

## Relative Effectiveness of Classroom Interaction Techniques on Senior Secondary Students' Silence and Confusion in Government Classrooms in Port Harcourt Metropolis

F.A. Onwioduokit  
Oranu Philomena Chika

*Department of Curriculum Studies and Educational Technology  
University of Port Harcourt, Nigeria*

---

**Abstract** *This study sought to identify the relative effectiveness of classroom interaction techniques on senior secondary students' silence and confusion in Government classroom in Port Harcourt Local Government, Rivers State, Nigeria. Two research questions guided the study; two hypotheses were tested and analyzed using chi square statistics. The population is made up of 580 students and six teachers. Students in SS1 and SS11 in three public schools constituted the sample. Four classrooms were used; two SS1 classes and two SS11 classes respectively. Three teachers taught SS1 classes and three teachers taught SS11 classes using a techniques( Flanders, IRE, and Teaching Cycles). Twelve lessons were recorded on a cassette, transcribed and coded. Flanders category was the observational instrument. Test- retest method was used to establish the reliability of the instrument at 0.87 co- efficient. The result showed that students' silence and confusion is not contingent on class level. Silence and confusion are part of the continuum in every classroom. Re-conceptualizing silence and confusion in the classrooms could go a long way in enhancing student participation and engagement.*

**Keywords:** *Flanders, interaction, silence, confusion, techniques.*

---

### Introduction

### Background to the Study

The three techniques investigated in this study are Flanders Interaction Analysis Categories (FIAC) , Teacher Initiation, Students Response, Teacher Evaluation (IRE) and Teaching Cycles (T.C). Flanders Interaction Analysis Categories measures teachers' directedness or indirectedness and gives room for students' participation, Anorue (2004), Adegoke & Emeke (2008). Silence or confusion is the only non verbal category. IRE means Teacher Initiation, Students Response, and Teacher Evaluation. Nassaji & Wells (2004) called it triadic dialogue or IRF. IRF means Teacher Initiation, Students Response and Follow up. They believe that this triadic dialogue offers the teacher opportunity of the primary knower, manager, and sequence initiator. Teaching cycles are those pedagogical moves which occur in certain cyclical patterns or combinations. It has four basic components; the structuring, soliciting, responding and reacting moves.

Silence and confusion as the tenth component of Flanders technique is an integral part of classroom interaction. Schultz (2010), Bishop (2000) conceptualized silence as part of the continuum. Confusion according to Drummond (2010) is the stimulus for intellectual development in a child. When a child belongs to a closed community where people look and act the same, the child may not experience confusion because, correspondingly he is never introduced to the stimuli required to develop into a responsible adult. He opined that the most valuable learning in a child occurs when he experiences diversity in the classroom through to teacher or student who presents traits and characteristics that he has not previously been exposed. The child realizes that people who are different deserves to be treated with the same level of respect and dignity as other human beings irrespective of their differences.

Silence according to Schultz (2010) "has different functions which are not easy to diagnose, ranging from reticence to reflection." She suggested that teachers should therefore inquire into the meaning of silence and attempt to understand what it indicates about students' response to ongoing classroom interaction. She argued that silence is a key component of the way we interact. Petress (2001) has pointed out the many meanings of silence like self discovery more than personal ambition or social control, it

acknowledges audience freedom of choice and freedom of assent, it is reflexive helping in self scrutiny of ones own evidence, reasoning and motives; it is bilateral because it encourages mutuality of personal and intellectual risks openness to the possibility of self change and scrutiny by others. Leaner (2002) in his different view argued that silence is an interactional achievement that involves producing, dividing and relating to social spaces such that participants are more or less privileged to talk or silenced. Therefore he saw silence as a means of social control.

### Statement of the Problem

Over the years, classroom interactions have been extensively studied; examples include: the ethics of students' classroom silence by Petress (2001), listening to sounds of silence by Schulz (2010), breaking the culture of silence by Faiq (2010). The essence of these studies is to find out if the best interaction pattern can be produced, so as to help students develop critical and analytical minds. Silence and confusion are integral components of classroom interaction. Schulz (2010) has observed that teachers dominate the classroom, this therefore suggests that there are many occasions of silence and confusion in the classroom. The study therefore is to see how the three classroom interaction techniques (Flanders Interaction Analysis Categories (FIAC), Teacher Initiation, Students Response, Teacher Evaluation( IRE) and Teaching Cycles (T.C) can effectively reduce the level of silence and confusion in the classroom.

