

## **CLASSROOM INTERACTIONS BETWEEN TEACHER EDUCATORS AND PROSPECTIVE TEACHERS: AN ANALYSIS DURING CURRICULUM TRANSACTION IN SECONDARY TEACHER EDUCATION PROGRAMME**

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### **ABSTRACT**

*This paper presents the results an analysis of classroom interaction between teacher educators and prospective teachers in normal classroom situations while transacting the curriculum contents to prospective teachers' in secondary teachers' pre-service training programme of Himachal Pradesh. The classroom interactions were analysed using Flander's Interaction Analysis Technique (FIAT). The purpose of this investigation was to assess the classroom behavior of teacher educators inside the classroom with a view to improve classroom interactions between teacher educators and prospective teachers in the teacher preparation programme. Interactions between teacher educators and prospective teachers were organized in to certain behavior ratios, for the purpose of interpretation, as suggested by Flanders and converted in to percentages in terms of various stages. In order to understand the nature of the change of sequence of classroom activities qualitatively i.e. in terms of events, the clockwise flow diagram of the composite master matrix, as suggested by Flanders was also prepared.*

**Keywords:** Curriculum Transaction, FIAT, Prospective Teachers.

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### **Introduction**

Education of teachers is not an end in itself. Its target is the school. Any change in the nature, purpose, quality, and character of the school demands a simultaneous change in teacher education, especially in its curriculum and curriculum transaction. The implementation of 10+2 scheme at the school level has transformed the complexion of education to a considerable extent from the pre-primary to the 10+2 stage (Sharma, 2013). It has been emphasized by NCFTE-2009, "The importance of competent teachers to the nation's school system can in no way be over emphasized. It is well known that the quality and extent of learner achievement are determined primarily by teacher competence, sensitivity and teacher motivation. It is common knowledge too that the academic and professional standards of teachers constitute a critical component of the essential learning conditions for achieving the educational goals. The length of academic preparation, the level and quality of subject matter knowledge, the repertoire of pedagogical skills that teachers possess to meet the needs of diverse learning situations, the degree of commitment to the profession, sensitivity to contemporary issues and problems as also to learners and the level of motivation, critically influence the quality of curriculum transaction in the classrooms and thereby pupil learning and larger process of social transformation" (pp. 1-2).

The changes at the school level, out of necessity, demand a new pedagogy and innovative evaluation techniques. All that the teachers are expected to do in their work places need to be reflected in teacher education activities and programmes. Where, teacher education is the process of providing teachers the skills and knowledge necessary to teach effectively inside or outside the classroom environment. It is the professional preparation, in pedagogy, of those who want to enter the profession of

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teaching (Mangla, 2001, p. 3). The programme for the preparation of teachers, in order to be effective, should thus provide scope for continuing increase in subject-knowledge and the necessary skills and techniques needed for imparting that knowledge in a classroom situation (Shukla, 1969). However, it has been observed that the changes at the level of teacher education have not adequately responded to the emerging realities at the school level.

Curriculum transaction is the effective and desired implementation of the curriculum contents on the basis of aims and objectives specified in the curriculum. The transaction procedures or strategies of the training programme have an important impact on the learning of the prospective teachers in terms of acquiring the necessary skills and related knowledge for to be a competent and effective teacher (Sharma, 2013).

The classroom interactions between the teacher educators and prospective teachers play a vital role in the effective transaction of teacher education curriculum. The classroom interaction consists of three important dimensions viz. communication, coordination and integration. Of the three dimensions, communication is a vital ingredient in the teaching and learning process. Being one of the three dimensions of interaction it is as necessary as food is a prerequisite for healthy growth. The quality and quantity of teacher-student interaction is a critical dimension of effective classroom teaching. The term 'interaction' implies an action – reaction or a mutual or reciprocal influence which may be between individuals, e.g. pupil – pupil; teacher-pupil in classroom setting or between materials and individuals or groups. An interaction is usually inferred from the behaviour of persons in the environment being studied. This behaviour may be verbal or non-verbal and can be classified as being predominantly cognitive, affective or controlling in nature (Girija, 2020).

