

**PRAGYA COLLEGE
OF
EDUCATION**

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INTERNSHIP PROGRAMME

COURSE V - GROUP-B

FLANDER'S INTERACTION

ANALYSIS SYSTEM

SEMESTER – III

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SIGNATURE

FLANDERS INTERACTION ANALYSIS TECHNIQUE

Flanders has developed a ten categories system. The first seven categories are used when teachers are talking and next two categories are used when any pupil is talking and the last category is used to indicate the silence or confusion in the classroom.

Flanders Interaction Analysis is concerned primarily with verbal behaviour of teachers. Interaction analysis is primarily concerned with analysing the influence patterns of the teacher and distinguishes those acts of teachers which increase pupils freedom of action from those acts that decrease it.

"Interaction analysis is a process of encoding and decoding the study pattern of teaching and learning."

TEACHER TALK

(i) INDIRECT TALK

Accepting feelings
Praise or Encouragement
Accepting and Using ideas
Asking questions

(ii) DIRECT TALK

Lecturing
Giving directions
Outcising

PUPIL TALK

Pupil-talk
Responding to Teacher

Pupil-talk
initiation

SILENCE

Silence or confusion

Teacher's Signature _____

Teacher's Signature _____

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Date _____
Page No. _____DESCRIPTION OF CATEGORIES:

In Flanders ten category system all the events that occur in the classroom are classified into three major section:

1. Teacher talk
2. Student talk
3. Silence or confusion.

These sections are subdivided in order to make the total pattern of teacher pupil interaction more meaningful.

Teacher talk is divided into:

1. Indirect Influence
2. Direct Influence

INDIRECT TEACHER BEHAVIOUR

Category 1:

Acceptance of Feelings - In this category the feelings of the pupils are accepted by the teacher. He feels himself that the

Teacher's Signature _____

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Date _____
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pupil should not be punished for exhibiting his feelings.

Category 2:

Desire for Engagement - The teacher uses words 'good', 'better', 'correct etc.' while appreciating the activities of the pupils, so that the students will feel motivated.

Category 3:

Accepting Ideas - It includes only acceptance of student ideas and not acceptance of expressed emotion. When a student makes a suggestion, the teacher may paraphrase the student's statement, restate the idea more simply, or summarize what the student has said.

Category 4:

Asking Questions -

Question can be very broad and give the student a great deal of freedom in answering.

Teacher's Signature _____

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Date _____
Page No. _____DIRECT TEACHER BEHAVIOURCategory - 5

Lecture - Whenever the teacher is explaining, discussing, or giving facts or information lecture method is used.

Category - 6

Giving Direction - The decision about whether or not to classify the statement as a decision or command must be based on the degree of freedom that the student has in response to teacher direction.

Category - 7Criticizing or Justifying Authority

If a teacher is explaining himself or his authority, defending himself against the student or justifying himself the statement falls in this category.

Teacher's Signature _____

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6

Date _____
Page No. _____Category 8 and 9Student Talk: Response and Initiation

If the student raise his hand to make a statement or to ask a question which he has not been prompted to do so by the teacher, the appropriate category is 9.

OTHER BEHAVIOURCategory 10Silence or Confusion

This Category includes anything else not included in the other categories. Periods of confusion in communication, when it is difficult to determine who is talking, are classified in this category.

10/2/21

8/2

Teacher's Signature _____

6

7

Date _____
Page No. _____

PROCEDURE FOR CATEGORISATION TEACHER-PUPIL INTERACTION

The Flanders system of interaction analysis was originally used as a research tool and continues to serve this function. To record classroom behaviour the observer sits comfortably in the classroom from where he can see and hear the students and the teacher. He listens to communication, decides category that best represents the particular communication event and writes down the relevant category number simultaneously assessing the continuing communications. Every three seconds the observer writes down the category number of the interaction he has just observed. He may use a tape recorder for his observation.

Teacher's Signature _____

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Date _____
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ADVANTAGES OF FLANDERS' INTERACTION METHOD

"A bold step in the right direction to improve the quality of education."

- It is also used for in-service teachers.
- It provides feedback to the pupil-teachers.
- It is an analytical method to know the classroom activities.
- It is useful in micro-teaching.
- It is an effective instrument to measure the social-emotional environment of the class.
- It is useful for theory of teaching.

Teacher's Signature _____

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Date _____
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- It consumes much time in preparing 10x10 matrix without which interpretation is not possible.
- Less attention is being paid towards the pupil talk.
- The observer should be trained and reliable.
- It needs automations or continuous flow of analysis to collect the data which is not possible completely.
- Some behaviour are left unseen.

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OBSERVATION - IDate _____
Page No. _____

Name of Pupil Teacher

Class - VIII

Subject - SST

Topic - Harappan

Duration - 20 min

Civilization

Observer -

Encoding:

5,5,6,10,10,10,10,10,4,10,7,4,8,4,8,2,
4,8,10,10,5,5,5,5,10,5,11,8,2,3,4,10,4,
8,2,3,3,7,5,5,5,10,4,8,2,3,7,5,5,5,
14,4,8,4,8,10,10,9,3,5,5,5,5,5,4,8,6,
10,8,4,10,10,4,8,2,3,7,5,5,5,10,4,8,2,
3,7,5,5,5,10,4,8,4,8,10,10,9,3,5,5,5,5,
5,4,8,4,2,4,8,4,10,4,8,23,5,5,5,5,5,
10,5,5,6,10,5,5,5,5,9,5,4,8,3,5,5,5,5,4,8,
5,5,5,5,4,10,4,8,2,5,5,5,5,5,5,6,5,5,10,
5,5,5,5,6,10,10,10,9,5,5,4,8,8,2,4,8,5,5,
5,5,5,10,4,8,6,8,8,2,4,8,4,4,5,7,10,5,5,5,
5,6,10,4,8,4,8,4,4,8,4,10,4,8,2,5,5,5,5,
5,10,5,5,6,10,5,5,5,5,9,5,4,8,3,5,5,5,6,5,
10,4,7,10,9,2,6,5,5,5,10,10,10,9,5,10,10,
10,9,2,6,5,5,5,10,10,10,9,5,10,10,4,8,
8,8,2,6,5,5,5,4,8,8,2,6,5,5,5,4,8,8,2,4,
8,5,5,5,5,5,5,10,4,8,4,8,10,5,5,4,4,10,
6,4,8,2,4,10,4,8,10,4,10,8,6,4,6,5,5,5,
5,5,5,5,5,10,5,10,5,10,5,5,5,10,4,8,2,10,
5,5,5,5,4,8,3,5,5,5,4,9,5,5,9,4,3,4,15.

Decoding: One is simply required to add 10 in the starting and in the ending of the recorded events. Then interaction pairs table is made.

