5.8	334	8.8	364	7.1	394	5.5
245	4.4	275	9.4	305	8.8	335	8.8	365	7.1	395	5.5
246	4.10	276	1.1	306	8.1	336	8.7	366	1.4	396	5.5
247	10.10	277	1.1	307	1.1	337	7.7	367	4.8	397	5.10
248	10.9	278	1.4	308	1.5	338	7.4	368	8.8	398	10.10
249	9.9	279	4.4	309	5.5	339	4.4	369	7.8	399	10.5
250	9.4	280	4.8	310	5.5	340	4.8	370	7.1	400	5.10
251	4.4	281	8.8	311	5.5	341	8.8	371	1.1		
252	4.10	282	7.8	312	5.5	342	8.8	372	7.6		
253	10.6	283	8.8	313	5.5	343	8.8	373	6.6		
254	6.6	284	7.9	314	5.5	344	8.1	374	6.6		
255	6.5	285	9.9	315	5.5	345	1.9	375	6.5		
256	5.5	286	9.4	316	5.5	346	1.9	376	5.5		
257	5.5	287	4.4	317	5.4	347	9.9	377	5.5		
258	5.5	288	4.8	318	4.4	348	9.6	378	5.5		
259	5.5	289	8.8	319	4.8	349	6.6	379	5.5		
260	5.5	290	8.8	320	8.8	350	6.6	380	5.5		
261	5.5	291	8.10	321	8.1	351	6.5	381	5.5		
262	5.6	292	10.10	322	1.4	352	5.5	382	5.5		
263	6.6	293	10.6	323	4.4	353	5.5	383	5.5		
264	6.5	294	6.6	324	4.10	354	5.5	384	5.5		
265	5.5	295	6.6	325	10.10	355	5.5	385	5.6		
266	5.5	296	6.5	326	10.9	356	5.5	386	6.6		
267	5.9	297	5.5	327	9.9	357	5.5	387	6.5		
268	9.9	298	5.5	328	9.6	358	5.5	388	5.5		
269	9.8	299	5.5	329	6.6	359	5.4	389	5.5		
270	4.1	300	5.5	330	6.4	360	4.4	390	5.5		

Interpretation of an observation matrix table:-

For interpreting the matrix table intelligently the 3 of teacher talk, student talk and silence are used.

In the table, total behaviours observed are 440.

S.No.	Behaviours talk ratio	Formula	Result
1.	Teacher talk ratio	$\frac{\sum f[\text{col. 1 to 7}]}{N} \times 100$ $\frac{315}{440} \times 100$	71.59%
(a)	Teacher Indirect Influence Ratio	$\frac{\sum f[\text{col. 1 to 4}]}{N} \times 100$ $\frac{86}{440} \times 100$	19.54%
(b)	Teacher direct Influence Ratio	$\frac{\sum f[\text{col. 5 to 7}]}{N} \times 100$ $\frac{229}{440} \times 100$	52.04%
(2)	Student talk Ratio	$\frac{\sum f[\text{col. 8 to 9}]}{N} \times 100$ $\frac{103}{440} \times 100$	23.40%
(3)	Silence or confusion Ratio	$\frac{\sum f[\text{col. 10}]}{N} \times 100$ $\frac{22}{440} \times 100$	5%



Observation Matrix Table :-

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	Total
1.	 1					1					31
2.		1	1	1	1						4
3.			11			1					3
4.						1					48
5.				                      	1			11			160
6.						11			1		55
7.				11	1						14
8.				1	1			           	11	1	75
9.	11		1				11		 		28
10.					1			1			22
Total	31	4	3	48	160	55	14	75	28	22	446

Interpretation Regarding Quantitative Aspect of teacher behaviours :-

Category Ratio :-

Category	Formula	Calculation	Result
Cat. 1	$\frac{\sum f [col. 1]}{N} \times 100$	$31/440 \times 100$	7.04%
Cat. 2	$\frac{\sum f [col. 2]}{N} \times 100$	$4/440 \times 100$	0.90%
Cat. 3	$\frac{\sum f [col. 3]}{N} \times 100$	$3/440 \times 100$	0.68%
Cat. 4	$\frac{\sum f [col. 4]}{N} \times 100$	$48/440 \times 100$	10.90%
Cat. 5	$\frac{\sum f [col. 5]}{N} \times 100$	$160/440 \times 100$	36.36%
Cat. 6	$\frac{\sum f [col. 6]}{N} \times 100$	$59/440 \times 100$	13.5%
Cat. 7	$\frac{\sum f [col. 7]}{N} \times 100$	$14/440 \times 100$	3.18%
Cat. 8	$\frac{\sum f [col. 8]}{N} \times 100$	$75/440 \times 100$	17.04%
Cat. 9	$\frac{\sum f [col. 9]}{N} \times 100$	$29/440 \times 100$	6.36%
Cat. 10	$\frac{\sum f [col. 10]}{N} \times 100$	$29/440 \times 100$	5%



Topic: .....

Date: .....

Page No.: 27

Result:-

Category	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	C <sub>7</sub>	C <sub>8</sub>	C <sub>9</sub>	C <sub>10</sub>
Value in %	7.04	0.90	0.68	10.90	36.36	12.5	3.18	17.04	6.36	5%

Pupil teacher ratio gave more stress on C<sub>5</sub> category, that is lecture method during teaching learning process.

Area of Interaction:-

Area	Formula	Calculation	Result (%)
Area A	$\frac{\sum f [col. 1 to 4]}{N} \times 100$	$86/440 \times 100$	19.54
Area B	$\frac{\sum f [col. 5 to 7]}{N} \times 100$	$229/440 \times 100$	52.04
Area C	$\frac{\sum f [col. 8 to 9]}{N} \times 100$	$103/440 \times 100$	23.46
Area D	$\frac{\sum f [col. 10]}{N} \times 100$	$22/440 \times 100$	5%
Area E	$\frac{\sum f [(1,1) + (1,2) + (1,3) + (2,1) + (2,2) + (2,3) + (3,1) + (3,2) + (3,3)]}{N} \times 100$	$23/440 \times 100$	5.22

$$\text{Area F} \quad \frac{\sum f [(6,6) + (6,7) + (7,6) + (7,7)]}{N} \times 100 \quad \frac{43}{44} \times 100 \quad 9.7$$

$$\text{Area G} \quad \frac{\sum f [(8,0) + (8,2) + (8,3) + (9,1) + (9,2) + (9,3)]}{N} \times 100 \quad \frac{16}{44} \times 100 \quad 3.6$$

$$\text{Area H} \quad \frac{\sum f [(8,6) + (8,7) + (9,6) + (9,7)]}{N} \times 100 \quad \frac{29}{44} \times 100 \quad 6.5$$

$$\text{Area J} \quad \frac{\sum f [(8,8) + (8,9) + (9,8) + (9,9)]}{N} \times 100 \quad \frac{68}{44} \times 100 \quad 15.45$$

Result:-

G/H	G H	3.63 / 3.63	1
A/B	A B	19.54 / 52.07	0.37

Value of proportion of G/H and A/B are quite different so pupil teachers interest related as flexible teachers influence.