Class room interaction analysis refers to objective and systematic observation of the class room events for the study of teacher's class room behaviour and the process of interaction going on inside the class room. It assists a teacher to bring desirable modification in her/his behaviour and improve teacher-learner interaction for making teaching-learning more purposeful and effective. Interaction analysis provides information about the communication that exists between the teacher and the pupils and can help to identify the alternatives that the teacher would like to try (Sharma, 2016).

Curriculum for secondary teachers' pre-service training programme in Himachal Pradesh consists of the entire package of activities which are supposed to develop both general and specific skills required to be an effective teacher. So, the lapses in terms of classroom interactions between the teacher educators and prospective teachers of the existing teacher training programme need to be evaluated objectively so as to improve the quality of teacher preparation in the state of Himachal Pradesh. Keeping in view, the vitality of interactions between teacher educators and prospective teachers from the view point of the schools and evolution of new instructional strategies and transactional techniques it was thought worthwhile to study and assess these interactions using Flanders Interaction Analysis Technique (FIAT). The present study may be of immense use for the educational administrators, curriculum framers, teacher educators, school teachers, student teachers and other stake holders.

#### **Objective of the Present Study**

To assess and study the classroom interactions between teacher educators and prospective teachers during transaction of curriculum in secondary teachers' pre-service training programme of Himachal Pradesh.

#### **Methodology**

The classroom observation method under descriptive research was used to achieve the stated objective of investigation.

#### **Sample**

The total sample consisted of the seven teacher educators of Rameshwari Teacher Training Institute, Sarabai where the investigator was working as head of the institution.

#### **Instrumentation**

Flanders Interaction Analysis Technique of Classroom Observation was used to gather relevant information.

#### **Flanders Interaction Analysis Technique**

The figure below shows the brief details of Flanders ten categories of classroom communication under Flanders interaction analysis technique developed by Flanders (1970).

<b>Teacher Talk</b>	<b>Indirect influence</b>	<ul style="list-style-type: none"> <li>• <b>Accepts Feeling:</b> accepts and clarifies the feeling tone of the students in a non-threatening manner. Feeling may be positive or negative. Predicting or recalling feeling is included.</li> <li>• <b>Praises or Encourages:</b> praises or encourage student actions or behavior. Jokes that release tension, not at expense of another individual, nodding head or saying “um hum?” or “go on” are included.</li> <li>• <b>Accepts or Uses Ideas of Students:</b> clarifying, building, or developing ideas suggested by a student. As a teacher bring more of his own ideas into play, shift to category five.</li> <li>• <b>Ask Questions:</b> asking a question about content or procedure with the intent that a student answers.</li> </ul>
	<b>Direct Influence</b>	<ul style="list-style-type: none"> <li>• <b>Lecturing:</b> giving facts or opinion about content or procedure with own ideas, asking rhetorical question.</li> <li>• <b>Giving Directions:</b> directions, commands, or orders to which a student is expected to comply.</li> <li>• <b>Criticizing or Justifying Authority:</b> statements intended to change student behavior from non-acceptable to acceptable pattern; bawling someone out; stating why the teacher is doing what he is doing; extremely self-reference.</li> </ul>
<b>Pupil Talk</b>		<ul style="list-style-type: none"> <li>• <b>Pupiltalk-Response:</b> a student makes a predictable response to teacher. Teacher initiates the contact or solicits student statements and sets limits to what the student says.</li> <li>• <b>Pupil Talk-Initiation:</b> talk by students which they initiate, unpredictable statements in response to teacher. Shift from 8 to 9 as student introduced own ideas.</li> </ul>
		<ul style="list-style-type: none"> <li>• <b>Silence or Confusion:</b> pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer.</li> </ul>

**Figure 1: Flanders Interaction Analysis Categories**

#### **Procedure of Flanders' Interaction Analysis Technique**

Encoding and decoding are the two processes of interaction analysis which were followed for gathering relevant information.