Date _____

Teacher's Signature _____

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Date: _____
Page: _____Procedure for Pair Making

Classroom Activities Categories	1st	2nd	3rd
Added ten Category	10	1	3 seconds
Teacher gives direction	6th	1	"
None is speaking	2nd	10	"
Teacher shows authority	7th	1	"
Teacher gives direction	6th	1	"
Accepts the students feeling	1st	1	"
Gives directions	6th	1	"
Teacher asks question	4th	1	"
Pupils response	8th	1	"
Continued responding	10th	1	"
Teacher praises	2	1	"
Teacher gives direction	6th	1	"
Added ten Category	10	1	"

Teacher's Signature: _____

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Date: _____
Page: _____Inter-ship Table

1st	2nd	3rd	4th	5th	6th
1	10, 5	30	2, 4	59	5, 10
2	6, 5	31	4, 8	60	10, 4
3	5, 6	32	8, 4	61	4, 8
4	6, 4	33	9, 5	62	8, 4
5	10, 10	34	5, 5	63	4, 8
6	8, 10	35	5, 4	64	8, 10
7	6, 7	36	4, 6	65	10, 10
8	4, 10	37	8, 2	66	10, 9
9	10, 4	38	2, 3	67	9, 5
10	4, 10	39	3, 4	68	3, 5
11	10, 7	40	4, 10	69	5, 5
12	7, 5	41	10, 4	70	5, 5
13	4, 8	42	10, 8	71	5, 5
14	8, 4	43	8, 2	72	5, 5
15	4, 6	44	2, 3	73	5, 4
16	8, 2	45	3, 3	74	4, 8
17	2, 4	46	3, 7	75	8, 4
18	4, 8	47	7, 5	76	4, 2
19	8, 8	48	5, 5	77	2, 4
20	8, 2	49	5, 5	78	4, 8
21	2, 5	50	5, 10	79	8, 4
22	5, 5	51	10, 4	80	4, 10
23	5, 5	52	4, 8	81	10, 10
24	5, 5	53	8, 2	82	10, 4
25	5, 10	54	2, 3	83	4, 8
26	10, 5	55	3, 7	84	2, 3
27	4, 8	56	7, 5	85	8, 2
28	8, 2	57	5, 5		
29	8, 2	58	5, 5		

Teacher's Signature: _____

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Date: _____
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S.No	Point	S.No	Point	S.No	Point
86	3,7	114	4,8	142	4,8
87	7,5	115	8,4	143	8,5
88	5,5	116	4,2	144	3,5
89	5,10	117	2,4	145	5,5
90	10,4	118	4,8	146	5,5
91	4,8	119	8,4	147	5,5
92	8,2	120	4,10	148	5,5
93	2,3	121	10,4	149	5,4
94	3,7	122	4,8	150	4,8
95	7,5	123	8,2	151	8,5
96	5,5	124	2,3	152	5,5
97	5,5	125	3,5	153	5,5
98	5,10	126	5,5	154	5,4
99	10,4	127	5,5	155	4,10
100	4,8	128	5,5	156	10,4
101	8,4	129	5,5	157	4,8
102	3,7	130	5,10	158	0,3
103	4,8	131	10,4	159	2,5
104	8,10	132	5,5	160	5,5
105	10,10	133	5,5	161	5,5
106	10,9	134	6,10	162	5,5
107	9,3	135	10,5	163	5,5
108	2,5	136	5,5	164	5,5
109	5,5	137	5,5	165	5,5
110	5,5	138	5,5	166	5,6
111	5,5	139	5,9	167	6,5
112	5,5	140	7,5	168	10,8
113	5,4	141	5,4	169	5,10

Teacher's Signature

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Date: _____
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S.No	Point	S.No	Point	S.No	Point
170	10,5	199	4,8	227	5,5
171	5,5	200	4,8	228	5,5
172	5,5	201	8,4	229	5,10
173	5,5	202	4,4	230	10,5
174	5,5	203	4,5	231	5,5
175	5,5	204	5,7	232	5,6
176	10,10	205	7,10	233	6,10
177	10,0	206	10,5	234	10,5
178	10,9	207	8,5	235	5,5
179	9,5	208	5,5	236	5,5
180	5,5	209	5,5	237	5,5
181	7,4	210	5,6	238	5,9
182	4,8	211	6,10	239	9,5
183	8,8	212	10,4	240	5,4
184	8,2	213	4,8	241	4,8
185	2,4	214	8,4	242	8,2
186	4,8	215	4,9	243	3,5
187	6,5	216	8,4	244	5,5
188	5,5	217	4,4	245	5,5
189	5,5	218	4,8	246	5,6
190	5,5	219	8,4	247	6,5
191	5,5	220	4,10	248	5,10
192	5,10	221	10,4	249	10,4
193	10,4	222	4,8	250	4,7
194	4,8	223	8,2	251	7,10
195	8,4	224	2,5	252	10,9
196	6,8	225	4,5	253	9,2
197	8,2	226	5,5	254	2,6

Teacher's Signature

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Date: _____
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Date: _____
Page No: _____

S.No	Point	S.No	Point	S.No	Point
2.51	5, 5	2.83	8, 8	3.12	4, 8
2.52	5, 5	2.84	2, 6	3.13	2, 4
2.53	5, 5	2.85	6, 5	3.14	4, 8
2.54	5, 10	2.86	5, 5	3.15	8, 10
2.55	10, 10	2.87	8, 6	3.16	10, 5
2.56	10, 10	2.88	5, 5	3.17	5, 5
2.57	10, 10	2.89	5, 4	3.18	5, 4
2.58	10, 9	2.90	4, 8	3.19	4, 4
2.59	9, 5	2.91	8, 8	3.20	4, 10
2.60	5, 10	2.92	8, 2	3.21	10, 6
2.61	10, 10	2.93	2, 6	3.22	6, 4
2.62	10, 10	2.94	6, 5	3.23	4, 8
2.63	10, 10	2.95	5, 5	3.24	8, 2
2.64	9, 2	2.96	5, 5	3.25	2, 4
2.65	2, 6	2.97	5, 4	3.26	4, 10
2.66	6, 5	2.98	4, 8	3.27	10, 5
2.67	5, 5	3.00	8, 8	3.28	2, 6
2.68	5, 5	3.01	8, 2	3.29	10, 10
2.69	5, 10	3.02	2, 4	3.30	10, 4
2.70	10, 10	3.03	8, 5	3.31	10, 4
2.71	10, 10	3.04	5, 5	3.32	10, 8
2.72	10, 9	3.05	5, 5	3.33	8, 6
2.73	9, 5	3.06	5, 5	3.34	6, 4
2.74	5, 10	3.07	5, 5	3.35	6, 4
2.75	10, 10	3.08	5, 5	3.36	6, 5
2.76	10, 4	3.09	5, 5	3.37	5, 5
2.77	4, 8	3.10	5, 10	3.38	5, 5
2.78	8, 8	3.11	10, 4	3.39	5, 5

Submitted

Teacher's Signature: _____

S.No	Point	S.No	Point	S.No	Point
3.40	5, 5	3.55	5, 5	3.60	8, 4
3.41	5, 5	3.56	5, 5	3.61	8, 4
3.42	5, 5	3.57	5, 4	3.62	5, 10
3.43	5, 5	3.58	4, 9	3.63	10, 10
3.44	5, 5	3.59	9, 5		
3.45	5, 5	3.60	5, 5		
3.46	5, 5	3.61	5, 5		
3.47	5, 5	3.62	5, 5		
3.48	5, 10	3.63	9, 4		
3.49	10, 5	3.64	4, 8		
3.50	5, 5	3.65	1, 5		

Submitted

8x

Teacher's Signature: _____

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PROCEDURE OF FLAINDERS INTERACTION ANALYSIS

Encoding and Decoding are the two processes of interaction analysis.

Encoding Process

The use of this method needs special training and practice. The observer sits in the class at a place from where he can have a view of all the participants and hear the voices clearly. The activities of pupils and teachers are noted under the ten categories which are in reference after the span of every 3 seconds. The Serial number of that category is recorded by the observer on the data sheet. Hence, 20-25 observations are recorded in every minute.