Behaviour Ratio

Behaviour Ratio	Formula	Calculation	Ratio
Teacher talk Ratio	$\frac{\sum f [\text{col. 1 to 7}]}{N} \times 100$	$315/440 \times 100$	71.59%
Indirect teacher talk ratio	$\frac{\sum f [\text{col. 1 to 4}]}{N} \times 100$	$86/440 \times 100$	19.54%
Direct teacher talk Ratio	$\frac{\sum f [\text{col. 5 to 7}]}{N} \times 100$	$229/440 \times 100$	52.04%
Pupil talk Ratio	$\frac{\sum f [\text{col. 8 to 9}]}{N} \times 100$	$103/440 \times 100$	23.40%
Silence and confusion	$\frac{\sum f [\text{col. 10}]}{N} \times 100$	$22/440 \times 100$	5%
Indirect to Direct Ratio	$\frac{\sum f [\text{col. 1 to 4}]}{\sum f [\text{col. 5 to 7}]} \times 100$	$86/229 \times 100$	37.55%
Pupil Initiative Ratio	$\frac{\sum f [\text{col. 9}]}{\sum f [\text{col. 8 to 9}]} \times 100$	$28/103 \times 100$	27.18%
Teacher Response Ratio	$\frac{\sum f [\text{col. 1+2+3}]}{\sum f [\text{col. 1+2+3+6+7}]} \times 100$	$38/107 \times 100$	35.51%

Teacher's Question Ratio	$\frac{\sum f[\text{col. 4}]}{\sum f[\text{col. 4+5}]} \times 100$	$48/209 \times 100 = 23.07\%$
Content Cross Ratio	$\frac{\sum f[\text{col. 4+5}]}{N} \times 100$	$209/440 \times 100 = 47.27\%$
Vicious Circle Ratio	$\frac{\sum f[(6,6) + (6,7) + (7,6) + (7,7)]}{N} \times 100$	$43/440 \times 100 = 9.77\%$
Steady State Ratio	$\frac{\sum f[(1,1) + (1,2) + (2,2) + (1,4) + (5,5) + (6,6) + (7,7) + (8,8) + (9,9) + (10,10)]}{N} \times 100$	$297/440 \times 100 = 67.5\%$
Pupil-Steady State Ratio	$\frac{\sum f[(2,2) + (9,9)]}{\sum f[\text{col. 8+9}]} \times 100$	$66/103 \times 100 = 64.07\%$
Instantaneous Teacher Response Ratio	$\frac{\sum f[(2,1) + (2,2) + (2,3) + (9,1) + (9,2) + (9,3)]}{\sum f[(2,1) + (2,2) + (2,3) + (2,6) + (2,7) + (9,1) + (9,2) + (9,3) + (9,6) + (9,7)]} \times 100$	$16/29 \times 100 = 55.17\%$
Instantaneous Teacher Question Ratio	$\frac{\sum f[(2,4) + (9,4)]}{\sum f[(2,4) + (9,4) + (2,5) + (9,5)]} \times 100$	$4/5 \times 100 = 80\%$



### Interpretation of Behaviour Ratio:-

The standard normative expectation as developed by Flanders and its calculated values are as under:-

S.No	Behaviour Ratio	Norms Developed By Flanders	Calculated Value in %
1	Teacher talk Ratio	67	71.59
2	Pupil talk Ratio	21	23.40
3	Silence or confusion	12	5%
4	Teacher Response Ratio	26	35.51
5	Teacher question Ratio	19	23.07
6	Pupil Initiative Ratio	12	27.18
7	Steady State Ratio	46	67.5
8	Pupil Steady State Ratio	37	64.07
9	Content Cross Ratio	72	47.27
10	Instantaneous Teachers Response Ratio	48	55.17
11	Instantaneous Teachers Question Ratio	42	90

- Conclusion:- Pupil teachers exhibit greater value of behaviour ratio mentioned on teachers response ratio, Instantaneous teachers response ratio and pupil teachers exhibit smallest value of behaviour ratio, mentioned on pupil talk, teachers question ratio, steady state Ratio, Pupil steady state ratio, Content Cross ratio, Instantaneous teachers question ratio. So teachers exhibit an average category

Suggestions:-

- Pupil talk ratio should be increased
- Teacher question Ratio should be increased.
- Silence or confusion should be increased
- Instantaneous Teacher question Ratio should be increased.
- Content cross Ratio should be increased.
- Pupil steady state ratio should be increased.



Flanders Interaction Analysis IIIName of pupil teacher :- DonuClass :- 6thSubject :- UrduTopic :- UrduDuration :- 15-20 minRoll no :- 17Observer :- ShubhamEncoding Process :-

4, 8, 2, 4, 8, 2, 5, 5, 3, 5, 5, 5, 5, 5, 5, 5, 5, 6, 6, 5, 5, 5, 5,  
 5, 5, 10, 4, 8, 2, 5, 5, 5, 5, 5, 6, 6, 4, 8, 2, 4, 8, 8, 2, 5,  
 4, 8, 9, 3, 2, 6, 6, 4, 8, 8, 8, 3, 2, 5, 5, 5, 5, 5, 5,  
 10, 5, 5, 5, 5, 5, 9, 9, 3, 6, 6, 5, 5, 5, 5, 5, 5, 6, 5,  
 7, 7, 5, 5, 5, 5, 5, 9, 9, 8, 6, 4, 3, 2, 4, 8, 8, 2,  
 4, 8, 8, 3, 5, 5, 5, 5, 5, 5, 5, 4, 8, 7, 9, 3, 2, 5, 5,  
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 4, 8, 1, 2, 5, 5, 6, 6, 5, 5, 5, 5, 5, 4, 8,  
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 6, 6, 5, 10, 5, 6, 8, 5, 5, 5, 5, 4, 8, 3, 2, 4, 8,  
 8, 2, 5, 5, 5, 5, 5, 6, 10, 9, 3, 3, 5, 5, 4, 8,  
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 5, 5, 5, 5, 16, 6, 4, 8, 2, 5, 5, 5, 5, 10, 5, 5,  
 6, 8, 5, 6, 5, 5, 5, 5, 5, 5, 4, 5, 5, 4, 8, 2,  
 16, 16, 16, 4, 6, 8, 2, 6, 7, 4, 8, 8, 9, 5, 5, 5, 4, 6

Decoding Process:-

10, 4, 8, 2, 4, 8, 2, 5, 5, 3, 5, 5, 5, 5, 5, 5, 6, 6, 5, 5, 5  
 5, 5, 5, 10, 4, 8, 2, 5, 5, 5, 5, 5, 6, 6, 4, 8, 2, 4  
 8, 2, 2, 5, 4, 8, 9, 3, 8, 6, 6, 4, 8, 8, 8, 3, 2  
 5, 5, 5, 5, 5, 5, 10, 5, 5, 5, 5, 5, 9, 9, 3, 6, 6  
 5, 5, 5, 5, 5, 5, 5, 7, 7, 5, 5, 5, 5, 5, 9, 9, 2  
 4, 3, 2, 4, 8, 8, 2, 4, 8, 8, 3, 5, 5, 5, 5, 5, 5  
 9, 8, 7, 9, 3, 2, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5  
 6, 6, 4, 4, 10, 10, 6, 6, 5, 5, 9, 3, 8, 3, 5, 5, 5, 5  
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 5, 4, 8, 2, 10, 10, 10, 4, 8, 9, 3, 5, 5, 5, 5, 4, 8, 9  
 2, 4, 8, 3, 10, 5, 5, 5, 5, 4, 6, 8, 2, 6, 7, 4  
 8, 8, 9, 5, 5, 5, 4, 6, 10