#### **Encoding**

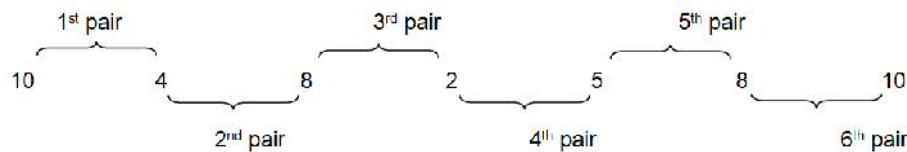
The encoding process is used for recording classroom events on an observation sheet consisting of 20 rows and 20 columns, in terms of numbers of ten category system, following certain ground rules suggested by Flanders, when the observer is faced with certain difficulties:

- When not certain in which of the two or more categories a statement belongs, the category that is numerically farther from the category five, with the exception of category ten is chosen.
- If more than one category occurs during the three second interval, then all categories used in that interval are recorded. If no change occurs within three seconds, the category number is repeated.
- When the teacher calls on a child by name, the observer ordinarily records as 4.
- If there is discernible period of silence, one 10 for every 3 seconds of silence, laughter, board work, etc. is used.
- Statements such as ‘uh hah’ yes, all right, okay, which occur between two 9s are recorded as 2.
- A teacher’s joke which is not made at the expense of the students is a 2. If the joke makes fun of a student, then it is coded as a 7.
- An 8 is recorded when several students respond in union to a narrow question.

Each number describes a type of verbal interaction and who is speaking. Every time the verbal interaction change, a new number is recorded. If the same verbal interaction continues for more than three seconds, the same number is recorded.

### Decoding

The decoding process is used for the preparation of 10x10 observation matrix consisting of 10 rows and 10 columns, each representing one of the ten categories and for the interpretation of the same. The generalized sequence of student-teacher interaction is estimated in this matrix. To plot the numbers, recorded on the observation sheet during encoding, on a matrix, category number 10 in the beginning and at the end of category numbers is added. The pairs of numbers are organized as illustrated below.



The first pair represents one point on the matrix; the second pair represents another point on the matrix, and so on.

### Procedure for Collection of Data

The investigator observed 21 classes of selected seven teacher educators, making 3 observations per teacher educator, in actual classroom for 20 minutes, by using Flanders' Interaction Analysis Technique. The investigator recorded all the classroom behaviours at the end of each of the three seconds, in terms of category numbers as suggested by Flanders (1970), in an observation sheet prepared by the investigator, simultaneously assessing the continuity of the communication. The categories were noted at the rate of 20 category number per minute, keeping the tempo as steady as possible, making a total of 400 category numbers in 20 minutes. Whatever kind of interaction persisted, researcher put the number of category repeatedly until there was a change. Category numbers were written column wise top to bottom and bottom to top, in a sequence so that original sequence of events could be preserved.

### Flanders' Interaction Analysis and Interpretation

#### Tabulation of Observation Data

The observation data was tabulated by following the procedure described as under:

#### Preparation of 10x10 Matrices

A separate 10x10 matrix for each of the observation was prepared by following the procedure described earlier above. So, in totality 21 observation matrices were prepared. A sample copy of the 10x10 matrix is given below.

Category	1	2	3	4	5	6	7	8	9	10	Total
1	---	---	---	---	3	1	---	---	---	---	04
2	---	---	1	1	2	---	---	---	---	---	04
3	---	---	1	3	3	---	1	1	---	---	09
4	---	2	---	10	1	1	---	16	---	---	30
5	---	---	---	08	251	4	---	---	2	2	267
6	---	1	---	1	2	5	---	---	1	2	12
7	---	---	---	1	---	1	3	---	---	---	05
8	4	---	5	3	3	---	1	8	---	1	25
9	---	1	2	---	---	---	---	---	---	---	03
10	---	---	---	3	2	---	---	---	---	37	42
<b>Total</b>	04	04	09	30	267	12	05	25	03	42	<b>401</b>

#### Preparation of Composite Master Matrix

One master 10x10 matrix based on twenty one 10x10 matrices of teacher educators teaching in actual classrooms was prepared. The procedure followed was the cell to cell addition of each of the twenty eight matrices. The composite master matrix is shown below:

Category	1	2	3	4	5	6	7	8	9	10	Total
1	2	5	9	6	6	7	3	5	0	7	50
2	1	40	8	33	33	14	1	23	1	14	168

