

Assessment of Basic Science Teachers' Classroom Verbal Interactions in OBIO/AKPOR Local Government Area of Rivers State

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Abstract

The study assessed the patterns of classroom verbal interaction in some junior secondary schools in Rivers State using Flander's interaction analysis category system. The study employed an observational type of descriptive research design. The population consists of all Junior Secondary School Students in Obio/Akpor Local Government Area in Rivers State. The sample of the study consisted of 450 students in three intact classrooms. The research instrument was Flander's interaction analysis category system. The reliability of the instrument was determined using observations with the same instrument from two lecturers of two schools not used for the study. The results of their observations were computed using Scotts-pii and a reliability index of 0.78 was obtained. The data obtained was coded into the observation sheets and analyzed using frequency counts, percentages and ratios. The findings of the study showed that the percentage of teacher talk (79%), student talk (17%), and silence or confusion (4%) which differ from the percentages recommended by Flander's. Also, the results reveal that the teachers were indirect in their teaching and prefer the use of negative reinforcements over positive reinforcements. Recommendations were made that teachers should be trained on how to do a self-assessment of their own classroom interactions and improve on their verbal interactions with their students.

Keywords: Classroom Interaction, Observational Technique

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I. Introduction

The quality of education in any country cannot rise above the quality of its teachers and their classroom practices. To a large extent, it is what the teachers expose or introduce to their students that enable the students to build upon and gain more knowledge and become more successful and to develop their quota to the society. The need for regular observation of what is going on in the classrooms cannot therefore be over emphasized. Observational technique is one of methods of assessing a personality or behavior characteristics as the observer intentionally watches some individuals in-order to gather direct information about the persons' behavior in a more objective way especially when the observer is using a structured questionnaire (Mkpae, 2014). Observation therefore provides an opportunity to gather live data from real life or natural setting (Asuru, 2015). Classroom observation has some advantages both to the teacher being observed and the person doing the observation. To the teachers that are being observed, the results from the observation can be first-hand information about their classroom practices that may not be revealed by other methods of assessment hence give them the opportunity to make reflections and changes or adaptations where necessary (Zaare, 2013). The persons doing the observation can also learn from the findings of their study as they see others teach and interact with their students in class. In an observational study carried out by Pre-intermediate level teachers in the classrooms of some teacher leaders in Iranian institutes, the teachers that did the observation learned much about how to teach by observing their qualified peers and the experiences helped them improve their self-awareness and become more reflective teachers (Zaare, 2013).

Observation can be obtrusive where the persons being observed are aware that they are being observed or in-obtrusive where the observer is not aware that he is being observed. There are different tools used that can be used for observation. These include: checklist, anecdotal records and interaction analysis systems like Flander's Interaction Analysis category system (FIACs) and Communicative Orientation of Language Teaching (COLT) developed by Nina Spada, Maria Fröhlich and Patrick Allen in 1984.

Flander's Interaction Analysis Category system (FIACs)

Interaction analysis is a process of encoding and decoding the pattern of teaching and learning. In the coding process, categories of classifying statements are established, a code symbol is assigned to each category and a trained observer records by jotting down code symbols. In the decoding step, a trained analyst interprets the display of coded data even though he may not have been present when the data were collected.

Flanders Interaction Analysis is a system of classroom interaction analysis which is concerned with verbal behavior only, primarily because it can be observed with higher reliability than can non-verbal behavior and more also, the assumption made that the verbal behavior of an individual is an adequate sample of his total behavior.

Statement of the Problem: The governments of Rivers State see the need to improve the classroom practices of their teachers and spend resources to train their teachers by organizing workshops for them. However, a cursory look into what happens in the classrooms do not show much evidence of the compulsory trainings the teachers were made to pass through. This prompted this researcher to do a systematic observation of the classroom practices of some teachers, specifically, Basic science teachers in Junior secondary schools in Obio/Akpor LGA.