Series of Pairing

1	10,4	31	5,5	61	5,5	91	9,9	101	5,5	151	6,5	181	5,5	201	5,5
2	4,8	32	5,5	62	5,5	92	9,8	102	5,5	152	5,5	182	5,5	202	5,5
3	8,2	33	5,5	63	5,5	93	8,6	103	5,5	153	5,5	183	5,5	203	5,6
4	2,4	34	5,5	64	5,10	94	6,4	104	5,5	154	5,5	184	5,4	204	6,6
5	4,8	35	5,6	65	10,5	95	4,3	105	5,5	155	5,4	185	9,8	205	6,5
6	8,2	36	6,6	66	5,5	96	3,2	106	5,5	156	4,8	186	8,2	206	6,6
7	2,5	37	6,4	67	5,5	97	8,4	107	5,5	157	8,2	187	2,3	207	6,6
8	5,5	38	4,8	68	5,5	98	4,8	108	5,5	158	2,9	188	3,2	208	6,5
9	5,3	39	8,2	69	5,5	99	8,8	109	5,6	159	9,5	189	2,4	209	5,10
10	3,5	40	2,4	70	5,9	100	8,2	130	6,6	160	5,9	190	4,8	220	10,5
11	5,5	41	4,8	71	9,9	101	2,4	131	6,4	161	9,3	191	8,1	221	5,6
12	5,5	42	8,8	72	9,3	102	4,8	132	4,4	162	3,2	192	1,2	222	6,8
13	5,5	43	9,2	73	3,6	103	9,8	133	4,10	163	2,7	193	2,5	223	8,5
14	5,5	44	2,5	74	6,6	104	8,3	134	10,10	164	7,8	194	5,5	224	5,5
15	5,5	45	5,4	75	6,5	105	3,5	135	10,6	165	8,7	195	5,6	225	5,5
16	5,5	46	4,8	76	5,5	106	5,5	136	6,6	166	7,5	196	6,6	226	5,5
17	5,5	47	8,9	77	5,5	107	5,5	137	6,5	167	5,5	197	6,5	227	5,5
18	5,6	48	9,3	78	5,5	108	5,5	138	5,5	168	5,5	198	5,5	228	5,4
19	6,6	49	3,2	79	5,5	109	5,5	139	5,9	169	5,5	199	5,5	229	4,8
20	6,5	50	2,6	80	5,5	110	5,5	140	9,3	170	5,5	200	5,5	230	8,3
21	5,5	51	6,6	81	5,6	111	5,4	141	3,8	171	5,5	201	5,5	231	3,2
22	5,5	52	6,4	82	6,5	112	4,8	142	8,3	172	5,6	202	5,4	232	2,4
23	5,5	53	4,8	83	5,7	113	8,7	143	3,5	173	6,6	203	9,8	233	4,8
24	5,5	54	8,8	84	7,7	114	7,9	144	5,5	174	6,4	204	8,2	234	8,8
25	5,5	55	8,8	85	7,5	115	9,3	145	5,5	175	4,5	205	2,4	235	8,2
26	5,10	56	8,3	86	5,5	116	3,3	146	5,5	176	3,2	206	4,8	236	2,5
27	10,4	57	3,2	87	5,5	117	2,5	147	5,5	177	2,7	207	8,2	237	5,5
28	4,8	58	2,5	88	5,5	118	5,5	148	5,10	178	7,7	208	2,5	238	5,5
29	8,2	59	5,5	89	5,5	119	5,5	149	10,6	179	7,7	209	5,5	239	5,5
30	2,5	60	5,5	90	5,9	120	5,5	150	6,6	180	7,5	210	5,5	240	5,6

241	6,10	271	9,9	301	2,4	331	4,8	361	4,5	391	8,8
242	10,9	272	9,4	302	4,8	332	7,2	362	5,5	392	8,2
243	9,3	273	4,8	303	8,7	333	2,5	363	5,4	393	2,6
244	3,3	274	8,2	304	8,2	334	5,5	364	4,8	394	6,7
245	3,5	275	2,4	<del>305</del>	2,4	335	5,5	365	8,2	395	7,4
246	5,5	276	4,8	306	4,8	336	5,5	366	2,10	396	4,8
247	5,4	277	7,2	307	8,10	337	5,5	367	10,10	397	8,8
248	4,8	278	2,2	308	10,8	338	5,10	368	10,10	398	8,9
249	8,2	279	2,4	309	8,2	339	10,6	369	10,4	399	9,5
250	8,4	280	4,8	310	2,6	340	6,4	370	4,8	400	5,5
251	4,8	281	8,8	311	6,1	341	4,8	371	9,2	401	5,5
252	8,8	282	8,2	312	1,1	342	8,2	372	2,3	402	5,4
253	7,2	283	2,4	313	1,6	343	2,5	373	3,5	403	4,6
254	2,4	284	4,8	314	6,4	344	5,5	374	5,5	404	6,10
255	4,8	285	8,2	315	4,8	345	5,5	375	5,5		
256	2,4	286	2,4	316	8,8	346	5,5	376	5,5		
257	4,4	287	4,8	317	8,2	347	5,10	377	5,4		
258	4,8	288	8,6	318	2,4	348	5,5	378	4,8		
259	8,2	289	6,6	319	4,8	349	5,4	379	8,9		
260	2,4	290	6,9	320	8,5	350	4,8	380	9,2		
261	4,8	291	9,3	321	5,5	351	8,5	381	2,4		
262	8,2	292	3,2	322	5,5	352	5,6	382	4,8		
263	2,4	293	2,7	323	5,5	353	6,5	383	8,3		
264	4,8	294	7,7	324	5,6	354	5,5	384	3,10		
265	8,2	295	7,4	325	6,6	355	5,5	385	10,5		
266	2,8	296	4,8	326	6,7	356	5,5	386	5,5		
267	8,2	297	3,2	327	7,5	357	5,5	387	5,5		
268	2,9	298	2,4	328	5,5	358	5,5	388	5,5		
269	9,5	299	4,8	329	5,5	359	5,5	389	5,4		
270	5,9	300	8,2	330	5,4	360	5,4	390	4,6		



Observation Matrix Table

	1	2	3	4	5	6	7	8	9	10	Total
1	1	1				1					3
2		1	11			11	111	1	11	1	43
3			1		111	1		1	1	1	18
4			11	11	1	11				1	50
5			1				1		111	111	150
6	1						11	11	1	11	37
7				11	111		1111	1	1		12
8	1		111	1	111	11	11		111	1	60
9		1	111	1	111			1	111		16
10				111	1111	111		1	1	111	15
Total	3	43	18	50	150	37	12	66	16	15	404

## Interpretation of an observation matrix table

For interpreting the matrix table intelligently, the % of teacher talk, student talk, and silence or confusion are worked out.

In the table, total behaviours observed are 404.

