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An analysis of ratio's of class room interaction in mathematic class using Flanders's interaction analysis in rural and urban schools of Faridkot (Punjab)

Sumeer Sharma

Satyam college of Education, Moga, Punjab, India

Abstract
The main objective of the proposed study was to explore Teacher–Student verbal interaction patterns in rural and urban schools of Faridkot (Punjab) using Flanders' Interaction Analysis system. This study was significant because its findings and conclusions may stimulate teachers to improve their teaching behaviour in order to maximize student learning. To achieve the above study objective, Teacher Talk Ratio, Teacher Response Ratio, Teacher Question Ratio Instantaneous Teacher Response Ratio (TRR 89) and Instantaneous Teacher Response Ratio (TQR 89) ratio was calculated, using Flanders Interaction Analysis system to secure the data. The sample for present study was comprised of two clusters of students of class IX standard from rural and urban school, Faridkot in Punjab. The observation used for Flander's class Room Interaction Analysis to analyse the data and To do this, time sampling was used and each classroom was observed for (20 minutes) in a 45-minutes class. After obtaining and encoding the data, it was tabulated, analysed, and interpreted by using ratio formula as given by Flanders' Interaction Analysis system To conclude, the scene in urban class room is more encouraging, versatile student oriented, response oriented and question oriented, Rural class room needs to improve on TQR89 aspect key words rural and urban school Flander's class Room Interaction Analysis, Class Room Interaction.

Keywords: Flanders's, rural and urban schools, Faridkot

Introduction

Class Room Interaction

One of the major objectives of educational theory is to improve the effectiveness of class room instruction. In educational literature, the variable affecting teacher effectiveness are categorized in to presage, and product variables, but in case of even the best and gifted teachers much of variance in the product variable goes unexplained. And student performance (Product variable) could not be raised beyond a certain limit lately many studies are reported on methods homework and other process variables but scientific investigation in this direction were started with the idea of observation system, scientifically, teaching is viewed as a chain of class room interaction is a way by which the teaching learning process fulfil his requirement. By class room interaction the behaviour of learner and teacher are changed class room interaction play important role in motivation of learners and also in boasting the morale of teachers. The teachings as well as learning tempo are reflected by class room interaction. It can be supportive or defensive. Teacher pupil interaction, pupil – pupil interaction and teacher's philosophy and his perception of his role are important factors affects class room interaction.

The teaching learning situations in the class room involve interaction between the teacher and the students. The success of a teacher may be judged through the degree of effectiveness of his teaching which may be objectively assessed through his class room behaviour or interaction. Thus a systematic of objective analysis of a teacher's class room behaviour or class room interaction may provide a reliable assessment of what goes on inside the class room in terms of teaching and learning.

Class Room Interaction Analysis

Class room interaction analysis refers to a technique consisting of objective and systematic observation of the class room events for the study of teacher ' s class room behaviour and the process of interaction going inside the class room. It assists a teacher to bring desirable. Modification in his behaviour and improve his interaction with his pupils for making his teaching more purposeful and effective. A system of interaction analysis essentially consists of the process of encoding and decoding. Encoding helps in recording the class room events in a meaningful way, while decoding is used in arranging the data n to useful display and them analyzing the result in order to study patterns of teacher behaviour and class room interaction. The interaction analysis work as a standardized observation tool and technique for identifying the pattern of teacher behaviour and analysing class room interaction in between the teacher and the students.

Sharma's (2004) view: Interaction analysis is a specialized research procedure that provides information on about only a few of the many aspects of teaching. it is an analysis of spontaneous communication between teacher and pupils interaction analysis applies only to a content free characteristics of verbal communication. The entire process of interaction analysis becomes a measure of teacher influence. The entire process of interaction analysis becomes a measure of teacher influence because it makes the assumption on that most teacher influence is expressed through verbal statements and most non-verbal influence is positively correlated with vernal."

Flander's class Room Interaction Analysis

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.

Flanders and his associates developed this techniques confined

only to the classroom verbal behaviour, in 1970. The system consists of 10 categories, 7 of which were used when the teachers is talking, two are used when any pupil is talking and the last category is used to indicate silence/confusion. So far as the communication is concerned these three conditions:

- Teachers Talk
- pupils Talk
- Silence/confusion are said to exhaust all possibilities. It is an objective and systematic techniques for evaluating the classroom performance of a teacher. The system permits the coding of teaching behaviour at a content rate of 3 seconds per observation throughout the observation.