Example - when teacher is lecturing the observer puts 1, when replies he puts 8, when praises he puts 6, when sits he puts 6

INTERACTION MATRIX TABLE

Cat	1	2	3	4	5	6	7	8	9	10	Total
1											7
2	11										18
3											10
4	111										57
5											156
6											13
7											21
8											60
9											30
10											112
Total	7	18	10	57	156	13	21	60	30	112	484

Behavioural Ratios

$$1. \text{Teacher-Talk (TT)} = \frac{\sum F (\text{column 1 to 7})}{N} \times 100$$

$$= \frac{282}{484} \times 100 = 58.46\%$$

$$2. \text{Pupil-Talk (PT)} = \frac{\sum F (\text{column 8 to 9})}{N} \times 100$$

$$= \frac{90}{484} \times 100 = 18.59\%$$

$$3. \text{Silence or Confusion (SC)} = \frac{\sum F (\text{column 10})}{N} \times 100$$

$$= \frac{112}{484} \times 100 = 23.14\%$$

$$4. \text{Indirect Teacher Talk (ITT)} = \frac{\sum F (\text{column 1 to 4})}{N} \times 100$$

$$= \frac{92}{484} \times 100 = 19.01\%$$

$$5. \text{Direct Teacher Talk (DTT)} = \frac{\sum F (\text{column 5 to 7})}{N} \times 100$$

$$= \frac{190}{484} \times 100 = 39.25\%$$

$$6. \text{Indirect to Direct Ratio (I/D Ratio)} = \frac{\sum F (\text{column 1 to 4})}{\sum F (\text{column 5 to 7})} \times 100$$

$$= \frac{92}{190} \times 100 = 48.42\%$$

$$7. \text{Pupil Initiation Ratio (PIR)} = \frac{\sum F (\text{column 9})}{\sum F (\text{column 8 to 9})} \times 100$$

$$= \frac{80}{90} \times 100 = 88.89\%$$

$$8. \text{Teacher Response Ratio (TRR)} = \frac{\sum F (\text{column 1 to 3})}{\sum F (\text{column 1 to 3 + 5 to 7})} \times 100$$

$$= \frac{35}{69} \times 100 = 50.72\%$$

$$9. \text{Teacher Question Ratio (TQR)} = \frac{\sum F (\text{column 4})}{\sum F (\text{column 4 to 5})} \times 100$$

$$= \frac{57}{166} \times 100 = 34.33\%$$

10. Control Cross Ratio (CCR)

$$= \frac{\sum F(\text{column } 4+5)}{N} \times 100$$

$$= \frac{213}{484} \times 100 = 44.00\%$$

11. Steady State Ratio (SSR)

$$= \frac{\text{Steady State Cells}}{N} \times 100$$

$$SSR = \frac{(1,1) + (2,2) + (3,3) + (4,4) + (5,5) + (6,6) + (7,7) + (8,8) + (9,9) + (10,10)}{N}$$

$$= \frac{260}{484} \times 100 = 53.71\%$$

12. Pupil Steady State Ratio (PSSR)

$$= \frac{\sum F(8,8) + (9,9)}{\sum F(8+9)} \times 100$$

$$= \frac{12}{90} \times 100 = 13.33\%$$

13. Instantaneous Teacher Response Ratio (ITRR-89)

$$= \frac{(8,1) + (8,2) + (8,3) + (8,4) + (9,2) + (9,3) + (8,5) + (8,2) + (8,3) + (8,6) + (8,7) + (9,1) + (9,2) + (9,3) + (9,4) + (9,7)}{N} \times 100$$

$$= \frac{63}{100} \times 100 = 63.63\%$$

14. Instantaneous Teacher Question Ratio (ITQR-89)

$$= \frac{(8,4) + (9,4)}{(8,4) + (8,5) + (9,4) + (9,5)} \times 100$$

$$= \frac{8}{42} \times 100 = 19.04\%$$

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Date: _____
Page No: _____Interpretation of Behaviour RatioBased on FIRC

	Behaviour Ratio	India	USA	Europe
1	Teacher Talk	67	70	58-26
2	Pupil Talk	21	19	18-59
3	Silence / Confusion	12	11	23-14
4	Teacher Response Ratio	26	35	30-72
5	Teacher Question Ratio	19	20	34-23
6	Pupil Initiation Ratio	12	15	33-33
7	Steady State Ratio	46	52	53-71
8	Pupil Steady State Ratio	37	26	13-33
9	Content Cross Ratio	72	68	45-50
10	Instantaneous Teacher Response Ratio	48	67	43-55
11	Instantaneous Teacher Question Ratio	42	39	9-54

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Date: _____
Page No: _____CONCLUSION

According to the normative expectation of behaviour ratios for good performance of a teacher, the pupil talk ratio (PTR), teacher response ratio (TRR), pupil initiation ratio (PIR), pupil steady state ratio (PSSR) and instantaneous teacher question ratio (ITQR) should be greater than the given norms where as the teacher talk ratio (TTR), Silence/Confusion ratio (SC), Content Cross ratio (CCR), Steady State ratio (SSR) and instantaneous teacher response ratio (ITRR) are higher than their normative values.

Suggestions Involvement of the pupil in classroom activities should be increased, they should be encouraged to ask question and to take initiative in discussions.

The pupil teacher should pay attention towards classroom discussions rather than on simply questioning and lecturing and also should decrease her authoritarian behaviour in class.

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Teacher's Signature: _____

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Teacher's Signature: _____

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Observation 2

Name of pupil teacher
Subject
Duration

Class -
Topic - Plant
kingdom
observer

Encoding:

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

Decoding: for this we need to add 10 in the
beginning and to the end of the recorded
events. When Interaction Pair Table is
presented

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Interaction Pair Table

S.no	Pair 1	Score	Pair 2	Score	Pair 3
1	10, 5	21	11, 8	53	4, 8
2	3, 8	22	8, 2	54	8, 4
3	8, 2	24	2, 8	55	4, 8
4	1, 5	20	6, 8	56	8, 10
5	5, 8	31	8, 10	57	10, 10
6	8, 8	32	8, 3	58	10, 9
7	8, 3	33	10, 3	59	9, 3
8	3, 4	34	5, 9	60	3, 5
9	4, 8	35	9, 6	61	5, 5
10	8, 9	36	6, 6	62	5, 5
11	9, 1	37	6, 3	63	5, 5
12	1, 7	38	3, 4	64	5, 5
13	7, 2	39	4, 10	65	5, 4
14	7, 8	40	10, 4	66	4, 8
15	8, 8	41	4, 8	67	8, 4
16	8, 2	42	8, 10	68	4, 2
17	8, 1	43	10, 4	69	2, 4
18	1, 9	44	4, 6	70	4, 8
19	8, 8	45	5, 2	71	8, 4
20	8, 3	46	2, 3	72	4, 10
21	3, 4	47	3, 7	73	10, 4
22	1, 4	48	7, 5	74	4, 6
23	4, 10	49	5, 5	75	6, 3
24	10, 8	50	5, 5	76	3, 2
25	8, 5	51	5, 10	77	2, 3
26	5, 4	52	10, 4	78	3, 5

