Students' and Teachers' Perceptions of Psychosocial Classroom Environment of Secondary School Biology

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Abstract
The purpose of this paper was to determine if there would be any difference in perceptions of psychosocial classroom environment between biology students (grade 12) and their teachers. Individualized Classroom Environment Questionnaire (Actual) was administered on the students (n = 400) and their teachers (n = 50). Analysis of data through t-test for independent samples indicated that the teachers and their students did not differ in their perceptions. Similarly, neither the male nor the female students differed with their teachers in their perceptions. Implications of the result were discussed.
Keywords: Psychosocial Environment, Biology, Classrooms, Perceptions.

1. **Introduction**

In this era of utilizing biotechnology for national development, there should be serious concern about what goes on in biology classrooms and laboratories. In Nigeria, the much touted Vision 20 – 2020, according to the Presidency (2008), is a perspective, an economic business plan intended to make Nigeria a fully developed economy by the year 2020. This Vision stipulates that Nigeria will be one of the twenty strongest economy in the world come the year 2020. Biology is pivotal in the development of technology that can help Nigeria and other developing countries achieve this type of feat. Yet there is evidence that secondary school students do not perform well in the science subjects (Jegede, Okebukola & Ajewole, 1992; West African Examinations Council, 2010; Igwebuike & Ajuar, 2013).

Perception of psychosocial classroom environment has been factored in students' achievement equation by Walberg (1970) in his exposition that learning outcomes are a function of curriculum, the characteristics of the student and the psychosocial environment for learning. Strong positive association has been established between students' perceptions of their psychosocial environment and their learning outcomes (Igwebuike, 2000; den Brok, Brekelmans & Wubbels, 2004; Okonkwo, 2010). The revelations from these and similar studies created the impetus among scholars to investigate further, students' perceptions of their psychosocial classroom environment and how the information obtained can be utilized in improving psychosocial relations in the classroom.

Some studies have been embarked in this direction by investigating differentials in students' perception of their actual and preferred environment (Fisher & Fraser, 1983; Holstein & Lazarowitz, 1986; Wubbels, Brekelmans & Hooymayers, 1991; Yesilyurt, 2006; Otorho, 2012).   These studies reported that students preferred a more positive classroom environment than was actually present. The studies also provide evidence to show that teachers perceived a more positive classroom environment than did their students in the same classrooms. But Igwebuike and Ajuar (2013), in a similar study but among Grade 12 chemistry students in a Nigerian setting, found that there was no difference between perception of the actual environment by teachers and that for preferred environment by the students. In other words, chemistry teachers provided the preferred environment by the students. By implication, the issue is not resolved. In addition, there is the need to investigate if there will be any dichotomy in perception of the actual psychosocial classroom environment for biology between senior biology (grade 12) students and their teachers. This aptly describes the problem of this study.

1.2 **Statement of the Problem**

This study therefore sought to find answer to this question: 'Is difference between biology teachers' and their students' perceptions of psychosocial classroom environment?'

1.3 **Hypotheses of the Study**

Three null hypotheses were posited from the general research question stated above, as follows:

Ho_1:   There is no significant difference in perception of classroom environment between secondary school biology students (grade 12) and their teachers.

Ho_2:   There is no significant difference in perception of classroom environment between secondary school biology teachers and their male students.

Ho_3:   There is no significant difference in perception of classroom environment between secondary school biology teachers and their female students.

2. Research Design and Method

2.1 *Design:* Descriptive research involving the survey model was used in this study.

2.2 *Sample:* A sample of 400 (212 boys and 188 girls) secondary school students (grade 12) and their teachers (50) was randomly constituted from 10 randomly selected secondary schools in Warri Township of Delta State, Nigeria. The students had an average age of 17.45 years with a standard deviation measure of 1.53.

