APPENDIX A

FLANDERS INTERACTION ANALYSIS CATEGORY SYSTEM (ten category system), FLANDERS 10 x 10 MATRIX, ITS INTERPRETATION AND DERIVATION OF THE INDICES OF TEACHER BEHAVIOUR.
1. ACCEPTS FEELING  Accepts and clarifies the feeling tone of students in Non-threatening manner. Feelings may be positive or negative. Predicting or recalling feelings are included.

2. PRAISES OR ENCOURAGES Praises or encourages students action or behaviour. Jokes that release tension not at the expense of another individual, nodding head or saying 'Um-Um' or 'go-on' are included.

3. ACCEPTS OR USES IDEAS OF STUDENTS Clarifying, building or developing ideas suggested by a student. As teacher brings more of his own ideas into play, shift to category five.

4. ASKS QUESTIONS Asking a question about contents or procedure with the intent that a student answers.

5. LECTURING Giving facts or opinions about contents or procedures, expressing his own ideas, asking rhetorical questions.

6. GIVING DIRECTIONS Directions, commands or orders to which a student is expected to comply.

7. CRITICISING OR JUSTIFYING AUTHORITY

Statements intended to change student behaviour from non-acceptable to acceptable patterns, bowling someone out, stating why the teacher is doing what he is doing, extreme self reference.
<table>
<thead>
<tr>
<th>8. STUDENT TALK-RESPONSE</th>
<th>Talk by students in response to teacher. Teacher initiates the contact or solicites student statement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. STUDENT TALK-INITIATION</td>
<td>Talk by students which they initiate. If 'Calling On' student is only to indicate who may talk next, observer must decide whether student wanted to talk. If he did use this category.</td>
</tr>
<tr>
<td>10. SILENCE OR CONTUSION</td>
<td>Pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer.</td>
</tr>
</tbody>
</table>
INTERPRETATION OF FLANDERS 10x10 MATRIX
AND DERIVATION OF INDICES OF TEACHER BEHAVIOUR.
DERIVATION OF INDICES OF TEACHER BEHAVIOUR AS INTERPRETED FROM FLANDERS 10 x 10 MATRIX

1. Teacher talk = \frac{\text{Sum of total 1 to 7}}{\text{Grand total}} \times 100

2. Student talk = \frac{\text{Sum of total 8 + 9}}{\text{Grand total}} \times 100

3. Silence or Confusion = \frac{\text{Grand total}}{\text{Grand total}} \times 100

4. I/D = \frac{\text{Sum of total 1+2+3+4}}{\text{Sum of 5+6+7}}

5. i/d = \frac{\text{Sum of total 1 + 2 + 3}}{\text{Sum of total 5 + 6 + 7}}

6. Extended Direct = \frac{\text{Sum of cells (6-6) + (6-7)+(7-6)+(7-7)}}{\text{Grand total}} \times 100

7. Extended Indirect = \frac{\text{Sum of cells (1-1)+(1-2)(1-3).2-1.2-2.2-3.3-1.3-2.3-3}}{\text{Grand total}}

8. Teacher question ratio = \frac{\text{Column 4 total}}{\text{Sum total of 4+5}} \times 100

9. Teacher steady state ratio = \frac{\text{Sum of cells (1-1)+(2-2)+(3-3)+(4-4)+(5-5)+(6-6)}}{\text{Sum Total 1+2+3+4+5+6+7}}

10. Constructive integration component in teacher steady state:
    \frac{\text{Sum of cells (1-1)+(2-2)+(3-3)}}{\text{Sum of cells (1-1)+(2-2)+(3-3)+(4-4)+(5-5)+(6-6)+(7-7)}}

11. Content Cross ratio = \frac{\text{Sum of column 4 + 5}}{\text{Grand total}} \times 100
Content buried in teacher talk.

\[
= \text{Sum of cells (1-4)+(2-4)+(3-4)+(4-4)+(5-4)+(6-4) + (7-4)+(1-5)+(2-5)+(3-5)+(4-5)+(6-5)+(7-5) \quad \times 100}
\]

Grand total

13. Content emphasis buried in pupil talk

\[
= \frac{\text{Sum of cells (8-4)+(8-5)+(9-4)+(9-5)}}{\text{Grand total}} \times 100
\]

14. Total use of praise

\[
= \frac{\text{Column 2 total}}{\text{Grand total}} \times 100
\]

15. Praise in teacher talk

\[
= \frac{\text{Sum of cells (1-2)+(2-2)+(3-2)+(4-2)+(5-2)+(6-2)+(7-2)}}{\text{Column 2 total}} \times 100
\]

16. Praise indirect reaction to student talk.

\[
= \frac{\text{Sum of cells (8-2)+(9-2)}}{\text{Column 2 total}} \times 100
\]