Teacher's Signature

Teacher's Signature

S. No.	Pages	S. No.	Pages	S. No.	Pages
79	5, 5	107	5, 4	135	8, 2
80	5, 5	108	4, 8	136	2, 4
81	5, 5	109	8, 10	137	4, 8
82	5, 10	110	10, 4	138	8, 5
83	10, 5	111	4, 8	139	8, 5
84	5, 5	112	8, 2	140	6, 5
85	5, 6	113	2, 5	141	5, 5
86	6, 5	114	8, 5	142	5, 10
87	5, 10	115	5, 5	143	10, 4
88	10, 6	116	5, 5	144	4, 8
89	5, 5	117	5, 5	145	8, 6
90	5, 5	118	6, 6	146	6, 8
91	5, 5	119	6, 5	147	8, 8
92	5, 9	120	5, 5	148	8, 2
93	9, 5	121	5, 10	149	2, 5
94	5, 4	122	10, 5	150	4, 8
95	4, 8	123	5, 5	151	8, 2
96	8, 3	124	5, 5	152	2, 2
97	3, 5	125	5, 6	153	2, 5
98	5, 5	126	6, 1	154	5, 7
99	5, 5	127	10, 10	155	7, 10
100	5, 6	128	10, 1	156	10, 5
101	6, 5	129	10, 9	157	5, 5
102	5, 4	130	10, 5	158	5, 5
103	4, 8	131	10, 5	159	5, 6
104	8, 5	132	5, 4	160	6, 10
105	5, 5	133	4, 8	161	10, 4
106	5, 5	134	8, 8	162	4, 8

Signature

S. No.	Pages	S. No.	Pages	S. No.	Pages
163	8, 4	191	5, 5	219	9, 2
164	4, 8	192	5, 5	220	2, 6
165	8, 2	193	5, 4	221	6, 5
166	2, 4	194	4, 5	222	5, 5
167	4, 5	195	5, 5	223	5, 5
168	8, 4	196	5, 6	224	5, 5
169	4, 5	197	6, 5	225	5, 5
170	10, 4	198	5, 10	226	5, 6
171	4, 8	199	10, 10	227	5, 10
172	8, 2	200	10, 7	228	10, 10
173	2, 5	201	7, 10	229	10, 9
174	3, 5	202	10, 10	230	7, 5
175	5, 4	203	10, 9	231	5, 10
176	5, 5	204	9, 2	232	10, 10
177	5, 5	205	2, 6	233	10, 4
178	5, 10	206	6, 5	234	4, 8
179	10, 8	207	3, 8	235	8, 8
180	5, 4	208	8, 5	236	8, 2
181	4, 6	209	5, 5	237	2, 4
182	6, 10	210	5, 10	238	6, 5
183	10, 5	211	10, 10	239	6, 7
184	5, 5	212	10, 10	240	7, 5
185	5, 5	213	10, 9	241	5, 9
186	8, 5	214	9, 5	242	7, 4
187	5, 9	215	5, 10	243	4, 8
188	9, 5	216	10, 10	244	4, 8
189	5, 4	217	10, 10	245	8, 3
190	4, 8	218	10, 9	246	8, 2

Signature

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Date: _____
Page No. _____

TOPIC

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Date: _____
Page No. _____

S.No	Points	S.No	Points	S.No	Points
247	2, 6	275	3, 5	303	10, 6
248	6, 5	276	5, 5	304	6, 5
249	5, 5	277	5, 5	305	5, 5
250	5, 5	278	5, 10	306	5, 5
251	5, 4	279	10, 6	307	5, 10
252	4, 8	280	6, 4	308	10, 4
253	8, 8	281	4, 8	309	4, 8
254	8, 2	282	8, 2	310	8, 2
255	2, 5	283	2, 4	311	2, 10
256	5, 4	284	4, 10	312	10, 5
257	4, 8	285	10, 4	313	5, 5
258	8, 5	286	4, 8	314	5, 4
259	5, 5	287	8, 10	315	4, 8
260	5, 5	288	10, 4	316	8, 2
261	5, 5	289	4, 10	317	3, 5
262	4, 4	290	10, 8	318	2, 5
263	4, 5	291	8, 6	319	5, 5
264	5, 5	292	6, 5	320	5, 5
265	5, 10	293	5, 5	321	5, 2
266	10, 4	294	5, 5	322	5, 4
267	4, 8	295	4, 4	323	4, 8
268	8, 4	296	4, 5	324	4, 8
269	4, 8	297	5, 5	325	8, 5
270	8, 10	298	5, 5	326	5, 3
271	10, 7	299	5, 5	327	3, 4
272	7, 3	300	5, 10	328	4, 5
273	7, 2	301	10, 5	329	5, 10
274	2, 5	302	5, 10	330	10, 4

S.No	Points	S.No	Points	S.No	Points
331	4, 8	341	4, 8	351	8, 5
332	8, 2	342	4, 8	352	5, 4
333	2, 5	343	8, 5	353	4, 9
334	5, 5	344	5, 5	354	9, 5
335	5, 5	345	5, 9	355	5, 5
336	5, 10	346	9, 5	356	5, 9
337	10, 5	347	5, 5	357	9, 4
338	4, 8	348	5, 4	358	4, 8
339	8, 2	349	4, 8	359	8, 4
340	2, 4	350	8, 4	360	5, 5
		351	4, 5	361	4, 6
		352	2, 8		

Vandana

R

Teacher's Signature

Teacher's Signature

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INTERACTION MATRIX TABLE

Case No.	1	2	3	4	5	6	7	8	9	10	Total
1			I	I	III	III	III	I	II	III	25
2		II		III	III	III			II	III	21
3	I	III		II	II	III		III	III		20
4		II		III	III	III		III	III	III	27
5	III	I	II	III	III	III	I		III	III	100
6		II	III	III	II	I	III	III	III	III	28
7	III	III		II	III	III	III	III	II	II	37
8	III	III	III	I	III	II	III	III	III	III	51
9	II	I	III		III	III	III	I	III		36
10	III	I	III		III	III	I	III	III		36
Total	25	21	20	27	100	28	37	51	36	38	381

Behavioural

1. Teacher Talk (TT)

$$= \frac{\sum F (\text{column 1 to 7}) \times 100}{N}$$

$$= \frac{250}{381} \times 100 = 65.61\%$$

2. Pupil Talk (PT)

$$= \frac{\sum F (\text{column 8 to 9}) \times 100}{N}$$

$$= \frac{87}{381} \times 100 = 22.83\%$$

3. Silence / confusion (SC)

$$= \frac{\sum F (\text{column 10}) \times 100}{N}$$

$$= \frac{36}{381} \times 100 = 9.44\%$$

4. Indirect Teacher Talk (ITT)

$$= \frac{\sum F (\text{column 1 to 4}) \times 100}{N}$$

$$= \frac{99}{381} \times 100 = 26.00\%$$

5. Direct Teacher Talk (DTT)

$$= \frac{\sum F(\text{column } 5+6+7)}{N} \times 100$$

$$= \frac{165}{391} \times 100 = 42.30\%$$

6. Indirect to Direct Ratio (I/D Ratio)

$$= \frac{\sum F(\text{column } 1 \text{ to } 4)}{\sum F(\text{column } 5 \text{ to } 7)} \times 100$$

$$= \frac{93}{165} \times 100 = 56.36\%$$

7. Pupil Initiation Ratio (PIR)

$$= \frac{\sum F(\text{column } 9)}{\sum F(\text{column } 8+9)} \times 100$$

$$= \frac{36}{87} \times 100 = 41.37\%$$

8. Teacher Response Ratio (IRR)

$$= \frac{\sum F(\text{column } 1 \text{ to } 3)}{\sum F(\text{column } 1+2+3+6+7)} \times 100$$