Aim and Objectives: The aim of the study was to assess the patterns of classroom interaction in Junior secondary school classrooms using Flander's interaction analysis category system. In specific terms, the study was designed to:

1. Investigate the pattern of classroom interactions in Basic Science classrooms in Junior secondary schools in Obio/Akpor LGA of Rivers State.
2. Asses the ratio of indirect to direct patterns of teacher talk in the course of teaching by Basic Science teachers in Junior Secondary Schools in Obio/Akpor Local Government Area.
3. Assess the ratio of positive reinforcement to negative reinforcement practiced by classroom teachers in Obio/Akpor LGA.
4. Determine the ratio of pupil talk response to pupil talk initiation.

Research Questions: The following questions guided the study:

1. What is the pattern of teacher: student interaction in Junior secondary school Basic Science classrooms in Obio/Akpor LGA?
2. What is the ratio of indirect to direct patterns of teacher talk in the course of teaching by Basic Science teachers in Junior Secondary Schools in Obio/Akpor Local Government Area?
3. What is the ratio of positive reinforcement to negative reinforcement practiced by Basic Science teachers in Junior Secondary Schools in Obio/Akpor LGA.?
4. What is the ratio of pupil talk response to pupil talk initiation?

II. Methodology

Research Design: This study adopted an ethnographic research design using the non-participant observational type in which the researcher observed the interactions in normal classroom settings. Ethnographic research design in education is one involves observing teaching and learning methods and how these affect classroom behaviors, paying attention to pedagogy and its effects on learning outcomes and overall engagements by stakeholders within the classroom environment.

Population of the Study: The population of the study comprised all Junior Secondary School students in Obio/Akpor Local Government Area of Rivers State.

Sample and Sampling Technique: Simple random sampling technique was used to select three classes from three schools with 150 students per class making a total sample size of 450 students and three teachers.

Instrument for Data Collection: The instrument used for data collection is the Flanders' Interaction Analysis Category System (FIACS) put developed by Flanders (1970). The instrument is divided into ten categories of classroom observation under three major sub-sections of Teacher talk, Student Talk and Confusion or Silence. The Teacher talk sub-section a total of seven sub-sections categorized into two types of teacher talk namely indirect and direct talks. Under indirect teacher talk are three types: teacher accepts feeling of students, teacher praises or encourages students' actions or behaviors and teacher accepts and uses the ideas of pupils. Direct teacher talks are of four types which include: teacher asking questions about content or procedures with the intent that the pupils will answer; teacher lecturing, dishing out facts and opinions, giving his own ideas and explanations or citing an authority. Others are teacher giving directions, commands or orders which students are expected to comply and criticizing or justifying authority.

The pupils' talk section has two types: pupil talk-response. Here, talks by pupils in response to teacher initiated statements like answers to questions are categorized. The other is pupils-talk – initiation wheretalks by pupils that are done of their own initiations likeexpressing own ideas; initiating a new topic; freedom to develop opinions and a line of thought, asking thoughtful questions; going beyond the existing structure are coded.The tenth and the last category is thesilence or confusion. Here,pauses, short periods of silence and periods of confusion in which communication cannot be understood by the observer are coded