S.No.	Behaviour Ratio	Formula	Result (%)
1	Teacher talk Ratio	$\frac{\sum f [\text{col. 1 to 7}]}{N} \times 100$ $313/404 \times 100$	77.47
(a)	Teacher indirect influence Ratio	$\frac{\sum f [\text{col. 1 to 4}]}{N} \times 100$ $114/404 \times 100$	28.21
(b)	Teacher direct influence Ratio	$\frac{\sum f [\text{col. 5 to 7}]}{N} \times 100$ $119/404 \times 100$	49.25
2.	Student talk Ratio	$\frac{\sum f [\text{col. 8 to 9}]}{N} \times 100$ $76/404 \times 100$	18.81
3.	Silence or confusion Ratio	$\frac{\sum f [\text{col. 10}]}{N} \times 100$ $15/404 \times 100$	3.71



Interpretation Regarding Qualitative aspect of Teachers Behaviour :-

Category Ratio :-

Category	Formula	Calculation	Result
Cat. 1	$\frac{E_f(\text{col.1}) \times 100}{N}$	$\frac{3}{404} \times 100$	0.74%
Cat. 2	$\frac{E_f(\text{col.2}) \times 100}{N}$	$\frac{43}{404} \times 100$	10.64%
Cat. 3	$\frac{E_f(\text{col.3}) \times 100}{N}$	$\frac{18}{404} \times 100$	4.45%
Cat. 4	$\frac{E_f(\text{col.4}) \times 100}{N}$	$\frac{50}{404} \times 100$	12.37%
Cat. 5	$\frac{E_f(\text{col.5}) \times 100}{N}$	$\frac{150}{404} \times 100$	37.12%
Cat. 6	$\frac{E_f(\text{col.6}) \times 100}{N}$	$\frac{37}{404} \times 100$	9.15%
Cat. 7	$\frac{E_f(\text{col.7}) \times 100}{N}$	$\frac{19}{404} \times 100$	2.97%
Cat. 8	$\frac{E_f(\text{col.8}) \times 100}{N}$	$\frac{60}{404} \times 100$	14.85%
Cat. 9	$\frac{E_f(\text{col.9}) \times 100}{N}$	$\frac{16}{404} \times 100$	3.96%
Cat. 10	$\frac{E_f(\text{col.10}) \times 100}{N}$	$\frac{15}{404} \times 100$	3.71%

~~Manoj~~

Result :-

Category	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	C <sub>7</sub>	C <sub>8</sub>	C <sub>9</sub>	C <sub>10</sub>
Value in %	0.74	10.64	4.45	12.37	37.12	9.15	2.97	14.85	3.96	3.71

Pupil teacher gave more stress on C<sub>5</sub> category than  
i.e. lecture method during teaching learning process.

Area of Interaction

Area	Formula	Calculation	Result
Area A	$\frac{\sum f [col. 1 \text{ to } 4]}{N} \times 100$	$\frac{114}{404} \times 100$	28.22
Area B	$\frac{\sum f [col. 5 \text{ to } 7]}{N} \times 100$	$\frac{199}{404} \times 100$	49.26
Area C	$\frac{\sum f [col. 8 \text{ to } 9]}{N} \times 100$	$\frac{76}{404} \times 100$	18.81
Area D	$\frac{\sum f [col. 10]}{N} \times 100$	$\frac{15}{404} \times 100$	3.71
Area E	$\frac{\sum f [(1,1)+(1,2)+(1,3)+(2,1)+(2,2)+(2,3)+(3,1)+(3,2)+(3,3)]}{N} \times 100$	$\frac{15}{404} \times 100$	3.71
Area F	$\frac{\sum f [(6,6)+(6,7)+(7,6)+(7,7)]}{N} \times 100$	$\frac{19}{404} \times 100$	4.70



Area	Formula	Calculation	Result
Area G	$\frac{\sum f[(8.17) + (8.27) + (8.3) + (8.7) + (9.2) + (9.3)]}{N} \times 100$	$19/404 \times 100$	<del>4.70</del> 11.13
Area H	$\frac{\sum f[(8.16) + (8.7) + (9.6) + (9.7)]}{N} \times 100$	$4/404 \times 100$	0.99
Area I	$\frac{\sum f[(4.18) + (4.9) + (5.8) + (6.9)]}{N} \times 100$	$47/404 \times 100$	11.63
Area J	$\frac{\sum f[(8.8) + (8.9) + (9.8) + (9.9)]}{N} \times 100$	$18/404 \times 100$	4.45

Result:-

G/H	G H	11.13 / 0.99	11.24
R10	A B	77.47 / 22.21	2.75'

Behaviour Ratio

Behaviour Ratio	Formula	Calculation	Result
- Teacher talk ratio	$\frac{\sum f[\text{cal. 1 to 7}]}{N} \times 100$	$313/404 \times 100$	77.47
- Indirect teacher talk ratio	$\frac{\sum f[\text{cal. 1 to 4}]}{N} \times 100$	$114/404 \times 100$	28.21
- Direct teacher talk ratio	$\frac{\sum f[\text{cal. 5 to 7}]}{N} \times 100$	$199/404 \times 100$	49.25
- Pupil talk ratio	$\frac{\sum f[\text{cal. 8 to 9}]}{N} \times 100$	$76/404 \times 100$	18.81
- Silence or confusion Ratio	$\frac{\sum f[\text{cal. 10}]}{N} \times 100$	$15/404 \times 100$	3.71
- Indirect to Direct Ratio	$\frac{\sum f[\text{cal. 1 to 4}]}{\sum f[\text{cal. 5 to 7}]} \times 100$	$114/199 \times 100$	57.28
- Pupil Initiative Ratio	$\frac{\sum f[\text{cal. 9}]}{\sum f[\text{cal. 8 to 9}]} \times 100$	$16/76 \times 100$	21.05
- Teachers Response Ratio	$\frac{\sum f[\text{cal. 1+2+3}]}{\sum f[\text{cal. 1+2+3+4+7}]} \times 100$	$64/113 \times 100$	56.64
- Teacher question Ratio	$\frac{\sum f[\text{cal. 4}]}{\sum f[\text{cal. 4+5}]} \times 100$	$50/200 \times 100$	25.00



- Teacher Question Ratio	$\frac{\sum P[(cal.4)] \times 100}{\sum P[(cal.4+5)]}$	$50/200 \times 100$	25.00
- Content (gross) Ratio	$\frac{\sum P[(cal.4+5)] \times 100}{N}$	$200/404 \times 100$	49.50
- Vicious Circle Ratio	$\frac{\sum P[(6,6)+(6,7)+(7,6)+(7,7)] \times 100}{N}$	$19/404 \times 100$	4.70
- Steady state Ratio	$\frac{\sum P[(0,11)+(2,2)+(3,3)+(4,4)+(5,5)+(6,6)+(7,7)+(8,8)+(9,9)+(0,10)] \times 100}{N}$	$159/404 \times 100$	39.36
- Pupil Steady state Ratio	$\frac{\sum P[(8,8)+(9,9)] \times 100}{\sum P[(cal.8+9)]}$	$19/76 \times 100$	18.42
- Simultaneous Teacher-Response Ratio	$\frac{\sum P[(8,1)+(8,2)+(8,3)+(9,1)+(9,2)+(9,3)] \times 100}{\sum P[(8,1)+(8,2)+(8,3)+(8,6)+(8,7)+(9,1)+(9,2)+(9,3)+(9,6)+(9,7)]}$	$45/49 \times 100$	91.84
- Simultaneous Teacher Question Ratio	$\frac{\sum P[(8,4)+(9,4)] \times 100}{\sum P[(8,4)+(8,5)+(9,4)+(9,5)]}$	$2/4 \times 100$	25.00

### Interpretation of Behaviour Ratio:-

The standard normative expectation as developed by Fleander's its calculated value are as under.