### Objectives of the Study

1. To determine the relative effectiveness of classroom interaction techniques on students' silence in Government classroom with respect to Flanders Interaction Analysis Categories (FIAC), Teacher Initiation, Students Response, Teacher Evaluation( IRE) and Teaching Cycles (T.C).
2. To assess SS1 and SS11 students' confusion in Government classrooms using classroom interaction techniques namely; Flanders Interaction Analysis Categories (FIAC), Teacher Initiation, Students Response, Teacher Evaluation (IRE) and Teaching Cycles (T.C).

### Research Questions

1. How do the different classroom interaction techniques; Flanders Interaction Analysis Categories (FIAC), Teacher Initiation, Students Response, Teacher Evaluation (IRE) and Teaching Cycles (T.C). affect students' silence.
2. How do the different classroom interaction techniques; Flanders Interaction Analysis Categories (FIAC), Teacher Initiation, Students Response, Teacher Evaluation (IRE) and Teaching Cycles (T.C). affect students' confusion.

### Hypotheses

1. Students' silence in SS1 and SS11 is not contingent upon classroom interaction techniques, namely; Flanders Interaction Analysis Categories,(FIAC) Teacher Initiation, Students Response, Teacher Evaluation (IRE) and Teaching Cycles (T.C).
2. Students' confusion in the classroom is not contingent upon classroom interaction techniques namely; Flanders Interaction Analysis Categories (FIAC), Teacher Initiation, Students Response, Teacher Evaluation (IRE) and Teaching Cycles (T.C).

### **Significance of the Study**

The application of the findings of this study will help classroom teacher weigh classroom behaviours objectively; and expose teachers and students to a more objective mode of interaction in the classroom

### **Delimitation of Study**

Twelve secondary schools in Port Harcourt Local Government, Rivers State, Nigeria are covered in this study.

### **Research Design**

This study is an experimental research. The present study was designed to collect data on interactions in Government classroom and use the data to observe the nature of the classroom. In this experimental study, the teachers and student in three (3) public schools in Port Harcourt Local Government were used and taught the rudiments of a classroom interaction technique. One School was taught the rudiments of Flanders Interaction Analysis Categories (FIAC); the other was taught the Teacher Initiation, Students Response, and Teacher Evaluation (IRE) while the third school was taught Teaching Cycles (T.C).

### **Area of Study**

This was conducted Port Harcourt Local Government in Rivers State of Nigeria. It included three (3) public senior secondary schools.

### **Population**

All SS1 and SSII Government students and teachers in senior secondary schools Port Harcourt Local Government in Rivers State constituted the population of this study.

### **Sample and Sampling Techniques**

The sample of the study consisted of six (6) teachers and 580 students of Government studies in three randomly selected SS1 and SSII Secondary Schools. Three teachers taught SS1 and three teachers taught SS11 using a technique. Two hundred and forty one (241) students participated in SS1 while three hundred and thirty nine (339) students participated in SS11. Six classrooms were involved in the study, two in SS1 and two in SS11. Three public schools were randomly selected, six (6) teachers were used the study, a teacher was used for Flanders Interaction Analysis Categories (FIAC) a teacher was used for (IRE), and a teacher was used for Teaching Cycles (T.C) in SS1 and SS11 respectively, the teachers were experienced. The teachers taught each class two times. Twelve lessons were recorded.

### **Instrument for Data Collection**

The instrument used in collecting the data was the Flanders interaction analysis categories (FIAC). It was used to code and analyze the interaction pattern during Government lessons in the selected schools. The Flanders interaction analysis categories were carefully designed specifically for coding teacher and student behaviours and are very useful in studying classroom events. The present researcher has decided to use Government for the study. An interaction system is an observational instrument which takes place in the classroom. The Flanders Interaction Analysis Category (FIAC) records what students and teachers say

during classroom interaction, the emphasis being on what the teacher says. The categories in Flanders system are two, teacher verbal response and student verbal response. Any verbal communication event by the teacher or pupils can be classified into one of the first nine categories. There is only one non verbal category, which is silence or confusion which is under study. Each observation is done at the end of a 3 – second period and there is room for modification, the present researcher is using a five second period. The researcher went to the three schools four times. Three formative tests were administered to monitor whether teacher adjustment had impact on student learning progress and to provide ongoing feedback to the researcher on pupils and teachers. The students were given summative – test at the end of the second month, the grades of the summative test showed that there was mastery of the instructional objectives by the students and the teacher the new instructional strategy was therefore effective.

### **Validation of Instrument**

Copies of the modified Flanders Interaction Analysis Categories system (FIACS) were given to experts in the Faculty of Education for validation.

### **Reliability**

The researcher used test retest method to establish the reliability of the instrument. The modified Flanders Interaction Analysis Categories system was used among two teachers who did not take part in the substantive study. After two weeks the experiment was repeated in the same classrooms and the reliability co-efficient of 0.87 was obtained, showing that the instrument is reliable.