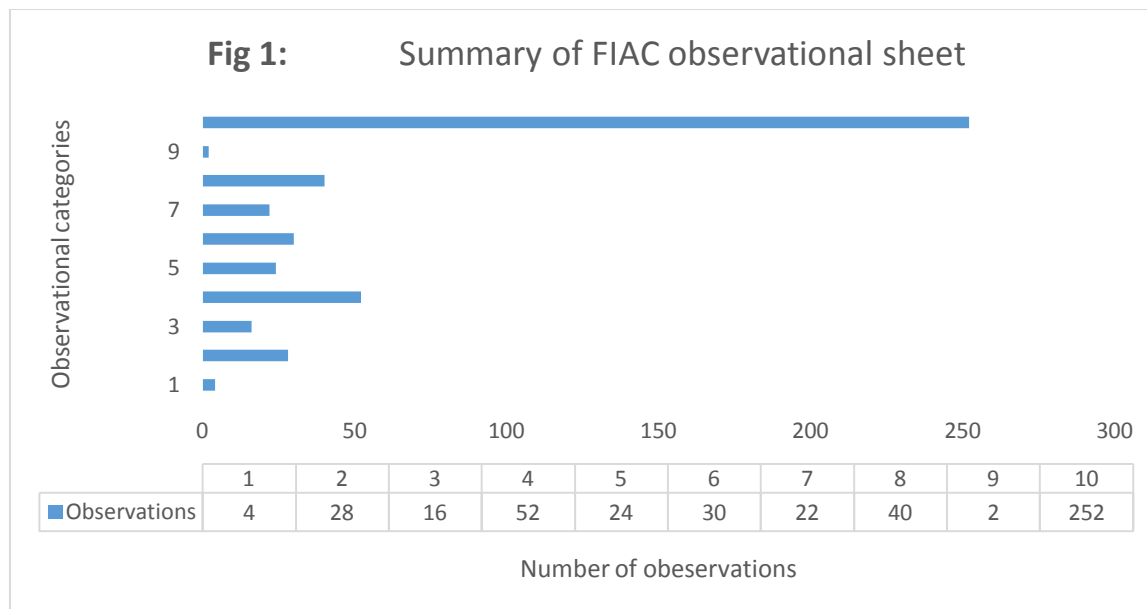
Validation of the Instrument: The instrument was developed by Flanders (1970) and used extensively by researchers for classroom observation because of its content validity.

Reliability of the Instrument: The reliability was established using the inter-rater reliability method. The reliability of the instrument was established for the local sample by using it on six teaching practice students. Each student was observed by two separate observers using the same instrument and the inter-observer reliability coefficient was computed using the Scotts–pii coefficient (Wragg, 1999) and a coefficient of 0.71 was obtained.

Method of Data collection: Data was collected from three different Junior Secondary Schools. Two different teachers teaching Basic Science were chosen for observation in each of the schools making a total of six teachers that were observed. Each teacher was observed for twenty minutes per period. For every 5 seconds, the observers write down the category number of the interaction that occurred during the lesson period periods. All the classroom activities that took place within the period of observation was captured as much as possible though some times were omitted due to long periods of note copying on the BB by the teachers.

Method of Data Analysis: The categories were put in a 10 by 10 matrix and analyzed using simple frequency counts of occurrence of each category of classroom verbal interaction and comparison made using simple percentages and simple ratios of occurrence.

Results of Findings: The chart below shows a summary of the observational matrix from the data collected fromthe field using the Flander's Interaction Analysis Category System.



Research Question 1:

What is the ratio of teacher talk to student talk to confusion in the Basic Science classroom at the Junior secondary school?

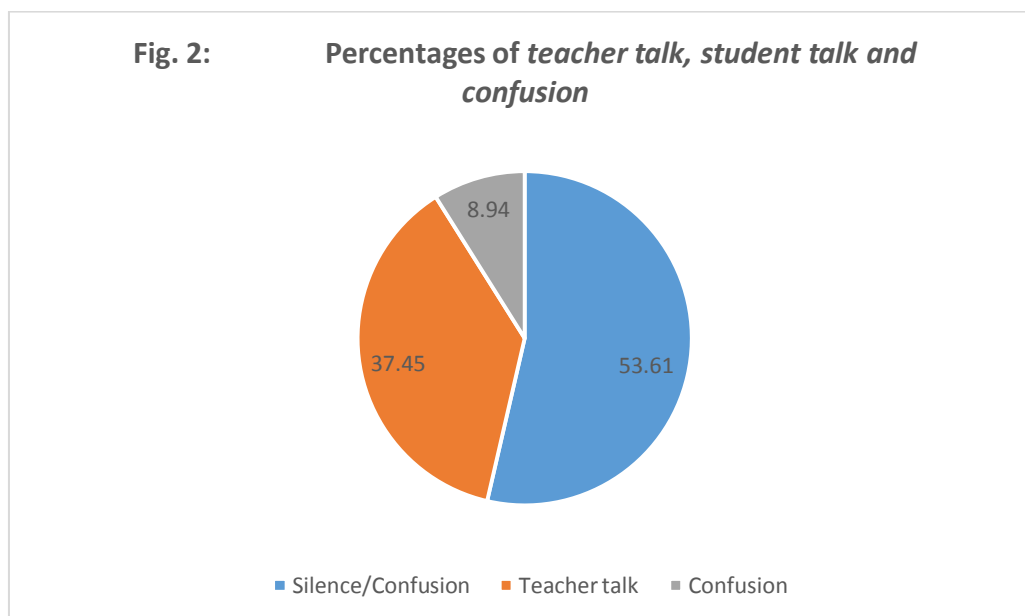
To answer research question one, the percentage of teacher talk, pupil talk and silence or confusion was explored. The proportion of tallies in columns 1,2,3,4,5,6, and 7, columns 8,9, and column 10 to the total tallies indicates how much the teacher talks, the students talks and the time spent in silence or confusion as shown below:

$$\begin{aligned}
 \text{Percentage Teacher Talk} &= \left\{ \frac{\text{sum of categories 1 thru 7}}{\text{total sum}} \right\} \times 100 \\
 &= \left\{ \frac{4 + 28 + 16 + 52 + 24 + 30 + 22}{4 + 28 + 16 + 52 + 24 + 30 + 22 + 40 + 2 + 252} \right\} \times 100 \\
 &= \left\{ \frac{176}{470} \right\} \times 100 \\
 &= 0.374468 \times 100 \\
 &= \mathbf{37.45\%}
 \end{aligned}$$

$$\begin{aligned}
 \text{Percentage Student Talk} &= \left\{ \frac{\text{sum of categories 8 \& 9}}{\text{total sum}} \right\} \times 100 \\
 &= \left\{ \frac{40 + 2}{4 + 28 + 16 + 52 + 24 + 30 + 22 + 40 + 2 + 252} \right\} \times 100 \\
 &= \left\{ \frac{42}{470} \right\} \times 100 \\
 &= 0.089362 \times 100 \\
 &= \mathbf{8.94\%}
 \end{aligned}$$

$$\begin{aligned}
 \text{Percentage Silence or Confusion} &= \left\{ \frac{\text{sum of category 10}}{\text{total sum}} \right\} \times 100 \\
 &= \left\{ \frac{252}{4 + 28 + 16 + 52 + 24 + 30 + 22 + 40 + 2 + 252} \right\} \times 100 \\
 &= \left\{ \frac{252}{470} \right\} \times 100 \\
 &= 0.53617 \times 100 \\
 &= \mathbf{53.61\%}
 \end{aligned}$$

This gives a ratio of Teacher talk, Student talk and Confusion as **37.45:8.94:53.61**



The result from the analysis above shows that the percentage of teacher talk is 37.45%, student talk is 8.94% and silence or confusion is 53.6%. It can be seen from the results that the teachers spend half of the teaching and learning period to copy out their notes on the board and make students to settle down and copy the notes into their note books. After a while, the teachers start explaining the notes as they are written on the board, asks some questions based on what has been explained and elicit students' response to their question to find out if their explanations have been understood and that ends the lesson or the period of teaching and learning in each class. This means that the traditional method of teaching and learning which is the lecture method of talk and chalk method still predominates in our science classes instead of engage the students in meaningful hands-on and mind-on learning activities.