S.No.	Behaviour Ratio	Norms developed by fleander	Calculated
1	Teacher talk ratio	67	77.47
2	Pupil talk ratio	21	18.81
3	Silence or confusion	12	3.71
4	Teacher response ratio	26	56.64
5	Teacher question ratio	99	25.00
6	Pupil initiative Ratio	12	21.05
7	Steady State Ratio	46	39.36
8	Pupil Steady State Ratio	37	18.42
9	Content Cross Ratio	42	49.56
10	Instantaneous teachers Response Ratio	48	91.84
11	Instantaneous teachers question Ratio	42	25.00

Conclusion:- Here pupil teacher exhibits great value of behaviour. Here ratio mention on teachers response ratio, instantaneous teacher response ratio and pupil teacher exhibit smaller value of behaviour ratio mention on pupil talk, teacher question ratio, steady state ratio, Pupil Steady state ratio, Content cross ratio, Instantaneous teachers question ratio. So, teachers exhibit an average category.



Suggestions :-

- Pupil talk ratio should be increased.
- Teachers question ratio should be increased.
- Silence or confusion should be increased
- Instantaneous teacher question ratio should be increased
- Content guess ratio should be increased
- Pupil steady ratio should be increased.

# Flanders Interaction Analysis - IV

Name of the pupil/teacher :- Ravita

Class :- 6<sup>th</sup>

Subject :- Math

Topic :- ~~Triangle~~ <sup>Triangle</sup>

Duration :- 20-25 min

Roll no :- 20

Observer :- Shubham

## Encoding Process :-

4, 6, 6, 7, 4, 8, 8, 2, 5, 5, 5, 5, 5, 5, 5, 5, 6, 6, 6, 7, 5, 5,  
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Decoding Process:-

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 8, 2, 4, 8, 2, 5, 5, 5, 5, 5, 5, 4, 4, 6, 10, 10,

1	10,4	31	7,7	61	5,5	91	6,6	101	4,4	151	5,5
2	4,6	32	7,7	62	5,5	92	6,9	102	4,10	152	5,5
3	6,6	33	7,8	63	5,5	93	9,9	103	10,7	153	6,6
4	6,7	34	8,10	64	5,5	94	9,10	104	7,8	154	5,5
5	7,4	35	10,10	65	5,4	95	10,4	105	8,2	155	5,5
6	4,8	36	10,16	66	4,4	96	4,4	106	2,3	156	5,7
7	8,8	37	10,4	67	7,10	97	4,8	107	3,3	157	7,7
8	8,2	38	4,10	68	10,10	98	8,8	108	3,5	158	7,7
9	8,5	39	10,8	69	10,4	99	8,2	109	5,5	159	10,4
10	5,5	40	8,8	70	4,8	100	2,3	110	5,5	160	10,4
11	5,5	41	8,3	71	8,4	101	3,5	111	5,5	161	10,4
12	5,5	42	3,5	72	4,8	102	3,3	112	5,5	162	5,5
13	5,5	43	5,5	73	8,3	103	3,5	113	5,5	163	5,5
14	5,5	44	5,5	74	3,3	104	5,5	114	5,6	164	5,5
15	5,5	45	5,5	75	3,6	105	5,5	115	6,9	165	5,5
16	5,6	46	5,5	76	6,6	106	5,5	116	9,9	166	5,5
17	6,8	47	5,9	77	6,10	107	5,6	117	9,9	167	5,5
18	6,6	48	9,10	78	10,10	108	6,6	118	9,9	168	5,5
19	6,7	49	10,10	79	10,7	109	6,9	119	9,8	169	5,5
20	7,5	50	10,5	80	7,5	110	9,9	120	2,5	170	6,6
21	5,5	51	5,5	81	5,5	111	9,3	121	5,4	171	5,5
22	5,5	52	5,5	82	5,5	112	3,3	122	4,8	172	5,7
23	5,5	53	5,5	83	5,5	113	3,4	123	8,8	173	7,7
24	5,5	54	5,5	84	5,5	114	4,4	124	8,8	174	10,4
25	5,5	55	5,5	85	5,5	115	4,8	125	8,8	175	10,4
26	5,4	56	5,5	86	5,5	116	8,8	126	8,2	176	5,5
27	4,10	57	5,5	87	5,5	117	8,4	127	8,4	177	5,5
28	10,4	58	5,10	88	5,5	118	4,8	128	4,9	178	5,5
29	4,4	59	10,10	89	5,6	119	8,2	129	9,9	179	5,5
30	4,7	60	10,5	90	6,6	120	2,4	130	9,5	180	4,4



181	8, 9	211	7, 9	241	5, 5	271	2, 5	301	10, 8	331	9, 2	361	5, 5	391	7, 5
182	7, 2	212	9, 9	242	5, 7	272	5, 5	302	9, 2	332	2, 6	362	5, 5	392	5, 5
183	2, 3	213	9, 8	243	7, 6	273	5, 5	303	5, 5	333	6, 6	363	5, 5	393	5, 5
184	3, 3	214	8, 10	244	6, 4	274	5, 5	304	5, 5	334	6, 4	364	5, 5	394	5, 5
185	3, 5	215	10, 6	245	4, 8	275	5, 5	305	5, 5	335	4, 4	365	5, 7	395	5, 5
186	5, 5	216	10, 5	246	8, 2	276	5, 4	306	5, 5	336	4, 8	366	7, 6	396	5, 5
187	5, 5	217	5, 5	247	2, 3	277	4, 8	307	5, 5	337	8, 2	367	6, 4	397	5, 4
188	5, 5	218	5, 5	248	3, 3	278	8, 2	308	5, 5	338	2, 6	368	4, 8	398	4, 4
189	5, 5	219	5, 5	249	3, 5	279	2, 4	309	5, 5	339	6, 7	369	8, 8	399	4, 6
190	5, 4	220	5, 4	250	5, 5	280	4, 8	310	5, 5	340	7, 7	370	8, 2	400	6, 10
191	4, 8	221	4, 8	251	5, 5	281	8, 2	311	5, 5	341	7, 7	371	9, 3		
192	8, 8	222	8, 2	252	5, 5	282	2, 6	312	5, 7	342	7, 9	372	3, 3		
193	8, 2	223	8, 2	253	5, 5	283	6, 1	313	7, 5	343	9, 9	373	7, 5		
194	2, 5	224	2, 3	254	5, 9	284	1, 1	314	5, 5	344	9, 2	374	5, 5		
195	5, 5	225	7, 8	255	9, 9	285	1, 6	315	5, 5	345	2, 5	375	5, 5		
196	5, 5	226	8, 2	256	9, 10	286	6, 4	316	5, 4	346	5, 5	376	5, 5		
197	5, 5	227	8, 4	257	10, 4	287	4, 4	317	4, 10	347	5, 5	377	5, 5		
198	5, 10	228	4, 8	258	4, 8	288	4, 8	318	10, 10	348	5, 5	378	5, 5		
199	5, 5	229	8, 8	259	8, 8	289	8, 8	319	10, 7	349	5, 5	379	5, 5		
200	5, 5	230	8, 2	260	8, 2	290	8, 2	320	7, 5	350	6, 6	380	5, 9		
201	5, 5	231	2, 5	261	2, 4	291	4, 8	321	5, 5	351	6, 6	381	5, 8		
202	5, 5	232	5, 5	262	4, 8	292	8, 8	322	5, 5	352	6, 4	382	9, 2		
203	5, 5	233	5, 5	263	8, 2	293	8, 2	323	5, 5	353	4, 10	383	2, 4		
204	5, 5	234	5, 6	264	2, 4	294	2, 3	324	5, 5	354	10, 10	384	4, 8		
205	5, 6	235	6, 5	265	2, 4	295	3, 5	325	5, 5	355	10, 10	385	8, 2		
206	6, 6	236	5, 5	266	4, 7	296	5, 5	326	5, 5	356	10, 6	386	2, 4		
207	6, 4	237	5, 5	267	7, 10	297	5, 5	327	5, 9	357	6, 8	387	4, 8		
208	4, 4	238	5, 5	268	10, 6	298	5, 5	328	9, 9	358	8, 2	388	8, 8		
209	4, 8	239	5, 5	269	6, 8	299	5, 4	329	9, 9	359	2, 5	389	8, 2		
210	7, 7	240	5, 5	270	8, 2	300	4, 10	330	9, 9	360	5, 5	390	2, 3		