$$= \frac{16}{29} \times 100 = 54.94\%$$

9. Teacher Question Ratio (TQR)

$$= \frac{\sum F(\text{column } 1)}{\sum F(\text{column } 1+5)} \times 100$$

$$= \frac{21}{391} \times 100 = 5.37\%$$

10. Correct Class Ratio (CCR)

$$= \frac{\sum F(\text{column } 4+5)}{N} \times 100$$

$$= \frac{127}{381} \times 100 = 33.33\%$$

11. Steady State Ratio (SSR)

$$= \frac{\text{SSC}}{N} \times 100$$

$$\text{Where SSC} = \frac{(1,1) + (2,2) + (3,3) + (4,4) + (5,5) + (6,6) + (7,7) + (8,8) + (9,9) + (10,10)}{N} \times 100$$

$$= \frac{98}{381} \times 100 = 25.72\%$$

12. Pupil Steady State Ratio (PSSR)

$$= \frac{\sum F(8,8) + (9,9)}{\sum F(8+9)} \times 100$$

$$= \frac{29}{87} \times 100 = 33.33\%$$

13. Instantaneous Teacher Response Ratio (ITRR 89)

$$= \frac{(8,1) + (8,2) + (8,3) + (9,1) + (9,2) + (9,3) + (8,1) + (8,2) + (8,3) + (8,6) + (8,7) + (9,1) + (9,2) + (9,3) + (9,6) + (9,7)}{38} \times 100$$

$$= \frac{26}{38} \times 100 = 68.42\%$$

14. Instantaneous Teacher Question Ratio (ITQR 89)

$$= \frac{(8,4) + (9,4)}{(8,4) + (8,5) + (9,4) + (9,5)} \times 100$$

$$= \frac{1}{11} \times 100 = 9.09\%$$

Interpretation of Behaviour Ratios(Based on PIACS)

Sr.	Behaviour Ratio	India	USA	Percentage
1	Teacher Talk	67	70	62.46
2	Pupil Talk	21	19	22.83
3	Silence / Confusion	12	11	9.44
4	Teacher Response Ratio	26	35	54.54
5	Teacher Question Ratio	19	20	21.09
6	Pupil Initiation Ratio	12	15	41.37
7	Steady State Ratio	46	52	25.72
8	Pupil Steady State Ratio	37	26	33.33
9	Content / Hoss Ratio	72	68	32.33
10	Instantaneous Teacher Response Ratio	48	67	68.42
11	Instantaneous Teacher Question Ratio	42	39	9.09

CONCLUSION

According to the normative expectation of behaviour ratios for good performance of a teacher the pupil talk ratio, teacher response ratio, pupil initiation ratio, pupil steady ratio should be greater than the given norms, whereas, the performance is ineffective if the teacher talk ratio, Silence/Confusion, Content/Class ratio, Steady ratio and instantaneous teacher response ratio are higher than their normative values.

Suggestions:

- Pupil teacher should increase students involvement in classroom activities.
- Students should be encouraged to ask questions.
- Rather than lecturing only, the pupil teacher should pay attention towards classroom discussion also.

OBSERVATION - 3

Name of Pupil Teacher: _____
Subject: _____
Duration: _____

Class: VII
Topic: Gen-
Observation: _____

Encoding

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

Decoding: For this, one needs to add '10' in the beginning and in the end of the recorded events. Then the interaction pairs table is made.

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Date: _____
Page No: _____Interaction Pairs Table

S.No	Pairs	S.No	Pairs	S.No	Pairs
1	10, 3	27	2, 8	53	4, 10
2	2, 9	28	8, 3	54	10, 10
3	8, 1	29	3, 10	55	10, 9
4	5, 1	30	10, 9	56	10, 9
5	1, 5	31	9, 6	57	9, 5
6	5, 8	32	6, 6	58	3, 5
7	8, 8	33	6, 3	59	5, 5
8	8, 3	34	3, 4	60	5, 5
9	3, 4	35	4, 10	61	6, 4
10	4, 6	36	10, 8	62	4, 8
11	8, 9	37	8, 4	63	8, 2
12	9, 1	38	4, 10	64	2, 4
13	1, 7	39	10, 5	65	4, 2
14	7, 8	40	3, 5	66	2, 1
15	8, 8	41	5, 2	67	4, 8
16	8, 2	42	3, 2	68	8, 3
17	2, 1	43	3, 7	69	3, 2
18	1, 3	44	7, 5	70	2, 5
19	3, 4	45	5, 5	71	5, 5
20	4, 4	46	5, 5	72	5, 5
21	4, 5	47	5, 6	73	5, 5
22	5, 5	48	5, 5	74	5, 5
23	5, 10	49	5, 5	75	5, 5
24	10, 8	50	10, 4	76	5, 10
25	8, 2	51	4, 8	77	10, 5
26	8, 8	52	8, 4	78	5, 6

Subtotal

Teacher's Signature: _____

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Date: _____
Page No: _____

S.No	Pairs	S.No	Pairs	S.No	Pairs
79	6, 10	108	5, 5	137	2, 2
80	10, 9	109	5, 5	138	2, 4
81	9, 5	110	5, 2	139	4, 8
82	5, 4	111	2, 8	140	4, 5
83	4, 2	112	5, 5	141	5, 5
84	8, 3	113	5, 5	142	5, 5
85	3, 5	114	5, 5	143	5, 5
86	6, 3	115	5, 5	144	5, 10
87	5, 5	116	5, 6	145	10, 4
88	5, 5	117	6, 5	146	4, 8
89	5, 4	118	5, 5	147	8, 6
90	4, 8	119	5, 10	148	6, 8
91	8, 5	120	10, 5	149	8, 8
92	5, 5	121	5, 10	150	8, 2
93	5, 5	122	10, 5	151	2, 4
94	5, 6	123	5, 5	152	4, 8
95	6, 5	124	5, 5	153	8, 2
96	5, 6	125	5, 6	154	2, 2
97	4, 8	126	6, 10	155	2, 5
98	8, 3	127	10, 10	156	5, 5
99	3, 5	128	10, 9	157	5, 5
100	5, 5	129	9, 5	158	5, 5
101	5, 5	130	5, 5	159	5, 5
102	5, 6	131	5, 5	160	5, 5
103	6, 5	132	5, 5	161	5, 7
104	5, 4	133	5, 5	162	7, 10
105	4, 8	134	5, 4	163	10, 5
106	8, 5	135	4, 8	164	5, 5
107	5, 5	136	8, 8	165	5, 10

Subtotal

Teacher's Signature: _____

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Date: _____

Page No. _____

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Date: _____

Page No. _____

S.No	Points	S.No	Points	S.No	Points
166	10, 4	196	3, 5	226	5, 5
167	4, 6	197	5, 4	227	5, 10
168	6, 10	198	4, 5	228	10, 9
169	10, 4	199	5, 5	229	7, 5
170	4, 8	200	5, 5	230	5, 4
171	8, 2	201	5, 5	231	4, 8
172	2, 4	202	5, 10	232	8, 2
173	4, 8	203	10, 10	233	2, 6
174	8, 4	204	10, 7	234	6, 5
175	10, 10	205	7, 7	235	5, 5
176	10, 4	206	9, 2	236	5, 5
177	4, 8	207	2, 6	237	5, 5
178	8, 2	208	6, 5	238	5, 5
179	2, 3	209	5, 3	239	5, 6
180	3, 5	210	3, 8	240	6, 7
181	5, 4	211	8, 5	241	7, 5
182	4, 5	212	5, 5	242	3, 4
183	5, 5	213	5, 5	243	4, 8
184	5, 10	214	5, 5	244	8, 8
185	10, 5	215	5, 10	245	8, 2
186	5, 4	216	10, 1	246	2, 6
187	4, 6	217	7, 5	247	6, 5
188	10, 5	218	5, 1	248	5, 5
189	3, 5	219	10, 10	249	5, 4
190	5, 5	220	1, 9	250	4, 8
191	5, 5	221	1, 2	251	8, 8
192	5, 4	222	3, 5	252	8, 2
193	4, 8	223	5, 5	253	6, 2
194	8, 2	224	5, 5	254	2, 5