3	1	21	30	28	152	8	7	10	0	3	260
4	4	28	4	183	13	21	5	290	0	60	608
5	31	12	1	213	5407	39	0	36	30	157	5926
6	1	6	2	29	37	54	1	23	1	23	177
7	1	7	0	7	21	7	51	17	1	8	120
8	6	26	202	51	78	15	40	198	0	12	628
9	3	3	3	0	13	0	11	0	24	0	57
10	0	20	1	58	166	12	1	26	0	143	427
<b>Total</b>	50	168	260	608	5926	177	120	628	57	427	<b>8421</b>

### Organization of Data

Interactions between teacher educators and prospective teachers while transacting the curriculum contents in actual classroom situations are organized in to certain behaviour ratios, for the purpose of interpretation, as suggested by Flanders. Behaviour ratios for composite master matrix of 21 observations were calculated and converted in to percentages.

### Depicting the Sequence of Activities

In order to understand the nature of the change of sequence of classroom activities qualitatively i.e. in terms of events, the clockwise flow diagram and box flow diagram of the composite master matrix, as suggested by Flanders were prepared. Further, the minimum frequency of 100 was chosen to be marked in the flow diagram. This means all the cells with this frequency or higher will have entry and exit arrows.

### Classroom Interaction between Teacher Educators and Prospective Teachers

The details of analysis and interpretation of classroom interaction between teacher educators and prospective teachers are discussed as below:

#### Ñ Time Involved in Classroom Interaction

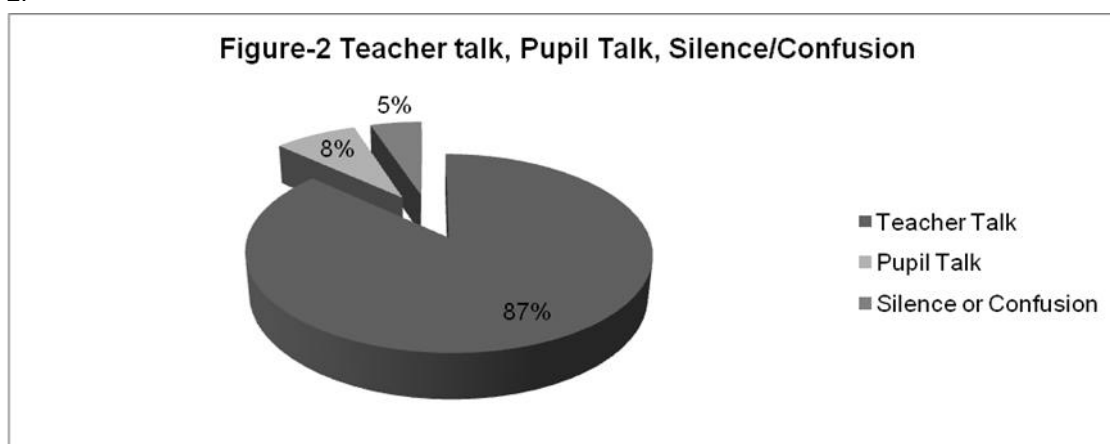
The investigator observed the teacher educator in the class for 20 minutes and computed the tallies on a 10x10 matrix. The investigator then totaled the tallies in this matrix. The total tallies were 400 in 1200 seconds. The average rate of coding came out to be 3 second. This indicated that both the rate of coding and total time involved in live classroom interaction was appropriate as every tally was recorded in every 3 seconds. It means that the investigator recorded 20 tallies in one minute, 60 tallies in 3 minutes and 400 tallies in 20 minutes in terms of actual classroom interactions.

#### Ñ Classroom Climate

The classroom climate was estimated through interaction in terms of: i) total teacher talk, pupil talk and silence or confusion and; ii) checking the balance of teacher response and initiation as compared to student initiation.