Observation Matrix Table

	1	2	3	4	5	6	7	8	9	10	total
1	1					1					2
2		1	111	1111111	1111111	111					32
3			1111111	1	1111111	1		1			19
4			1111111		11	11	1111111	1	1111		51
5				1111111	111111111111111111	1111	111		1111	11	176
6	1			1111111	111	1111111	111	11	111	11	33
7				1	111	11	1111111	11	11	111	21
8		1111111	11	1111			1	1111111		11	51
9		1111	1		1			1	1111111	1111	25
10				1111111	1111111	11	111	111		1111111	37
total	2	32	19	51	176	33	21	51	25	37	447



## Interaction of an Observation Matrix table

For interpreting the matrix table intelligently the % of teachers talk, student talk, silence or confusion are worked out.

In the table, behaviours observed are 447.

S.No.	Behavioural talk ratio	Formula	Result
1	Teachers talk ratio	$\frac{\sum f [\text{col. 1 to 7}]}{N} \times 100$	74.72%
(a)	Teachers Indirect Influence Ratio	$\frac{\sum f [\text{col. 1 to 4}]}{N} \times 100$	23.26%
(b)	Teachers Direct Influence Ratio	$\frac{\sum f [\text{col. 5 to 7}]}{N} \times 100$	51.45%
2.	Student talk ratio	$\frac{\sum f [\text{col. 8 to 9}]}{N} \times 100$	17.00%
3.	Silence or confusion	$\frac{\sum f [\text{col. 10}]}{N} \times 100$	8.27%

Interpretation Regarding Quantitative Aspect of Teachers Behaviour:-

Category Ratio :-

Category	Formula	Calculation	Result (%)
Cat. 1	$\frac{\sum f[\text{col.1}]}{N} \times 100$	$\frac{2}{447} \times 100$	0.44
Cat. 2	$\frac{\sum f[\text{col.2}]}{N} \times 100$	$\frac{32}{447} \times 100$	7.15
Cat. 3	$\frac{\sum f[\text{col.3}]}{N} \times 100$	$\frac{19}{447} \times 100$	4.25
Cat. 4	$\frac{\sum f[\text{col.4}]}{N} \times 100$	$\frac{51}{447} \times 100$	11.40
Cat. 5	$\frac{\sum f[\text{col.5}]}{N} \times 100$	$\frac{176}{447} \times 100$	39.37
Cat. 6	$\frac{\sum f[\text{col.6}]}{N} \times 100$	$\frac{33}{447} \times 100$	7.38
Cat. 7	$\frac{\sum f[\text{col.7}]}{N} \times 100$	$\frac{21}{447} \times 100$	4.69
Cat. 8	$\frac{\sum f[\text{col.8}]}{N} \times 100$	$\frac{51}{447} \times 100$	11.49
Cat. 9	$\frac{\sum f[\text{col.9}]}{N} \times 100$	$\frac{25}{447} \times 100$	5.50
Cat. 10	$\frac{\sum f[\text{col.10}]}{N} \times 100$	$\frac{37}{447} \times 100$	8.27



Result :-

Category	C <sub>1</sub>	C <sub>2</sub>	C <sub>3</sub>	C <sub>4</sub>	C <sub>5</sub>	C <sub>6</sub>	C <sub>7</sub>	C <sub>8</sub>	C <sub>9</sub>	C <sub>10</sub>
Value in %	44	7.15	4.25	11.40	39.37	7.38	4.69	11.40	5.59	7.27

Pupil teachers gave more stress on C<sub>5</sub> category that is lecture method during teaching learning method.

Area of Interaction

Area	Formula	Calculation	Result
Area A	$\frac{\sum f[\text{col. 1 to 4}]}{N} \times 100$	$104/447 \times 100$	23.26
Area B	$\frac{\sum f[\text{col. 5 to 7}]}{N} \times 100$	$230/447 \times 100$	51.45
Area C	$\frac{\sum f[\text{col. 8 to 9}]}{N} \times 100$	$76/447 \times 100$	17.00
Area D	$\frac{\sum f[\text{col. 10}]}{N} \times 100$	$37/447 \times 100$	8.27
Area E	$\frac{\sum f[(9,1)+(1,2)+(1,3) + (2,1)+(2,2)+(2,3) + (3,1)+(3,2)+(3,3)]}{N} \times 100$	$18/447 \times 100$	4.02
Area F	$\frac{\sum f[(6,6)+(6,7)+(7,6) + (7,7)]}{N} \times 100$	$24/447 \times 100$	5.36

$$\text{Area G} \quad \frac{\sum f [(8,11)+(8,12)+(8,13) + (9,11)+(9,12)+(9,13)] \times 100}{N} \quad \frac{34}{447} \times 100 \quad 7.60$$

$$\text{Area H} \quad \frac{\sum f [(8,6)+(8,7)+(9,6) + (9,7)] \times 100}{N} \quad \frac{1}{447} \times 100 \quad 0.22$$

$$\text{Area I} \quad \frac{\sum f [(4,8)+(4,9) + (5,8)+(5,9)] \times 100}{N} \quad \frac{33}{447} \times 100 \quad 7.38$$

$$\text{Area J} \quad \frac{\sum f [(8,8)+(8,9) + (9,8)+(9,9)] \times 100}{N} \quad \frac{30}{447} \times 100 \quad 6.71$$

Result:-

G/H	G	7.60/0.22	34.54
A/B	A	23.26/51.45	0.45
	B		

Value of proportion of G/H and A/B are quite different. So pupil teachers interrelated as flexible teacher influence.