17. Total immediate reaction to student talk

\[
= \frac{\text{Sum of cells (8-1)+(8-2)+(8-3)+(8-4)+(8-5)+(8-6)+(8-7)+(9-1)+(9-2)+(9-3)+(9-4)+(9-5)+(9-6)+(9-7)}}{\text{Grand total of 1+2+3+4+5+6+7}} \times 100
\]

18. Constructive reaction to student responsive talk

\[
= \frac{\text{Sum of cells (8-1)+(8-2)+(8-3)}}{\text{Grand total of 1+2+3+4+5+6+7}} \times 100
\]

19. Constructive reaction to student self initiated talk

\[
= \frac{\text{Sum of cells (9-1)+(9-2)+(9-3)}}{\text{Grand total of 1+2+3+4+5+6+7}} \times 100
\]

20. Questions in context of student responsive talk

\[
= \frac{\text{tellies in cell (8-4)}}{\text{Grand total of 1+2+3+4+5+6+7}} \times 100
\]

21. Questions in context of student self initiated talk

\[
= \frac{\text{tellies in the cell (9-4)}}{\text{Grand total of 1+2+3+4+5+6+7}} \times 100
\]

22. Content delivery in context of student responsive talk

\[
= \frac{\text{tellies in cell (8-5)}}{\text{Grand total of 1+2+3+4+5+6+7}} \times 100
\]
23. Content delivery in context of student self initiated talk.
   \[ \frac{\text{tellies in cell (9-5)}}{\text{Grand total of 1+2+3++5+6+7}} \times 100 \]

24. Order or criticism following student responsive talk
   \[ \frac{\text{Sum of cells}(8-6)+(8+7)}{\text{Grand total of 1+2+3+4+5+6+7}} \times 100 \]

25. Order or criticism following student self initiated talk
   \[ \frac{\text{Sum of cells (9-6) +(9-7)}}{\text{Grand total of 1+2+3+4+5+6+7}} \times 100 \]

26. Pupil Initiation ratio
   \[ \frac{\text{Column 9 total}}{\text{Grand total 8+9}} \times 100 \]

27. Pupil Steady State
   \[ \frac{\text{Sum of cells (8-8) + (9-9)}}{\text{Grand total 8+9}} \times 100 \]

28. Pupil talk in context of teacher talk
   \[ \frac{\text{Sum of cells (1-8)+(2-8)+(3-8)+(4-8)+(5-8) + (6-8)+(7-8)+(1-9)+(2-9)+(3-9)+(4-9) + (5-9)+(6-9)+(7-9)}}{\text{Grand total 8+9}} \times 100 \]

29. Pupil responsive talk = \[ \frac{\text{Column 8 total}}{\text{Grand total 8+9}} \times 100 \]

30. Pupil responsive talk following praise
   \[ \frac{\text{Sum of cells (1-8)+(2-8)+(3-8)}}{\text{Grand total 8+9}} \times 100 \]

31. Pupil responsive talk following teacher questions.
   \[ \frac{\text{tellies in cell (4-8)}}{\text{Grand total 8+9}} \times 100 \]

32. Pupil responsive talk following teacher directions.
   \[ \frac{\text{tellies in cell(6-8)+(7-8)}}{\text{Grand total 8+9}} \times 100 \]
33. Pupil responsive talk following silence
   \[ = \frac{\text{tellies in cell (10-8)}}{\text{Grand total 8+9}} \times 10 \]

34. Pupil self initiated talk following teacher praise
   \[ = \frac{\text{Sum of cells (1-9)+(2-9)+(3-9)}}{\text{Grand total 8+9}} \times 100 \]

35. Pupil self initiated talk following teacher questions.
   \[ = \frac{\text{tellies in cell (4-9)}}{\text{Grand total 8+9}} \times 100 \]

36. Pupil self initiated talk following teacher directions
   \[ = \frac{\text{Sum of cells (6-9)+(7-9)}}{\text{Grand total 8+9}} \times 100 \]

37. Pupil self initiated talk following silence
   \[ = \frac{\text{tellies in the cell (10-9)}}{\text{Grand total 8+9}} \times 100 \]

38. Pupil self initiated talk developing from pupil responsive talk
   \[ = \frac{\text{tellies in the cell (8-9)}}{\text{Grand total 8+9}} \times 100 \]

39. Silence or confusion following teacher talk
   \[ = \frac{\text{Sum of cells (1-10)+(2-10)+(3-10)+(4-10)+(5-10)+(6-10)+(7-10)}}{\text{Column 10 total}} \times 100 \]

40. Silence or confusion following pupil talk
   \[ = \frac{\text{Sum of cells (8-10)+(9-10)}}{\text{Column 10 total}} \times 100 \]

41. Sustained silence or confusion
   \[ = \frac{\text{tellies in cell (10-10)}}{\text{Column 10 total}} \times 100 \]