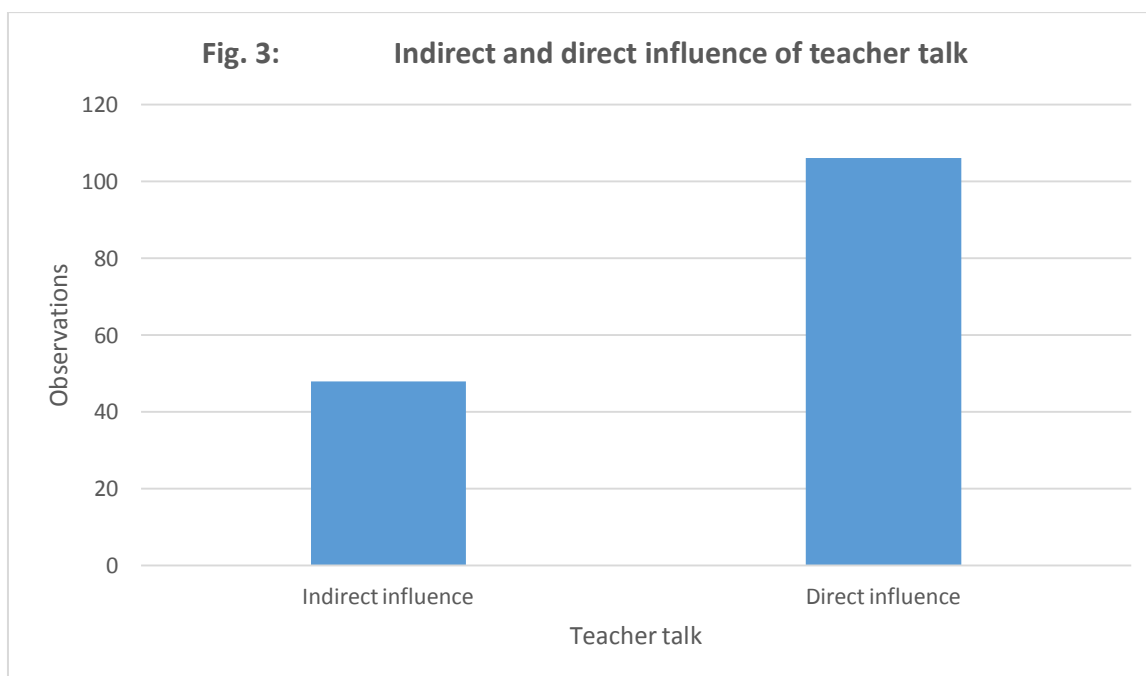
This result differs from the American norm as given by Flander (1970), which was gotten after several years of observing, an average of 68 percent teacher talks; 20 percent of pupil talk and 11 or 12 percent silence of confusion. Flanders report shows very little period spent on confusion. Which means that there was active verbal engagement between the teachers and their students. However, difference in location, time of study and population of students in a classroom are likely reasons to the difference in the result. Most public school

classroom settings with over 100 students in each class is not an ideal setting for meaningful interactions between teachers and their students. The very large class sizes do not make room for teachers to give opportunity to most students to talk or participate in the class (instead the teacher randomly picks students to talk/answer questions). Also the period allocated for each lesson (40 minutes for each class period) seem to be too short hence making the teachers to give notes to cover up with what they are supposed to teach per week.

Research Question 2: What is the ratio between indirect to direct influence of teacher talk?

This ratio shows whether a teacher is more direct or indirect in his teaching. It can be deduced from the ratio of the sum of column 1,2,3 to the sums of 4,5,6,7.

that is; Ratio of Indirect and Direct Influence
 = Sum of categories 1 thru 3 : Sum of categories 4 thru 7
 = {4 + 28 + 16} : {52 + 24 + 30}
 = {48} : {106}



The result shows that the ratio of indirect and direct influence is 48:106; which means the teachers are not indirect in their behavior or teaching at all. Rather, the teachers do more of lecturing, giving students directives asking direct questions and criticizing or justifying authority in the class instead of accepting students' feelings in a non-threatening manner, praising the students that answer questions correctly, and using the students' ideas or developing the students' ideas, whereby giving students more sense of freedom and belonging in the class. Blazar & Kraft (2017) posited that teachers' classroom behavior has a lot to do with not just students' academic achievement but their behavior beyond the classroom setting. Teachers who act friendly with their students in the class, give room for the students to learn positive attitudes to life which enable them to grow up to achieve their objectives in life.