### **Procedure for Data Collection**

Data for the study were collected during classroom lessons. Before the observation, the researcher made visitations to the selected schools, established rapport with the Government teachers. A tape recorder was used to record all the class events. . The researcher concluded by observing each of the teachers three times and had a number of twelve (12) lessons on the whole. The twelve (12) lessons were afterwards transcribed and coded at every five seconds

### **Method of Data Analysis**

The data collected in this study were analyzed as follows: the research questions were analyzed using Pie and Column charts expressed in relative gain and gain percentages. The hypotheses were tested using chi square.

### **Data Analysis**

The data were expressed and analyzed using Pie and Column charts expressed in relative gain and gain percentages and chi square.

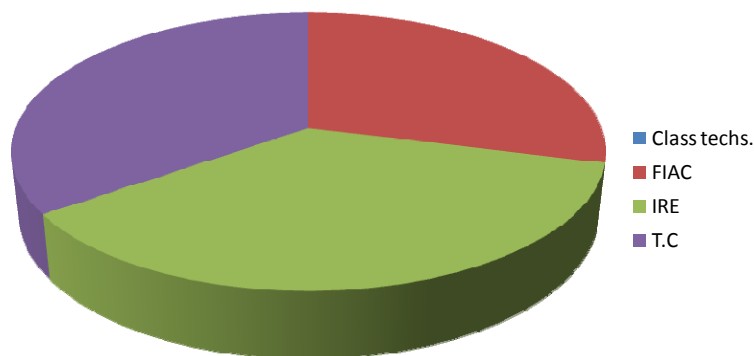
**Research Question** How do the different classroom interaction technique affect students' silence, namely; Flanders Interaction analysis Categories(FIAC), Teacher Initiation, Students Response, Teacher Evaluation (IRE) and Teaching Cycles (T.C)?

## Relative Percentage Gain of Silence in SS1 Classroom Interaction



From the study, the relative gain percentage of silence in SS1 is Flanders 3, IRE 4 and Teaching Cycles 6 respectively.

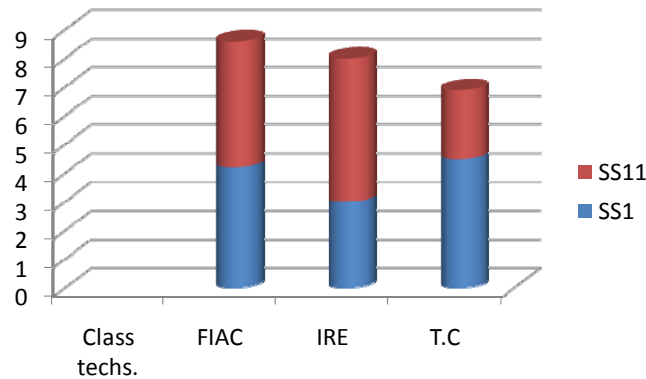
## Relative Gain Percentage of Silence in SS11 Classroom Interaction



From the relative gain percent of silence in SS11 are Flanders 3, IRE 5, and Teaching Cycles 4 respectively.

**Research Question 2** How does the different classroom interaction technique subject students to confusion, namely; Flanders Interaction Analysis Categories (FIAC), Teacher Initiation, Students Response, Teacher Evaluation (IRE) and Teaching Cycles(T.C)?

## Relative Percentage of Confusion in SS1& SS11 Classrooms' Interaction



From the study, the relative percentages of confusion in SS1 are Flanders 2, IRE 8, Teaching Cycles 3 while that of SS11 are Flanders 4, IRE 7 and Teaching Cycles 3 respectively

**Hypothesis 1.** Students' silence in SS1 and SS11 is not contingent upon classroom interaction techniques, namely; Flanders Interaction analysis Categories (FIAC), Teacher Initiation, Students Response, Teacher Evaluation (IRE) and Teaching Cycles(T.C)?

**Table 1.1: 3X2 Contingency Table showing Students' silence in lesson and Classroom Interaction Techniques**

Class level	Classroom Interaction Techniques				X <sup>2</sup> Calculated
	FIAC	IRE	T.C	Total	
SSI	Fo3 Fe(3.12)	4 (4.68)	6 (5.2)	13	0.47
SSII	Fo3 Fe(2.88)	5 (4.32)	10 (4.8)	12	
	6	9	10	25	

As shown in Table 1.1, the calculated value of  $\chi^2$  is less than the critical value (5.99) at the degree of freedom of 2. It is therefore concluded that students silence in lesson is not contingent upon the classroom interaction techniques used.