## Interpretation of Behaviour Ratio

The standard normative expectation as developed by Flanders and its calculated values are as under:-

S.No	Behaviour Ratio	Norms developed by Flanders	Calculated Value
1	teacher talk ratio	67	74.72
2	Pupil talk ratio	21	17.00
3	Silence or confusion	12	8.27
4	Teacher response ratio	26	49.53
5	Teacher question ratio	19	22.46
6	Pupil Initiative ratio	19	32.89
7	Steady state Ratio	46	50.33
8	Pupil steady state ratio	37	38.15
9	Content cross Ratio	72	50.78
10	Instantaneous Teacher Response Ratio	48	97.14
11	Instantaneous teacher question ratio	42	80

### Conclusion:-

Here Pupil-teacher exhibits greater value of behaviour ratio mentioned on teacher response ratio and pupil teacher exhibit smaller value of behaviour ratio mentioned on pupil talk, teacher question ratio, content cross ratio, Instantaneous teacher question ratio. So teachers exhibit an average category.

Suggestions:-

- Pupil talk ratio should be increased.
- Teacher question ratio should be increased.
- Silence or confusion should be increased.
- Instantaneous teacher question ratio should be increased.
- Content cross ratio should be increased.
- Pupil steady ratio should be increased.



DIAGNOSTIC

TEST

## DIAGNOSTIC TESTING

Literally diagnostic testing stand for testing and evaluation programme carried out for the diagnosis of something. In case one has some problem regarding his physical or mental health. He is subjected to one hour or other kind of testing (blood test, urine test, stress test, x-ray etc.) for diagnosing the nature as well as roots or causes of his ailments. The result of all such diagnoses than form part of the treatment programme for helping the individual from getting of that physical and mental health problem. Similarly the case with the diagnostic testing and evaluation programmes carried out in the field of education. Education effort are carried to bring desirable behavioural changes for an all round development in the personality of an education. We are alarmed when we find student turned into a problem child or observe him lagging behind in his studies related to one or more subjects of the school curriculum. Here come the need of diagnosing his behaviour and state of educational progress in one or the other subject of the school curriculum. Surely like a physician or psychiatrist, here he has to resort to the method of diagnosing the learning and behavioural difficulties of his student for checking out some remedial programme aiming to help



them in getting rid of their difficulties problem. Looking in this way, diagnostic testing may be defined as a testing or evaluation programme carried out by a teacher for diagnosing the nature and extent of the learning difficulties and behavioural problem and individual group of the testing student along with the internal causes of chalking out suitable remedial programme aimed to help them in getting rid of the difficulties and problems.

It can be easily conducted from the discussion that diagnostic testing and remedial teaching are inter-related and complementary to each other. Each is based on and result into the other. One is a result to diagnostic testing for searching the appropriate remedial instructions. In fact neither diagnostic testing nor remedial teaching should ever be considered in isolation.

They should form a part of a cycle known as diagnostic testing and remedial teaching cycle which may be considered to involve the following process for its complete execution.

1 - Diagnostic Testing :-

For knowing the child weakness and learning difficulties in mathematics.

2 Hypothesizing :-

The probable causes for these weakness and difficulties.

3 Applying Remedial Teaching :-

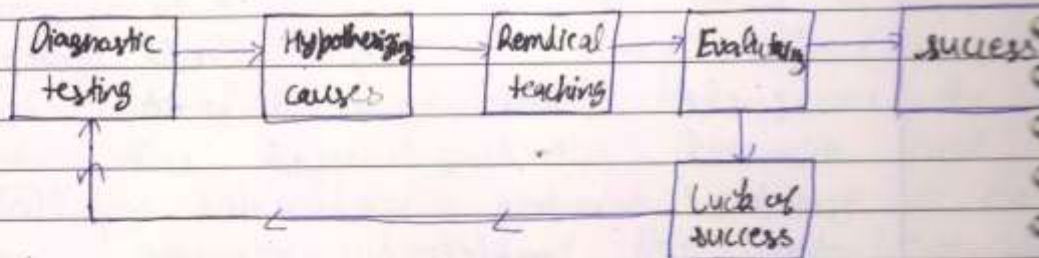
For removing these difficulties and problems.

4 Evaluating :-

The outcomes for the remedial teaching.

5 Continuing :-

The repeat the above process to achieve desired success in removing the diagnosed difficulties and weakness.



Diagnostic testing and Remedial teaching cycle.



By applying the diagnostic testing the effort are made to know the nature and extent of ones weakness and difficulties in the learning of that particular student.

Once the weakness and difficulties regarding to learning of a particular concept knowledge and skill area etc. Are identified effort are then made to list out the possible causes responsible for these weakness and difficulties.

### Teachers made diagnostic Tests

A part from making use of the available standardized published diagnostic tests, a teacher should try to make himself competent in the preparation of a teacher made diagnostic test.

In general this task may involve the following three stages:-

- A. Planning for the construction of the diagnostic test.
- B. Construction of diagnostic test.
- C. Administration and interpretation of the test.

A. Planning :- An appropriate thorough planning is very much essential for the construction of diagnostic test.

(i) Identifying the area of weakness :-

Need of constructing a diagnostic test should be properly identified. It may be based on the finding of the achievement test. Classroom drill and practical work, home work and assignments, classroom behaviour of the student.

Isolating a unit, sub-unit or concept for diagnostic in depth :-

We assume that this analysis has led us to conclude that particular students or class is lagging behind difficulty in one or more some particular unit in curriculum. In this way several sub-unit in curriculum or single concept diagnostic test may be constructed and then joined and combined into composite diagnostic test aiming of the student in the whole unit.

Taking clear decision About necessary Administrative measures :-

It is better to take decision regarding various administrative functioning of the test after sitting for the construction



like the time limit direction for the proper administrative of the test scoring and interpretation etc.

### B. Construction of diagnostic Test:-

In the view of the thing planned at the planning stage now attempt should be made to select appropriate part being include in the prepared diagnostic test.

1. The nature of the contents of the sub-unit or single unit.
2. The pre-requisites behaviour in the terms of the previous knowledge skills needed for learning the sub-unit.

### A Simple Diagnostic test in mathmatic :-

Name of the unit - mensuration

Name of the sub-unit - Area of circulars

### Pre- Requisites:-

Student are expected to have previous knowledge regarding the following :->

### Construction of diagnostic test:-

For casing out diagnostic of the weakness and learning

difficulties of the student in the subject mathematics. We may make use of the appropriate standardized diagnostic test published in india as well as abused.

Remain Inventory = Elementary Mathem skill

Name- Date

Age - Name of school

Q-2 Write the correct symbol ( $<$  or  $>$ ) in each circle to make the statement true.