#### Ñ Teacher Talk, Pupil talk and Silence or Confusion

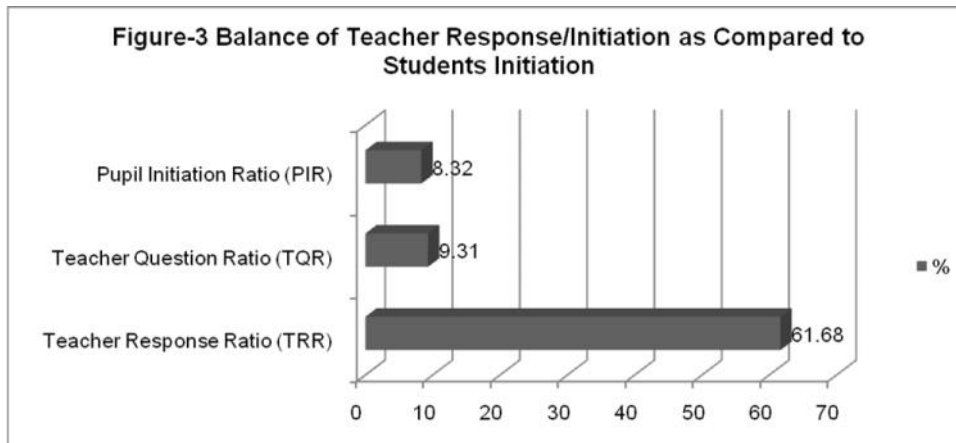
The proportion of interaction in the classroom situation were estimated from teacher talk, pupil talk and the time spent in silence or confusion and their percentages are represented presented in figure-2.



From figure-2, it can be seen that teacher talk was very high (87 percent) as compared to pupil talk (8 percent) as well as silence or confusion (5 percent). Very high teacher talk is an indication of teacher dominated classroom with authoritarian climate and very less pupil talk reveals minimum discussion in the classroom.

#### Ñ **Balance of Teacher Response/Initiation as Compared to Students Initiation**

For checking the balance between teacher response and initiation compared to pupil initiation, Teacher Response Ratio (TRR), Teacher Question Ratio (TQR) and Pupil Initiation Ratio (PIR) were computed and are represented in figure-3.



From figure-3, it can be observed that teacher educators responded very often (61.68 percent) to the prospective teachers queries as TRR was high. Very low TQR (9.31 percent) reveals fewer tendencies of teacher educators to ask questions and indicates most of the time spent by the teacher educators was on lecturing. Very low PIR (8.32 percent) indicates that the prospective teachers' initiation in introducing their own ideas in class situations was negligible or very less.

#### Ñ **Level of Interaction within the Classroom**

The level of interaction within the class was studied through: i) Initial reactions of teacher educators to the termination of prospective teachers' talk and; ii) through the tendencies of the teacher educators towards content emphasis and sustained talk.

#### Ñ **Initial Reactions of Teacher Educators to the Termination of Prospective Teachers' Talk**

Initial reactions of teacher educators to the termination of prospective teachers' talk were studied through two ratios viz. an Instantaneous Teacher Response Ratio (ITRR<sub>89</sub>) and Instantaneous Teacher Question Ratio (ITQR<sub>89</sub>) and are presented in figure-4.