**Hypothesis 2.** Students' confusion in SS1 and SS11 is not contingent upon classroom interaction techniques, namely; Flanders Interaction analysis Categories, Teacher Initiation, Students Response, Teacher Evaluation (IRE) and Teaching Cycles?

**Table 1.2:3X2 Contingency Table showing Students' confusion in lesson and Classroom Interaction Techniques**

Class level	Classroom Interaction Techniques				X <sup>2</sup> Calculated
	FIAC	IRE	T.C	Total	
SSI	Fo 2 Fe(2.88)	8 (7.22)	3 (2.88)	13	0.67
SSII	Fo 4 Fe(3.11)	7 (7.77)	3 (3.11)	14	
	6	15	6	27	

Since the calculated value of  $x^2$  is less than the critical value (Table 1.2) the hypothesis 2 stating that confusion in classroom lesson are not contingent upon classroom interaction techniques is retained.

## Discussion

Temporary pause, a short time of quiet or confusion so that the observer could not understand the communication between the teacher and the students was recorded. The result obtained after data analysis has shown that the level at which students remain silent and confused in Government classroom is not contingent on classroom interaction techniques. The level at which students remain silent and confused in SS1 and SS11 as shown in Tables 1.1 and 1.2 is not different. Jing & Xiaoyan (2010) recorded that the percentage of silence and confusion is 1.0% which corresponds with the findings of this study in Tables 1.1 and 1.2. This goes to buttress the fact that most teachers dominate the classroom as confirmed by the research reports of Atakin & Brown (2001), Gross (1993) and Anorue (2004) Schulz (2010). It also buttressed the research report of Cofferrhue (2009) who believe that the teacher develops his expertise, cognitive modifiability and social adaptability levels. This implies that teachers should encourage participation in the classroom because teacher's enhanced design and expertise remain the best in every unique classroom. Schultz (2010) on the other hand argued that silence is part of the continuum; and understanding the role of silence for the individual and the class as a whole is a complex process that may require new ways of conceptualizing listening. She further emphasized that teachers should rethink silence by careful listening and enquiry. This in essence shifts a teacher's understanding of students' participation. She therefore concluded teachers should redefine participation in classroom to include silence. Meanwhile, Drummond (2010) opined that confusion is a stimulus for intellectual development in a child. When a child accepts the variance that exists within a population, he becomes richer, fuller and broad thinking person.

## Recommendations

Teacher should redefine participation to include silence Suchultz (2010). Teacher should also occasionally expose students to confusion, this is necessary for the development of the total child.

## References

- Adegoke, B. A & Emeke, E.A. (2008) Measuring Social Forces in the Classroom by Flanders techniques. Boucavalas, A & Aderinnooye, R ( Eds) In essay in honor of Prof Omelewa. M. Ibadan: Spectrum Book Limited.
- Anorue, C. (2004) Patterns of Teacher Student Interaction in Social Studies in Imo State Secondary School. A ph. D Disertation, University of Por Harcourt.

- Atkins, A & Brown H. (2001) Sinclair & Couthard's "IRF" model in one – to – One classroom: an analysis. <http://www.jstor.org/pss/1170088>.
- Bishop, P (2000) Classroom Interaction. The Learning Resource Bank. Valencia CommunityCollege. [http://www.headacademy.ac.uk/resources/detail/SNAS/sns\\_233](http://www.headacademy.ac.uk/resources/detail/SNAS/sns_233)
- Drummond, M. (2010) What is Wrong with Confusion in the Classroom. <http://www.bilerico.com/>
- Faiq, M. (2010) Breaking the Culture of Silence in Class. <http://www.google.com/search>
- Jing, C.T. & Xiaoyan, Z.J. W (2010) "Flanders Interaction Analysis System" in the classroom Teaching. B138cn @163.com.
- Leaner, K. (2002) Silencing in Classroom Interaction: Producing and Relating Social Spaces. Department of Teaching and Learning, Vanderbilt University Discourse Processes, 34(2) 193 – 235
- Nassaji, H & Wells, G (2004) Establishing a Comfortable Atmosphere in the Developmental Classroom Research and Teaching, Boucavalas, A, & Aderinnoye, R (Eds) In essay in honon of Prof Omolewa. M. Ibadan: Spectrum Book Limited
- Petress, K (2001) The Ethics of Students Classroom Silence, Journal of Instructional Psychology, <http://www.bnet.com/>
- Schlutz, K. After the Blackbird Whistles: Listening to Silence in Classroom. Teachers College record, Volume 112, Number 11, <http://www.tcrecord.org> ID Number 15795.
- Schlutz, K (2010) Listening to Sounds of Silence in the Classroom. <http://store.tpress.com/0807750174s.html>.