Subtotal

Teacher's Signature

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S.No	Points	S.No	Points	S.No	Points
254	5, 4	284	6, 5	314	5, 5
255	4, 5	285	2, 6	315	5, 5
256	8, 5	286	6, 6	316	5, 4
257	5, 5	287	6, 5	317	4, 8
258	5, 5	288	5, 5	318	8, 5
259	4, 4	289	5, 5	319	5, 6
260	4, 1	290	5, 5	320	6, 5
261	1, 5	291	4, 4	321	4, 5
262	5, 10	292	4, 5	322	5, 10
263	10, 4	293	5, 5	323	10, 4
264	4, 8	294	5, 5	324	4, 8
265	8, 4	295	5, 5	325	4, 8
266	4, 4	296	9, 10	326	8, 2
267	4, 10	297	10, 5	327	2, 5
268	10, 7	298	5, 6	328	5, 5
269	7, 5	299	6, 5	329	5, 10
270	5, 5	300	5, 5	330	10, 5
271	5, 5	301	6, 10	331	5, 4
272	5, 10	302	10, 4	332	4, 8
273	10, 6	303	4, 8	333	8, 2
274	10, 6	304	8, 2	334	2, 4
275	6, 4	305	2, 10	335	4, 8
276	4, 8	306	10, 5	336	8, 4
277	6, 2	307	5, 5	337	9, 5
278	8, 4	308	5, 5	338	5, 5
279	4, 10	309	5, 5	339	5, 5
280	10, 4	310	5, 4	340	5, 4
281	4, 8	311	4, 8	341	9, 5
282	8, 10	312	8, 3		

Subtotal

Teacher's Signature

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TOPIC

Date
Page No.

Sl. No.	Roll No.	Sl. No.	Roll No.	Sl. No.	Roll No.
342	5, 5	352	4, 9	62	5, 6
343	5, 5	353	9, 5	63	6, 10
344	5, 5	354	5, 5	64	6, 10
345	5, 4	55	5, 5	65	10, 5
346	4, 8	56	5, 9	66	5, 5
347	8, 4	57	9, 4	67	6, 8
348	4, 5	58	4, 8	68	8, 4
349	5, 6	59	8, 4	69	4, 8
350	8, 5	60	4, 8	70	8, 4
351	5, 4	61	8, 4	71	4, 6

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TOPIC

Date
Page No.

INTERACTION MATRIX TABLE

Column	1	2	3	4	5	6	7	8	9	10	Total
1					III	III	III	III	II	I	23
2	III			III	III	III			II	II	25
3		III		II	III			III	II		16
4		III		III	III			III	III	III	37
5	III		II	III	III	III		III	III	III	125
6		II	III	III	II	I	III	II		III	24
7	III	III		II	III	III	III	III	II	I	31
8	III	III	III	III	III	III	III	III	III	II	56
9	II		III	III	III	III	III	III	III	III	32
10	III		I	III	III	III	III	III	II		36
Total	23	25	16	37	125	24	31	56	32	36	405

Pragya College Of Education

Signature

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Teacher's Signature

Signature

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Teacher's Signature

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Behavioural Ratio

1. Teachers Talk (T.T.)

$$= \frac{\sum F (\text{column 1 to 7})}{N} \times 100$$

$$= \frac{291}{405} \times 100 = 69.38\%$$

2. Pupil Talk (P.T.)

$$= \frac{\sum F (\text{column 8 to 9})}{N} \times 100$$

$$= \frac{88}{405} \times 100 = 21.72\%$$

3. Silence / confusion (S.C.)

$$= \frac{\sum F (\text{column 10})}{N} \times 100$$

$$= \frac{36}{405} \times 100 = 8.88\%$$

4. Indirect Teacher Talk (I.T.T.)

$$= \frac{\sum F (\text{column 1 to 4})}{N} \times 100$$

$$= \frac{101}{405} \times 100 = 24.93\%$$

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5. Direct Teacher Talk (D.T.T.)

$$= \frac{\sum F (\text{column 5 to 7})}{N} \times 100$$

$$= \frac{180}{405} \times 100 = 44.44\%$$

6. Indirect Pupil Direct Ratio (I/D Ratio)

$$= \frac{\sum F (\text{column 1 to 4})}{\sum F (\text{column 5 to 7})} \times 100$$

$$= \frac{101}{180} \times 100 = 56.11\%$$

7. Pupil Initiation Ratio (P.I.R.)

$$= \frac{\sum F (\text{column 9})}{\sum F (\text{column 8 to 9})} \times 100$$

$$= \frac{32}{88} \times 100 = 36.36\%$$

8. Teacher Response Ratio (T.R.R.)

$$= \frac{\sum F (\text{column 1 to 3})}{\sum F (\text{column 1 to 3 + 4 + 7})} \times 100$$

$$= \frac{64}{119} \times 100 = 53.78\%$$

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9. Teacher Question Ratio (TQR)

$$= \frac{\sum F (\text{column 4})}{\sum F (\text{column 4+5})} \times 100$$

$$= \frac{37}{149} \times 100 = 24.83\%$$

10. Control Cross Ratio (CCR)

$$= \frac{\sum F (\text{column 4+5})}{N} \times 100$$

$$= \frac{162}{405} \times 100 = 40\%$$

11. Steady State Ratio (SSR)

$$= \frac{\sum F (\text{SSC})}{N} \times 100$$

$$\text{Where } SSC = \frac{(1,1) + (2,2) + (3,3) + (4,4) + (5,5) + (6,6) + (7,7) + (8,8) + (9,9) + (10,10)}{10}$$

$$= \frac{114}{405} \times 100 = 28.14\%$$

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12. Pupil Steady State Ratio (PSSR)

$$= \frac{\sum F (8,8) + (9,9)}{\sum F (8,9)} \times 100$$

$$= \frac{17}{85} \times 100 = 19.31\%$$

13. Instantaneous Teacher Response Ratio (ITRR)

$$= \frac{(8,1) + (8,2) + (8,3) + (9,1) + (9,2) + (9,3) + (8,4) + (8,5) + (8,6) + (8,7) + (9,4) + (9,5) + (9,6) + (9,7)}{(8,1) + (8,2) + (8,3) + (8,4) + (8,5) + (8,6) + (8,7) + (9,1) + (9,2) + (9,3) + (9,4) + (9,5) + (9,6) + (9,7)} \times 100$$

$$= \frac{18}{34} \times 100 = 52.94\%$$

14. Instantaneous Teacher Question Ratio (ITQR)

$$= \frac{(8,4) + (9,4)}{(8,4) + (8,5) + (9,4) + (9,5)} \times 100$$

$$= \frac{6}{21} \times 100$$

$$= 28.57\%$$

Interpretation of Behaviour Ratio(Based on LIRC5)

S.No	Behaviour Ratio	Index	USD	Remarks
1	Teacher Talk	67	70	69.38
2	Pupil Talk	21	19	41.72
3	Silence/ confusion	12	11	8.88
4	Teacher Response Ratio	26	35	53.78
5	Teacher Question Ratio	19	20	24.23
6	Pupil Initiation Ratio	12	15	36.36
7	Steady State Ratio	46	52	28.14
8	Pupil Steady State Ratio	37	26	19.32
9	Content cross Ratio	72	68	40.00
10	Instantaneous Teacher Response Ratio	48	67	52.94
11	Instantaneous Teacher Question Ratio	42	37	28.57

CONCLUSION

According to the normative expectation of behaviour ratio for good performance of a teacher, the pupil talk ratio, teacher response ratio, pupil initiation ratio, pupil steady state ratio, instantaneous teacher question ratio should be greater than the given norms.