2.3 *Instrumentation:* The short form of Individualized Classroom Environment Questionnaire (ICEQ) developed by Fraser and Fisher (1983) was used. It consists of 5 sub-scales of Personalization, Participation, Independence, Investigation, and Differentiation. These sub-scales are indices of adequately individualized learning environments. For instance, a sample item in Participation is: Students' ideas and suggestions are used during classroom discussion" It is made up of 25 items and is a simplified version of the original instrument which has 50 items. It is therefore considered suitable for use. It was validated using a Nigerian sample of junior secondary school students (grade 8). But with another sample similar to the sample of this study was used to compositely determine its test-retest reliability coefficient. This exercise yielded a value of 0.792 which was adjudged reasonably high for use in this study.

2.4 *Administration of the Instrument:* The instrument was administered to the students that constituted the sample personally by one of the researchers. This guaranteed 100% retrieval rate.

2.5 *Data Analysis:* Data analysis was carried out using the individual students, and not the class, as the unit of analysis. The mean perception scores were determined and t-test for independent samples observed at 0.05 level of significance.

3. Results and Discussions

3.1 *Results:* The results of the t-test for the hypotheses of this study are shown in Tables 1 – 3.

Table 1: t-test of Difference Between Perceptions by Students and Teachers

Group	N	$\bar{x}$	SD	t_{cal}	t_{tabled}
Students	400	73.57	9.14		
				0.80*	1.96
Teachers	50	74.64	6.95		

* Not Significant at the 0.05 level of significance

Table 1 indicates that the value of calculated t is 0.80 while that of the tabled value is 1.96. Since the calculated value is less than the tabled, the null hypothesis was not rejected. By implication, secondary school biology students (grade 12) do not differ from their teachers in the perception of psychosocial classroom environment.

Table 2: t-test of Difference Between Perceptions by Male Students and their Teachers

Group	N	$\bar{x}$	SD	t_{cal}	t_{tabled}
Male Students	200	73.51	9.28		
				0.79	1.96
Teachers	50	74.64	6.95		

* Not Significant at the 0.05 level of significance

Table 2 indicates that the hypothesis 2 should not be rejected. By implication, biology teachers and their male students do not differ in their perceptions of their classroom psychosocial environment.

Table 3: t-test of Difference Between Perceptions by Female Students and their Teachers

Group	**N**	$\bar{x}$	**SD**	**t_{cal}**	**t_{tabled}**
Female Students	200	74.45	9.23		
				0.12*	1.96
Teachers	50	74.64	6.95		

* Not Significant at the 0.05 level of significance

Table 3 shows that the calculated t-value is less than the tabled value. There was a strong reason therefore for not rejecting null hypothesis 3. This means that biology teachers and their female students do not differ in their perception of their perceptions of their psychosocial classroom environment.

3.2 *Summary of Findings:* A Summary of the findings of this study can be made as follows:

There was no difference in perceptions of psychosocial classroom environment between:

(i)   secondary school biology students (grade 12) and their teachers;
(ii)   male secondary school biology students (grade 12) and their teachers; and
(iii)   female secondary school biology students (grade 12) and their teachers

3.3 *Discussion:* The purpose of this study was to find out if secondary school biology students (grade 12) would differ significantly from their teachers in the perception of psychosocial classroom environment. This study has established that there was no difference between the two groups. The result obtained disagreed with the findings of studies by Fisher and Fraser (1983), Holstein and Lazarowitz (1986) Yesilyurt (2006) and Otorho (2012), that teachers perceived a more positive classroom environment than did their students in the same classrooms. The result however does not indicate whether the students' perception of the actual classroom environment differed from that of the preferred environment as to suggest whether the teachers would be assisted and encouraged to move towards the students' preferred. It has been observed by Chionh and Fraser (1998) and Hoffner-Moss and Fraser (2002) that students learn better and develop more positive attitude in their preferred psychosocial learning environment.

An implication of the finding of this study that there is no dichotomy in perceptions between secondary school biology teachers and their students is that the stage is set to determine if the students' perception of the actual environment will be different from that of their preferred environment. A study in this direction is eagerly awaited. Such study should increase the sample size and coverage to ensure stronger validity of the study than the present study.

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