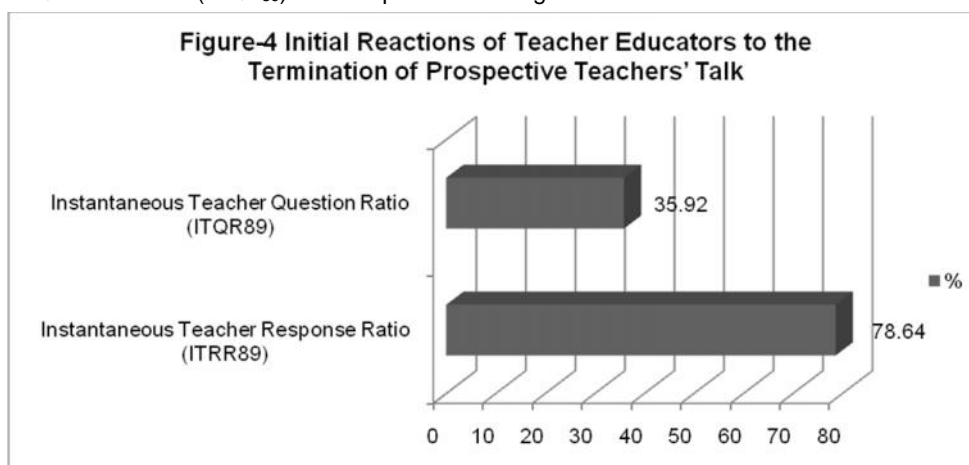
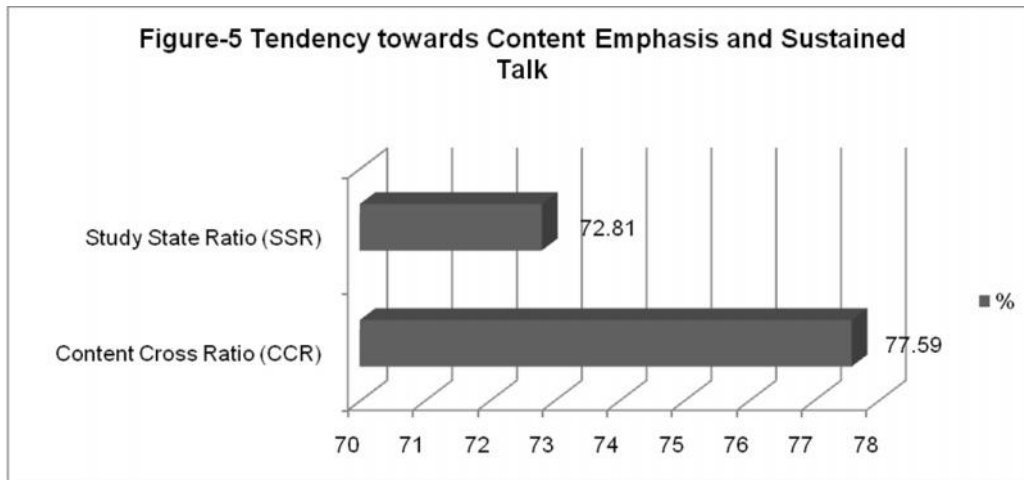


Figure-4 shows that  $ITRR_{89}$  was very high (78.64 percent) and  $ITQR_{89}$  was low (35.92 percent). It reflects the very high tendency of teacher educators to praise or integrate prospective teachers' ideas and feelings in to class discussion, at the moment prospective teachers stop talking, and a very healthy emotional climate and high level of communication in the live class when teacher educators were teaching. However, low  $ITQR_{89}$  reflects the fewer tendencies of the teacher educators in responding to prospective teachers' talk with questions based on their own ideas compared to their tendency to lecture.

**Classroom Interaction in the form of Tendencies towards Content Emphasis and Sustained Talk**

Classroom interaction in the form of tendencies towards content emphasis and sustained talks by the teacher educators were studied through two ratios viz. Content Cross Ratio (CCR) and the Steady State Ratio (SSR) and are presented in figure-5.



It is evident from figure-5 that high CCR (77.59 percent) indicates that during classroom interaction the main focus of the teacher educators was on subject matter i.e. most of the time teacher educators were lecturing and they were the most active participants in the classroom discussion with very little or no attention to motivation or discipline problems in the class. Further, a very high SSR (72.81 percent) indicates that on the average there was less rapid interchange between the teacher educators and prospective teachers during discussion in the class.

**Sequence of Activities Depicted through Flow Pattern of Classroom Interaction**

The clockwise flow diagram which was prepared with the help of composite master matrix depicting the sequence of activities in the classroom is presented in figure-6.

Figure-6 Composite Master Matrix Showing Classroom Clock wise flow diagram for Interaction of All the 21 Observations

Category	1	2	3	4	5	6	7	8	9	10	Total
1	2	5	9	6	6	7	3	5	0	7	50
2	1	40	8	33	33	14	1	23	1	14	168
3	1	21	30	78	152	8	7	10	0	3	260
4	4	28	4	183	13	21	5	290	0	60	608
5	31	12	1	213	5407	36	0	36	30	157	5926
6	1	6	2	29	37	54	1	23	1	23	177
7	1	7	0	7	21	7	51	17	1	8	120
8	6	26	202	51	78	15	40	193	0	12	628
9	3	3	3	0	13	0	11	0	24	0	57
10	0	20	1	58	166	12	1	26	0	143	427
<b>Total</b>	50	168	260	608	5926	177	120	628	57	427	<b>3421</b>

From figure-6, it can be seen that there are 7,111 tallies in the marked cells, covering about 84.44 percent of the total tallies in the composite master matrix. Most of the classroom verbal behavior during the transaction of the secondary teacher education curriculum has been presented through circled cells and the looping arrows.