38, 37, 185, 287, 76, 42

Q- Write the correct sign ( $+$  or  $-$ ) in each A

$$8A7 = 10+5$$

$$16A9 = 10-3$$

$$(13-3)A2 = 6A2$$

$$6+8 = 7A7$$

Complete the following : Using Distribute property

$$4 \times 36 = 4 \times (30+6)$$

$$(4 \times 30) + (4 \times 6)$$

$$120 + 24 = 144$$

$$2 \times 13 = 2 \times (10+3)$$

$$= (2 \times 10) + (2 \times 3)$$

$$= 20 + 6$$

$$= 26$$



Solve each problem

$$\begin{array}{r} 242 \\ + 508 \\ \hline 750 \end{array}$$

$$\begin{array}{r} 565 \\ - 27 \\ \hline 538 \end{array}$$

$$\begin{array}{r} 43 \\ + 19 \\ \hline 62 \end{array}$$

$$\begin{array}{r} 704 \\ - 6 \\ \hline 698 \end{array}$$

$$\begin{array}{r} 59 \\ + 52 \\ \hline 104 \end{array}$$

$\Rightarrow$  Fill the blanks =  $8 \times 5 = 40$        $7 \times 5 = 35$   
 $4 \times 8 = 32$        $6 \times 9 = 54$   
 $40 \div 8 = 5$        $35 \div 7 = 5$

Complete each problem

$$\begin{array}{r} 312 \\ \times 12 \\ \hline 3744 \end{array}$$

$$\begin{array}{r} 231 \\ \times 3 \\ \hline 693 \end{array}$$

$$\begin{array}{r} 291 \\ \times 3 \\ \hline 873 \end{array}$$

Write the correct symbol

$$\frac{1}{3} < \frac{1}{4} \quad \frac{2}{8} = \frac{1}{3}$$

$$\frac{4}{6} > \frac{1}{3}$$

Nant

TEXT  
Book

ANALYSIS



## Text Book Analysis

For a very long time, textbook has been the chief instrument in the hands of the teacher and taught. The traditional education was textbook in nature. Textbooks were considered to be all and end-all of all education.

In many cases they are still used as ends in education. They are read out loudly, para by para in the class by each of the pupils in turn, brief explanation and comments are given by the teacher here and there, and all the matter covered is to be memorized by the pupils in the class as well as in the home.

According to modern trends in education the textbook doesn't enjoy monopoly over teaching. It is only a tool, an aid and a source of knowledge. It is a fundamental tool which is accessible to every student. Books and other instructional materials supplemented by personal insight, by empathy and imagination of the teachers are the backbone of all good teaching and learning.

They should be regarded as strictly subordinate and supplementary to the teacher's lesson.

"Textbook is a basic instrument of teaching"

According to Daughal :- "The textbook is a potent determinant of what and how they will teach."

### Purpose of the Sociology textbook :-

- ⇒ To reflect and help in the realization of the specific objectives of teaching sociology in the grade pass which the textbook is meant.
- ⇒ To take into the consideration the objectives of teaching sociology.
- ⇒ To provide for the needs of students at different level of intelligence.
- ⇒ To give a balanced picture of the life of man and interaction (w) man and environment.
- ⇒ To promote moral value.
- ⇒ To assume special responsibility towards the promotion of national goals like democracy, socialism, secularism, national integration and international understanding.



## Importance of Sociology Textbooks

- ⇒ Scope of course
- ⇒ Helpful for the teacher
- ⇒ Helpful for the students
- ⇒ Standard of minimum essential
- ⇒ Uniformity of standard
- ⇒ Source of self education
- ⇒ Source of Discussion
- ⇒ Basis of various methods
- ⇒ Basis of application
- ⇒ Innovations
- ⇒ Development of study habit
- ⇒ Useful for Group teaching.

## Scope of Courses

A good textbook determines the scope of the prescribed courses. It delimits boundaries of the content matter. It furnishes a good outline for courses.

## Source of Self Education

In encourage self-education and independence. The efficiency of the textbook lies in making self-teaching a possible

propagation through printed material.

### Source of communication

It serves as a source, through which teachers and pupil communicate with each other in an effort to carry forward the learning process.

### Source of discussion

It serves excellently as a base for intelligent class, problem solving situation and faith.

### Innovations :-

It inspires the teachers for innovations, helping to develop new techniques in teaching.

### Useful for group teaching

It is useful and economic device for group teaching. It can reach thousand hands simultaneously. It is indispensable in assignment system.



## Essential for New Teachers

The use of textbook is very essential for new teachers and pupil-teachers as they need a definite basis which can be taken from the textbooks.

### Criteria of the book:-

- 1) Internal Criteria
- 2) External Criteria

#### 1) Internal Criteria:-

- Content
- Spellings
- Punctuation
- Adequate Examples
- Free from misprints
- Adequate Exercise
- Real Projects
- Prelims and backpages

#### 2) External Criteria:-

- Quality of the page
- Colour combination
- Pictures effects
- Binding quality
- Cost of the book should be reasonable

## India Society Textbook Analysis of peace perspective :-

"Indian Society" is an NCFE textbook of Sociology for class 12<sup>th</sup> standard. It has the following 6 chapters.

- Introducing Indian Society
- Demographic Structure and Indian Society
- Social Institutions - Continuity and change
- The market as a social inst.
- Patterns of social inequality and exclusion.
- The challenges of cultural diversity.

### Chapter - I

#### Introducing India Society :-

This chapter explains about the Indian Society. It explains about class community, colonialism, Globalisation, social structure, unity and nation and peace as well.

In this chapter, Peace perspective, is highly emphasised. For e.g. → Tradition and modernity in Indian Society caused various problems so, peace should be highly maintained in the society should join hands for building and maintaining peace throughout the country. For e.g. → Peace



however is also seen as concord, or harmony and tranquillity. It is defined as a state of laws and a balance or equation of powers.

## CHAPTER-2

### Demographic structure of Indian society:-

The content of the chapter includes the demography, population, literacy, disease etc. It explains about the study of the population of a country, community, area, birth rate, death rate, migration no. of people in an area, composition of an area, consequences of the population of a society and how it affects us. The infant mortality rate, maternal mortality rate, sex-ratio and as well as the age structure. Thus all these aspects are well explained in the chapter.

## CHAPTER-3

### Social Institutions: Continuity and change:-

The social institutions includes caste, tribe, family and kinship, untouchability, Sanskritization, varna system and as well as the marriage stratification and about the "Pigeon"

Thus in this chapter peace building societies are focused. The "peace" is well explained.

## CHAPTER-4

### The market as a social institution:-

This chapter explains about the market as a place of interaction b/w the buyers and sellers, producers and consumers in respect to goods and service. It also explains about the types of market as market and traditional communities. But this chapter according to "peace perspective". It is not all defined it means peace = perspective is not all defined.

## CHAPTER-5

### Patterns of social inequality and Exclusion

Social inequality means difference show to people in the society partition in the society status. It explains about the reservations, laws relating to diff. classes or castes about the women structure for equality and rights poverty too.

This chapter explains about "peace" for example:- caste system as a



discriminatory system and this to be abolished to maintain and build peace in the society. A just peace is one of maximise equality as the greatest happiness of greatest numbers, the stratification of human needs.

## CHAPTER-6

### The Challenges of Culture Diversity:-

Unity in diversity even though we have different religions etc. And we are different we come together as one as Indians. It includes different communities, nation, and states.

The existence of different culture and social aspects. The concept of regionalism, majority and minority population etc.

All these are explained in this chapter but the concept of "Peace" is not all focused. It doesn't explain anything about the "Peace" concept.

Thanks

## Conclusion

Textbook is a learning instrument usually employed in schools and colleges to support a programme of instruction. In ordinary usage the textbook is handbound. It serves as an ideal for instructional perspective and it is a potent determinant of what and how teachers will teach.

This sociology textbook analysis from gives due focus on the peace perspective. But overall if we see it doesn't deeply go into the concept of peace. In harmony and that equality. It is a peace of mind. It is defined as a state of law and a balance or equilibrium of powers.