Research Question 3:

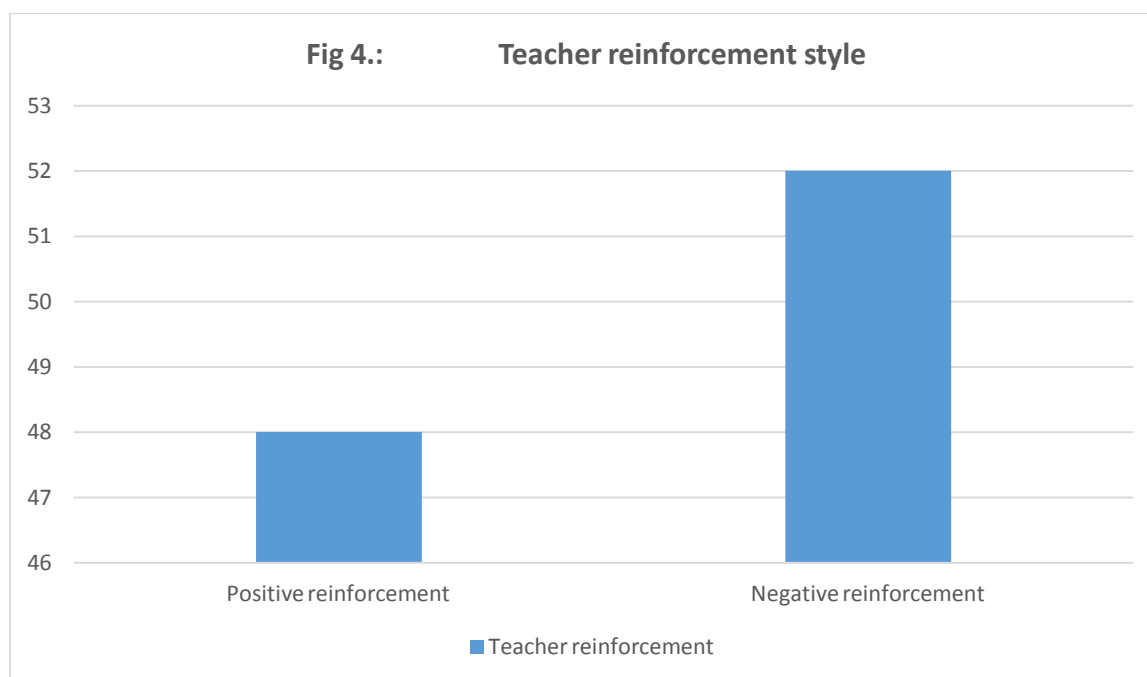
What is the ratio between positive reinforcement and negative reinforcement?

This is the ratio of column 1, 2 and 3 to the sum of columns 6 and 7. If the ratio is more than 1 then the teacher is said to be good.

that is; Ratio of positive and negative reinforcement
 = Sum of categories 1 thru 3 : Sum of categories 6 and 7
 = {4 + 28 + 16} : {30 + 22}
 = {48} : {52}

The ratio of positive to negative reinforcement is 48:52. This means that the teachers use more of negative reinforcement than positive. This goes to buttress the implication from the former ratios that teachers do not create much of good relationship or positive verbal interactions with their students in class. Rather, the teachers in the public schools employ the quickest and severest means to ensure class control because of the problems

associated with managing large class size with more than 100 students. They resort to using severe punishments and harsh languages to scare and condition students to be of good conduct during class; as the teacher has only 40 minutes to teach and control the large number of students. This has its own implication as the students gradually grow to view using harsh languages as normal.