It may be observed from the figure that the highest probability of starting the classroom events was from lecturing, because the highest tallies 5407 were concentrating in the (5-5) cell. There seems to be two probabilities:

- Ñ Firstly lecturing seems to be followed by teacher questioning, which continued for more than three seconds in (4-4) cell, then teacher questioning seems to be followed by prospective teachers' response, which remained in steady state (8-8) cell for more than three seconds, then prospective teacher response, followed by teachers educators acceptance and use of pupil ideas for a while and then again followed by lecturing.
- Ñ The another probability was that lecturing seems to be followed by silence or confusion, which remained in steady state (10-10) cell for more than three seconds. The period of silence or confusion was broken by lecturing and accepting prospective teachers' gestures or ideas and then again continued lecturing for more than three seconds in (5-5) cell.

#### **Discussion on Classroom Interaction Between Teacher Educators and Prospective Teachers**

- Ñ The results of the observation data analysis reveals that teacher talk was very high compared to prospective teacher's talk as well as silence or confusion. Means while transacting the secondary teachers' training curriculum to the prospective teachers, the teacher educators' dominated the class with authoritarian climate and very less time was given for prospective teachers' talk.
- Ñ Teacher educators responded very often to the prospective teachers queries as TRR was high however, very low PIR indicates that the prospective teachers' initiation in introducing their own ideas in class situations was negligible or very less.. Very low TQR reveals fewer tendencies of teacher educators to ask questions and indicates most of the time spent by the teacher educators was on lecturing.
- Ñ The high instantaneous response ratio (ITRR89) reflects the very high tendency of teacher educators to praise or integrate prospective teachers' ideas and feelings in to class discussion, at the moment prospective teachers stop talking, and indicates for a very healthy emotional climate. However, low ITQR89 reflects the fewer tendencies of the teacher educators in responding to prospective teachers' talk with questions based on their own ideas compared to their tendency to lecture.
- Ñ There was high content cross ratio (CCR) which indicates that during classroom interaction the main focus of the teacher educators was on subject matter i.e. most of the time teacher educators were lecturing and they were the most active participants in the classroom discussion with very little or no attention to motivation in the class.
- Ñ The high steady state ratio (SSR) indicates that on the average there was less rapid interchange between the teacher educators and prospective teachers during discussion in the class.
- Ñ The results in respect of flow of classroom events during interaction between teacher educators and the prospective teachers during the transaction of teacher training curriculum indicate that the highest probability of starting the classroom events was in the form of lecturing followed by the questioning by the teacher educators which was followed by prospective teachers' responses. Both these events occurred interchangeably. Sometimes long questioning and repetition of questions also appeared. The prospective teachers' ideas were sometimes accepted and used by the teacher educators; however these were very rarely clarified by the teacher educators. Sometimes lecturing was followed by silence or confusion and then silence or confusion was broken by the lecturing.

#### **Conclusion and Suggestions**

From the results of observation data analysis it is concluded that the major changes in the flow of classroom events i.e. behaviours during the transaction of teacher training curriculum were: i) lecturing was followed either by questioning or by the period of silence or confusion and very rarely by prospective teacher's responses; ii) questioning was mostly followed by prospective teacher's responses; iii) lecturing was mostly followed by questioning, whereas prospective teachers' responses were rarely followed by



questioning; iv) period of silence or confusion was usually broken by lecturing and; v) prospective teacher's responses were followed by acceptance or use by the teachers for a very shorter period and acceptance or use of ideas of prospective teachers' was usually followed by lecturing by the teacher educators.

Hence, during classroom transaction of the curriculum the classroom climate was more teacher dominated and prospective teachers' participation was less. Most of the times teacher educators were lecturing and interchange of communications between teacher educators and prospective teachers was very less. Therefore, teacher educators must adopt the strategies which are student centered and involve them in classroom interaction. The strategies should be as per the demands and requirements of present day school system envisioning 21<sup>st</sup> century. Teacher educators while transacting the curriculum in actual classrooms must analyze their classroom interaction in order to obtain information about the chain of events and specially their own acts of teaching behavior which will result in the development of the prospective teachers.

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