The performance is considered as inefficient if the teacher talk ratio, silence/ confusion, content cross ratio, steady state ratio, and instantaneous teacher response ratio are higher than their normative value.

Suggestion:

- Pupil teacher should increase students involvement in classroom activities.
- Students should be encouraged to ask questions and take initiative in discussion.
- More attention should be paid towards discussion rather than on simple lecturing or questioning.

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OBSERVATION - 4

Date: _____
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Date: _____
Page No: _____Name of the Pupil: Teether
Subject: _____
Institution: _____

Class: VIII

Topic: _____

Observer: _____

Encoding:

4, 8, 1, 4, 6, 9, 8, 3, 4, 9, 1, 7, 7, 8, 4, 3, 4, 4,
10, 8, 8, 8, 10, 9, 6, 3, 5, 5, 5, 4, 4, 10, 10, 5, 5, 5,
5, 5, 4, 4, 6, 8, 8, 6, 2, 6, 4, 3, 7, 9, 4, 2, 2, 3, 8,
10, 4, 8, 2, 3, 7, 5, 5, 5, 10, 4, 2, 2, 3, 7, 6, 8, 10,
10, 3, 5, 5, 5, 5, 4, 8, 4, 2, 4, 8, 4, 10, 4, 8, 2, 3,
5, 5, 5, 5, 5, 10, 5, 8, 10, 5, 5, 5, 5, 4, 8, 5, 5, 4,
10, 8, 2, 4, 5, 5, 5, 5, 5, 10, 10, 10, 4, 8, 5, 5,
10, 4, 8, 6, 8, 8, 2, 4, 8, 4, 4, 5, 7, 10, 6, 10, 4,
8, 11, 8, 4, 4, 10, 5, 5, 10, 5, 5, 6, 10, 9, 5, 4, 3, 2,
5, 5, 5, 6, 5, 10, 4, 7, 10, 9, 2, 4, 10, 10, 6, 10, 9,
6, 10, 10, 4, 8, 8, 8, 2, 6, 4, 8, 8, 2, 6, 5, 5, 10, 8, 6,
10, 4, 4, 2, 10, 5, 5, 4, 4, 10, 6, 4, 8, 4, 4, 4,
8, 10, 4, 10, 8, 6, 4, 10, 5, 10, 5, 5, 5, 4, 2, 2, 10,
5, 5, 5, 5, 4, 3, 3, 5, 4, 4, 5, 5, 5, 4, 10, 2, 5,
5, 4, 8, 2, 4, 8, 9, 5, 5, 9, 5, 5, 4, 8, 4, 8, 5, 5, 4,
9, 5, 9, 4, 8, 4, 2, 1, 5

Decoding: For decoding, one needs to add
10 in beginning and the end
of the recorded points. After which
the Interaction Pairs Table is prepared.

Interaction Pairs Table

S. No.	Pairs	1st No.	2nd No.	3rd No.	Points
1	10, 4	25	4, 8	55	5, 5
2	4, 8	34	8, 2	66	4, 10
3	8, 1	25	2, 8	57	10, 4
4	1, 4	31	6, 8	18	4, 8
5	4, 1	32	8, 3	61	8, 4
6	1, 8	33	2, 10	60	4, 8
7	8, 2	34	10, 3	61	8, 10
8	8, 3	35	3, 9	62	10, 10
9	3, 4	36	9, 6	63	10, 9
10	4, 9	37	6, 6	64	9, 3
11	9, 1	38	6, 3	65	3, 5
12	7, 7	39	3, 4	66	5, 5
13	7, 8	40	4, 10	67	5, 5
14	8, 8	41	10, 4	68	5, 5
15	8, 3	42	4, 8	69	5, 4
16	3, 4	43	8, 10	70	4, 8
17	4, 4	44	10, 4	71	8, 4
18	4, 10	45	4, 6	72	4, 2
19	10, 8	46	8, 2	73	2, 4
20	8, 8	47	2, 8	74	4, 2
21	8, 8	48	6, 2	75	8, 4
22	8, 10	49	2, 3	76	4, 10
23	10, 9	50	3, 7	77	10, 4
24	9, 6	51	7, 5	78	4, 8
25	6, 3	52	5, 5	79	8, 2
26	3, 5	53	5, 5	80	2, 3
27	5, 4	54	5, 5	81	3, 5

Teacher's Signature: _____

Teacher's Signature: _____

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S. No.	Ans-1	S. No.	Ans-2	S. No.	Ans-3
82	5.5	111	8.2	140	5.5
83	5.5	112	2.5	141	5.5
84	5.5	113	5.5	142	5.10
85	5.5	114	5.5	143	10.4
86	5.10	115	5.5	144	4.8
87	10.5	116	5.5	145	6.6
88	5.6	117	5.6	146	6.8
89	6.10	118	6.5	147	8.8
90	10.5	119	5.10	148	8.2
91	5.5	120	10.5	149	2.4
92	5.5	121	5.10	150	4.8
93	5.9	122	10.5	151	8.2
94	9.5	123	5.5	152	2.5
95	5.4	124	5.5	153	5.2
96	4.8	125	6.5	154	2.5
97	8.3	126	5.6	155	5.7
98	3.5	127	6.10	156	2.10
99	5.5	128	10.10	157	10.5
100	5.5	129	10.9	158	5.5
101	5.5	130	9.5	159	5.5
102	5.6	131	5.5	160	5.5
103	6.4	132	5.4	161	5.5
104	4.8	133	6.8	162	5.5
105	6.5	134	6.7	163	5.6
106	5.5	135	6.1	164	6.10
107	5.4	136	2.4	165	10.4
108	4.10	137	4.8	166	4.8
109	10.4	138	8.5	167	8.4
110	4.8	139	5.5	168	4.8

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Page No: _____

S. No.	Ans-1	S. No.	Ans-2	S. No.	Ans-3
169	8.2	199	5.5	228	10.9
170	2.4	200	5.5	229	9.5
171	4.8	201	6.5	230	5.10
172	8.4	202	6.5	231	10.10
173	4.10	203	5.10	232	10.4
174	1.5	204	10.10	233	4.8
175	4.8	205	10.7	234	8.2
176	2.2	206	7.10	235	5.2
177	2.5	207	10.9	236	2.6
178	7.5	208	9.2	237	6.5
179	5.5	209	2.6	238	5.5
180	5.5	210	6.5	239	5.9
181	5.10	211	5.5	240	5.2
182	10.5	212	5.10	241	3.5
183	5.5	213	10.10	242	5.4
184	5.5	214	10.10	243	4.8
185	5.6	215	10.7	244	5.8
186	6.10	216	9.5	245	8.2
187	10.5	217	5.10	246	3.6
188	5.5	218	10.10	247	6.5
189	3.5	219	10.9	248	5.5
190	5.5	220	9.5	249	5.5
191	5.9	221	5.9	250	5.4
192	7.5	222	7.2	251	4.8
193	5.9	223	2.6	252	6.8
194	9.5	224	6.5	253	8.2
195	5.4	225	5.5	254	2.5
196	4.8	226	5.5	255	4.8
197	6.3	227	5.5	256	6.5
198	3.5	228	5.10	257	5.5