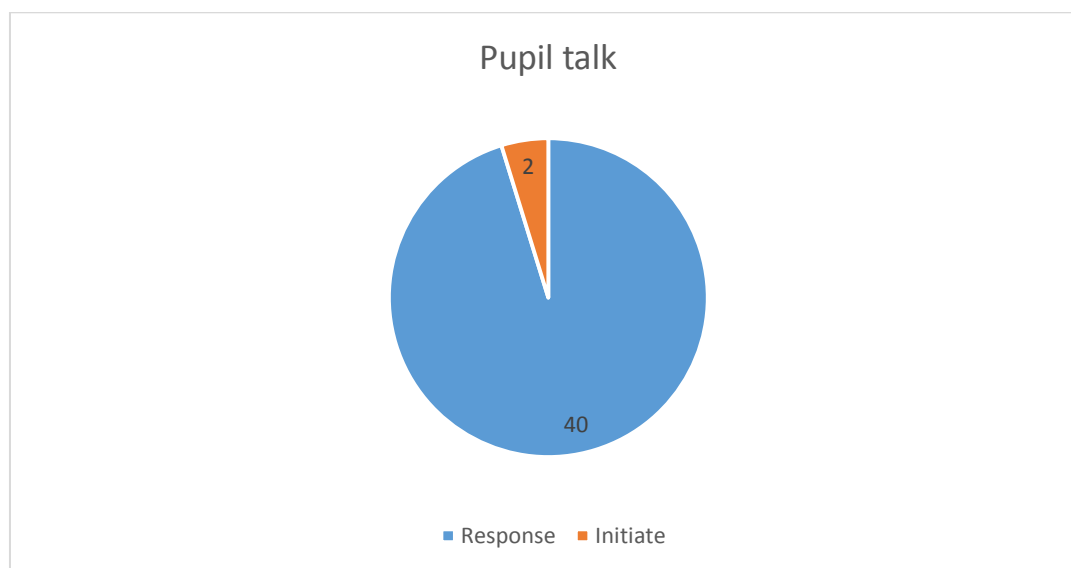
Research Question 4: What is the ratio of pupil talk response to pupil talk initiation?

This is the ratio of column 8 to column 9.

that is; Ratio of responsive pupil talk to initiated pupil talk

= Sum of category 8 : Sum of category 9

= {40} : {2}



It can be seen that the ratio of pupils' talk in response to teachers' question to pupils' talk out of their own initiation is 40: 2.

III. Conclusion:

The result shows that in the teachers spend about half of lesson periods which are meant for teaching and learning activities on copying notes on the BB. As they occupy themselves in copying the notes, the class becomes noisy by students who are also trying to either copy the notes into their notebooks or doing one thing or the other which are not necessarily part of the lesson. The teachers then go between copying notes and calming down the students. After copying the notes, the teachers start explaining what the notes on the board, during which period, they dominate the talk in the class by their explanations and ask questions at the end of the lesson, expecting to answer their questions to find out if the students have understood the explanations. Also, the results reveal that the teachers use more of direct methods of teaching by exercising authority in the class most of the time. Even when students give correct answers, the teachers rarely praise the students or make use of the students' explanations to further make the lesson more understood. Rather, they prefer the use of negative reinforcement over positive reinforcement. Thus, it can be inferred that teachers are yet to move from the traditional approach of teaching where the teacher does all the talking to a learner centered approach where learners are involved and made to fully participate in most part of the learning.

This may be part of the reason why most students in public schools like to form gangs among themselves to fight because their teachers are also harsh to them so they see harshness as a way of life. More so, they feel freer to talk only when teachers are not in the class. Once their teachers enter class, the classrooms become tense instead of being friendly.

Recommendation: Based on the findings of the study, the following recommendations were made:

1. Government should provide an ideal class environment (at least one teacher to 50 students) to improve teaching and learning in public schools with large population.
2. Teachers should be trained on Flander's Interaction Analysis to help them assess and improve on their verbal interactions within the classroom.
3. Teachers should be trained regularly especially on the use of positive reinforcement in managing students' classroom behaviors.
4. Teachers should be trained to understand that their students learn their behaviors in class. Therefore, they should learn to provide friendly environments in their classrooms by praising those who answer questions in class and encourage those who do not do well to pick up instead of being harsh to the students.

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