Walberg (1986) indicates that the seven factors for the key elements of effective teaching are: engaged academic learning time, use of positive reinforcement, cooperative learning activities, positive class atmosphere, higher-order questioning, cues and feedback, and use of advance organizers. The system of interaction developed by Flanders shows how these elements fit together in actual classroom interaction.

Brown H.D. (2001) [2] Teacher talk is crucial and important, not only for the organization and for management of the classroom but also the process of the acquisition. In teaching process, teacher often simplify their speech, giving it many of the characteristics of foreigner talk such as applying slower and louder than normal speech, using simpler vocabulary and grammar and the topics are sometimes repeated Dagarin, 2004 [4] Likewise the first type of interaction, this interaction is conducted when the teacher speaks to the whole class as well. However, in this interaction, the teacher expects only one student to answer. This arrangement can also be used for an informal conversation at the beginning of the lesson or for leading students into a less guided activity." Pheasanty (2003) [9] conducted a research that the objective was to identify the characteristics of the classroom interaction in the elementary school English classes; to identify the English mastery of the Elementary school students; and to find out whether there are any significant differences in the effectiveness of teaching learning process among classes with different percentages of of classroom interaction characteristics. This study involved the fifth grade students and the English teachers of some schools as the subjects. The observation used Flanders Interaction Analysis to identify the classroom interaction. While the English mastery test were analyzed by using one way ANOVA. The result of the analysis showed that the dominant characteristics of classroom interaction in Elementary School are the student participation, indirect ratio, and content cross. The English mastery tests of the fifth graders of these Elementary Schools are good enough. The inferential analysis shows that there are significant differences in the effectiveness of teaching learning English among classes which have different percentages of characteristics of classroom interaction, Inamullah (2005) [1] conducted the research to explore patterns of classroom interaction at secondary and tertiary levels in the North West Frontier Province of Pakistan using Flanders Interaction Analysis system. This study was significant because its findings and conclusions may stimulate teachers to improve their teaching behaviour in order to maximize students learning. Fifty observations were carried out, each in one classroom, using Flanders Interaction Analysis system to secure the data. To do this, time sampling was used and each classroom was observed for 810 second in a 45-minutes class. After obtaining and encoding the data, it was tabulated, analyzed and interpreted by using percentages, means, standard deviations and t-test. The result shows that the students talk time at secondary and tertiary level differed in favour of secondary level classes where students talk time was greater than at tertiary level. The talk time of teacher at tertiary level was greater than that of the teacher's at secondary level. Silence time at secondary level was significantly greater than at tertiary level.

Davis, H.A. (2006) [5]. Lower expectations and limited opportunities to learn may be a function of math teachers' enactment of deficit beliefs about diverse students or maladaptive beliefs they hold about mathematics and outlines the ways in which teachers communicate low expectations such as calling on students less often, seating them farther away, seating them closer as a form of behavioral control, paying less attention and demanding less of them, offering inappropriate criticism or praise, or failing to give feedback altogether. Math teachers may also inadvertently communicate stereotypes about the field including messages that minorities do not belong, Jennings & Greenberg, (2009) [8] as the classroom climate deteriorates, the demands on the teacher increase, triggering in the teacher what has been referred to as a "burnout cascade". Under these conditions, teachers' responses to student behaviour may become hostile and punitive, reactions that may derail student motivation and contribute to a self-sustaining cycle of classroom disruption. Over time, high levels of distress may lead to burnout

Emergence of Research Problem

For better teaching learning process teacher should be aware of all such forces that operate with in class. When a class is viewed as a social group some important functions of teacher emerge. Pupil should be trained in cooperative Endeavour to achieve common goal. In class, teachers use a traditional method to teach. Due to this, learning becomes one sided. In teaching learning process, the teacher must know about acquisition of knowledge. Focus must be on student's perceptions rather than teachers perceptions. This is likely to be more productive attempts to improve class room learning. Class room learning environment can be improved systematical by if we know how the students and teacher interact in class room. The present study is an attempt to study the various dimension of mathematics classroom interaction of rural and urban school.

Objectives

Study was designed with a view to attain the following objectives:

- Observation of class room teaching in math class rooms in rural and urban schools.
- Analysis is interaction using Flanders's system.

Methodology

Design

Two groups of children were selected from two different schools. One from rural area and other for urban area and they were compared for interaction in their mathematics class room.

Sample

The sample for present study was comprised of two clusters of students of class IX standard from rural and urban school, Faridkot in Punjab.