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TOPIC

Date: _____
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S. No.	Points	S. No.	Points	S. No.	Points
259	5.5	288	6.5	317	5.5
260	5.5	289	5.5	318	5.5
261	5.5	290	5.5	319	5.4
262	5.4	291	5.5	320	4.8
263	4.5	292	5.5	321	8.5
264	5.10	293	5.10	322	5.5
265	4.8	294	10.5	323	5.4
266	8.4	295	5.10	324	4.10
267	4.8	296	10.5	325	10.4
268	8.10	297	6.10	326	4.8
269	10.5	298	10.5	327	8.2
270	5.5	299	5.5	328	2.5
271	5.5	300	5.5	329	5.5
272	5.5	301	5.10	330	5.5
273	5.10	302	10.4	331	5.4
274	6.4	303	4.8	332	8.5
275	4.8	304	8.2	333	3.4
276	8.2	305	2.10	334	4.10
277	2.4	306	10.5	335	10.4
278	4.10	307	5.7	336	4.8
279	10.4	308	5.5	337	8.2
280	4.8	309	5.5	338	2.5
281	8.4	310	5.5	339	5.5
282	4.8	311	5.5	340	5.5
283	8.10	312	4.4	341	5.5
284	10.4	313	4.8	342	5.10
285	4.10	314	8.3	343	10.5
286	10.8	315	3.5	344	5.4
287	8.5	316	5.5	345	4.5

Signature

Teacher's Signature

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TOPIC

Date: _____
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S. No.	Points	S. No.	Points	S. No.	Points
346	8.4	351	9.5	362	5.5
347	4.8	352	5.4	363	5.9
348	8.5	353	4.8	364	9.4
349	5.10	354	8.8	365	4.8
350	2.5	355	8.5	366	8.4
351	9.5	356	5.4	367	4.8
352	5.5	357	4.9	368	8.1
353	5.9	358	9.5	369	1.5
				370	5.10

Signature

Teacher's Signature

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INTERACTION MATRIX

Obs. NO.	1	2	3	4	5	6	7	8	9	10	Total
1				I	III	III	III	III	III		23
2		III		III	III	III			II	III	25
3				III	II	III		III	II	III	26
4				III	III			III	III	III	33
5	III	II	III	III	III	I	III	III	III	III	37
6		II	III	III	II	I	III	II		III	24
7	III	III		II	III	III	III		II	II	32
8		III	III	III	III	I	III	III	III		45
9	II		III		III	III		III	III	III	33
10	III		III		III	III		III	III		33
Total	23	25	16	37	117	24	32	45	23	33	300

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Behavioral Ratios

1. Teacher Talk (TT)

$$= \frac{\Sigma F (\text{column 1 to 7})}{N} \times 100$$

$$= \frac{23}{36} \times 100 = 63.8\%$$

2. Silence (PT)

$$= \frac{\Sigma F (\text{column 8 to 9})}{N} \times 100$$

$$= \frac{7.5}{36} \times 100 = 20.8\%$$

3. Silence/Confusion (SC)

$$= \frac{\Sigma F (\text{column 10})}{N} \times 100$$

$$= \frac{3.5}{36} \times 100 = 9.7\%$$

4. Indirect Teacher Talk (ITT)

$$= \frac{\Sigma F (\text{column 1 to 4})}{N} \times 100$$

$$= \frac{10.1}{36} \times 100 = 28.1\%$$

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5. Direct Teacher Talk (DTT)

$$= \frac{\Sigma F(\text{column 5+6+7})}{N} \times 100$$

$$= \frac{173}{380} \times 100 = 45.52\%$$

6. Indirect to Direct Ratio (I/D Ratio)

$$= \frac{\Sigma F(\text{column 1 to 4})}{\Sigma F(\text{column 5 to 7})} \times 100$$

$$= \frac{101}{173} \times 100 = 58.38\%$$

7. Pupil Initiation Ratio (PIR)

$$= \frac{\Sigma F(\text{column 9})}{\Sigma F(\text{column 8+9})} \times 100$$

$$= \frac{28}{61} \times 100 = 45.90\%$$

8. Teacher Response Ratio (TRR)

$$= \frac{\Sigma F(\text{column 1 to 3})}{\Sigma F(\text{column 1+2+6+7})} \times 100$$

$$= \frac{64}{120} \times 100 = 53.33\%$$

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9. Teacher Question Ratio (TQR)

$$= \frac{\Sigma F(\text{column 1})}{\Sigma F(\text{column 4+5})} \times 100$$

$$= \frac{37}{115} \times 100 = 31.62\%$$

10. Control Ratio (CCR)

$$= \frac{\Sigma F(\text{column 4+5})}{N} \times 100$$

$$= \frac{154}{380} \times 100 = 40.52\%$$

Steady State Ratio (SSR)

$$= \frac{\text{Steady State cells}^{(SSC)}}{N} \times 100$$

Where $SSC = (1,1) + (2,2) + (3,3) + (4,4) + (5,5) + (6,6) + (7,7) + (8,8) + (9,9) + (10,10)$

$$= \frac{95}{380} \times 100$$

$$= 25.00\%$$

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2. Pupil Steady State Ratio (PSSR)

$$= \frac{\sum F(8,8) + (9,9)}{\sum F(8+9)} \times 100$$

$$= \frac{16}{73} \times 100 = 21.81\%$$

3. Instantaneous Teacher Response Ratio (ITRRR)

$$= \frac{(8,1) + (8,2) + (8,3) + (9,1) + (9,2) + (9,3) + (6,1) + (6,2) + (6,3) + (8,6) + (8,7) + (9,1) + (9,2) + (9,3) + (9,6) + (9,7)}{38} \times 100$$

$$= \frac{30}{38} \times 100 = 78.94\%$$

14. Instantaneous Teacher Question Ratio (ITQRR)

$$= \frac{(8,4) + 9,4}{(8,4) + (8,5) + (9,4) + 9,5} \times 100$$

$$= \frac{6}{19} \times 100$$

$$= 31.58\%$$

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Interpretation of Quantitative Ratios

(Based on IRES)

	Behavioural Ratio	Teacher	Pupil	Percentage
1	Teacher Talk	67	70	76-84
2	Pupil Talk	21	19	19-21
3	Silence/Confusion	12	11	2-68
4	Teacher Response Ratio	26	35	53-33
5	Teacher Question Ratio	19	20	31-62
6	Pupil Initiation Ratio	12	15	45-90
7	Steady State Ratio	46	52	25-80
8	Pupil Steady State Ratio	37	26	21-91
9	Instantaneous Teacher Response Ratio	48	67	78-94
10	Content Cross Ratio	72	68	48-52
11	Instantaneous Teacher Question Ratio	42	39	31-57

Conclusion

According to the normative expectation of behaviour ratios for good performance of a teacher the pupil talk Ratio, teacher response Ratio, Pupil initiation Ratio, pupil steady state Ratio, instantaneous teacher question Ratio should be greater than the given norms. And the performance is ineffective if the teacher talk Ratio, Silence / confusion Ratio, content cross Ratio, steady state Ratio and instantaneous teacher response Ratio are higher than their normative values.

Suggestion

- > The pupil teacher should pay attention towards classroom discussions rather than only lecturing.
- > Student should be encouraged to ask questions.
- > Students should be encouraged to take initiative in discussion.



V. good