Tool Used
Flanders interaction analysis category system for class room observation on verbal interaction was used.

Procedure
The investigator selected two schools one from rural area other from urban are of district Faridkot in Punjab then principal of these school were contacted. The purpose of the investigation was explained to them and an assurance was given to them that school programme would not be disturbed in any way.
The investigator took the observation of class room verbal interaction, on the 20x20 observation format in both the schools presented in appendix.
The time schedule of observing the classes was fixed with teacher on individual basis. Then investigator took observation with the 3 second interval of each and reordered each event according to flander system of observation then based on this observation the interpretation matrices were prepared for each class room events
The calculation of this behaviour ratio may be done directly from the formulae construlae for this purpose. By flanders intraction analysis system

- Teacher Talk Ratio,
- Teacher Response Ratio
- Teacher Question Ratio
- Instantaneous Teacher Response Ratio (TRR 89)
- Instantaneous Teacher Response Ratio (TQR 89)

Table 1: Different ratios of classroom interaction of rural and urban areas of district Faridkot

	Urban	**Rural**
Teacher Talk Ratio	78.5	82.5
Teacher Response Ratio	64.5	54.4
Teacher Question Ratio	9.4	7.4
Instantaneous Teacher Response Ratio (TRR 89)	95	45
Instantaneous Teacher Question Ratio (TQR 89)	80	40.8

Teacher Talk Ratio (TTR)
After Comparing the table it was found that teacher talk ratio in urban sample was 78.5% Where as in rural Sample 82.5% It Means in rural area teaching is more dominantly by teacher as compared to urban area. It as indication of teacher dominated class room will authoritarian climate.

Teacher Response Ratio (TRR)
An urban area teacher response ratio 64.5% and in rural area is 54.4% which is more than rural area. Teacher response ratio is index of teacher tendency to react to the ideas and felling of pupil. The teacher response ratio is high in urban area which shows that teacher responded to pupil talk every often as compare to rural area. It is therefore an indirect estimate of pupil initiation as well.

Teacher Question Ratio (TQR)
Teacher question ratio is an index representing the tendency of teacher to use question or teacher initation. TQR in urban area is 9.4% and in rural area is 7.4% TQR is high in urban area which indicate lot of teacher initiation in class.

Instantaneous Teacher Response ratio (TRR 89)
An instantaneous teacher response ratio (TQR 89) is an index of the tendency of the teacher to praise or integrate pupil ideas and feeling in to the class discussion at the moment the pupil stop talking. TRR 89 is 95% in urban area and 45% in rural area. Thus we see that TRR 89 is high in urban area as compared to rural area therefore high TRR 89 in urban area indicates a healthy emotional climate and high level of communication in class as compared to rural area.

Instantaneous Question Ratio (RQR 89)
Instantaneous Question ratio (TQR 89) is a tendency of teacher to respond to pupil talk with questions based on his own ideas compared to his tendency to lecture. In urban area TQR 89 was 80% and in urban area was 40.8% i.e. high in urban area, which means in urban area there is high tendency of the teacher to response to pupil talk with question based on his own ideas compare to his tendency to lecture as compared to rural area.
To conclude, the scene in urban class room is more encouraging, versatile student oriented, response oriented and question oriented, rural class room needs to improve on TQR89 aspect

Summary and Conclusion
Mathematics is considered as father of science. Mathematics should be visualized as vehicle to train a child to think, reason, analysis articulate logically apart for being a specific subject it should be treated as a concomitant to any subject involving analysis and meaning. Mathematics has its unique nature on the basis which can compare it with other subject. Class room interaction is a way by which the teaching learning processes fulfil his requirements. By class room interaction the behaviour of learner and teacher are changed. Class room interaction play important role in motivation of learners and also in boasting the morale of teachers. In this paper rural area teaching is more dominantly by teacher as compared to urban area, teacher response ratio is high in urban area which shows that teacher responded to pupil talk every often as compare to rural area, teacher initiation in class is high in urban area, the urban area indicates a healthy emotional climate and high level of communication in class as compared to rural area, there is high tendency of the urban teacher to response to pupil talk with question based on his own ideas compare to his tendency to lecture as compared to rural area. The student and teacher interaction class room have distinctive properties affecting participants regardless of how students are organized for learning, what educational philosophy of the teacher espouse. Class room interaction gives the healthy environment in class by which students gains the knowledge very well and acquire skill well.

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