

# AN ASSESSMENT OF THE PHYSICAL ENVIRONMENT OF THE SECONDARY CLASSROOM IN ONITSHA

*Ifeyinwa E. Osegbo*

## **Abstract**

A twenty-six item questionnaire was developed to measure students' perceptions of the physical environment of their classrooms in Onitsha metropolis. The questionnaire was administered on a sample of seven hundred and twenty (720) junior secondary three students in eighteen classes. These students consist of equal number of boys and girls and were used as research subjects. Simple percentages, means and standard deviations were used to ascertain (a) Students' assessment of their physical environment, (b) Whether there are differences in the perceptions of junior secondary students on the different aspects of their classroom environment. The study revealed that students' perception of their physical environment is poor. It was also discovered that students express great differences in the opinions they hold regarding the different aspects of their classroom environments.

## **Introduction**

The classroom is place where a lot of teaching/learning and other activities take place. Children from the age of five and six years spend most of their time in schools. A greater part of this time is spent inside the schools' classrooms. Getzels and Tholen (1960) presented a framework for analyzing the school classroom as a unique social system suggesting that classroom environment is a variable which can interact with as well as predict the achievement and attitude of students. Since then, a lot of interests have been shown on the classroom learning environment focusing on the psycho-social characteristics of the classroom. However, much emphasis and attention have not been given to the physio-sensory aspects of the classroom environment both at the primary and secondary levels in Nigeria.

The secondary school especially the junior section takes care of children who are still very tender and in their formative period. Children at this stage are supposed to get the best of what the country can offer. Yet when one passes through some of these schools around, one is forced to wonder at the type of teaching/learning taking place under dilapidated buildings and over crowded environment. Sometimes children are forced to study under tree shades and very noisy settings. Hence, a study of the physical environment of the secondary classrooms will not only sensitize the government and the public on the general conditions of the classroom environment in and around Onitsha, but will also help educationists to seek for ways of improving the physical conditions of the classroom environments. This invariably will help to make our secondary classrooms be at par with conditions as obtained elsewhere. It is in the light of these postulations that an assessment of the junior secondary school physio-sensory environment readily comes to mind.

## **Purpose**

The main purpose of this research is to assess the physical environment of the secondary school classroom in Onitsha. Specifically, the study will investigate differences in the perceptions of junior secondary school children focusing on the different aspects of the physical environment of their classrooms.

## **The Physical Learning Environment**

Learning Environment (McVey, 1990) consists of all those physical-sensory elements such as lighting, colour, sound, space, furniture etc that characterize the place in which a student is expected to learn. The surrounding should be designed in such a way that learning may proceed with minimum stress and maximum effectiveness.

In addition to supporting human functioning, the learning environment (McVey, 1990) must accommodate the equipment, tools, and training. The introduction of the media be it chalkboard, computer terminal, video, or film display, inevitably alters the nature of the environment.

Proper seating and desk design are important factors in determining a student's relative comfort and effectiveness as a receiver, recorder and processor of information. A variety of chair sizes are required by most schools to accommodate the children's body dimensions since improper seating may result in improper skeletal development in those children. The seat pan should be contoured and slightly padded. The backrest should also be padded.

The size of a typical classroom according to McVey (1990) should be such that it accommodates the programmed number of occupants and provides additional space for its intended activities. In fact, there should be additional space for intended media use, for the set up and use of equipment so that the viewers should be kept from being seated too close to the display surface i.e. the projection screen. For flexible classroom (open plan) McVey recommends 25 square feet per person. He suggested that the room's walls, ceiling and floor should be such that sound is reflected from the front of the room to the back.

The background noise level affects a room's acoustical acceptability. Total quiet is rarely if ever recommended since a certain amount of diffused non-informational noise is needed to mask distractions associated with sounds (McVey, 1990). He suggested that however, too much background noise is not recommended as this will interfere with the strengths and intelligibility of sound signals coming from the teacher or some audio programme source.

The classroom surfaces should produce a pattern of brightness that is aesthetically pleasing and which should be able to promote good-depth perception. Also, enough illumination is required on major or supplementary task areas such as chalkboards, desks and tackboards. This will help to ensure that children are allowed to complete their visual tasks in comfort and with a high degree of visual efficiency. All sources of illumination need to be controlled. Shades or draperies should be provided for classroom windows especially those which have outside exposure in order to eliminate or reduce glare. (Glare according to Kaufman (1981) is a luminous condition that brings about discomfort and/or a reduction in visual acuity caused by either an unduly bright source of light in the visual field or from reflectances off a specular surface).

The colour rendering qualities and appearance should be considered in lighting selection since all types of illumination reproduce colours differently. Cool white or warm white fluorescent according to McVey is recommended for general classroom lighting.

Different colours evoke different physiological awareness levels and emotional/attitudinal responses (Birren, 1969), as well as producing different psychospatial effects. This can be effectively used by the classroom teacher in the arrangement of displays and decoration of the school's study environment. The facility designer can also use it for the treatment of the school interior. Action oriented rooms like the classrooms should be decorated in pastel of the warmer colours like yellow, orange, etc while rooms planned for quiet activities in pastels of the cooler colours such as blue, green, etc. Boldly saturated colours like blues and reds should be avoided for general wall treatment, especially on surfaces which may be used as backgrounds for visual displays (McVey, 1990).

The classrooms should contain display systems which are very important components of any learning environment. These display systems can be simple television monitors, projectors, computer terminals, microfiche viewers, etc. These can be used in teaching children at different periods. Cooper, Hegarty, Hegarty and Simco (1996) expressed that teachers could be using the classroom wall space to promote the children's learning, motivation and self-esteem as well as for reasons of aesthetics and general interest.

Kreshner and Pointon (2000) noted that 'display' has potential significance for both representing and influencing learning, but calls for investigation of the way it is actually perceived by the children. That discussion on concrete aspects of the classroom like display can itself be helpful in revealing and extending the children's understanding of learning in schools.

### **Instrument Development**

A twenty-six item questionnaire was generated to measure perceptions of students on the physical environment of their classrooms. These items were rated using the yes/no response format since the category of the respondents were children between the ages of eleven and thirteen years. The language was also simplified for easy and good understanding by the respondents. Each item was scored on a three-point i.e. Yes = 3, Undecided = 2 and No = 1. The scoring direction is reversed for

items with negative polarity. The rating scale items were divided into sections according to perceived physical environment of the classroom.

A face validation of the instrument was made by two experts; one from environmental education and the other from measurement and evaluation.

**Method**

Data were collected from seven hundred and twenty (720) pupils in eighteen classes from nine schools in Onitsha metropolis. The sample consisted of junior secondary three (JS 3) students between the ages of eleven and thirteen years. This group is chosen because it is envisaged they can understand the statements in the questionnaire and hence be able to respond to the statements made accordingly. The students were supposed to respond to the statements by ticking either yes, no or undecided depending on how they perceive their classroom environments based on the statements made. The questionnaire was issued by the researcher herself and was assisted by the class teachers of the subjects. The researcher was also there to explain any statement to any student who does not fully understand. Simple frequency count of the responses were made. The responses were scored by the researcher herself. Simple percentages and means were employed in analyzing the data collected.

**Results**

This study has yielded some valuable results in terms of the findings made from the data collected. Some of the results and interpretations are presented in Table 1 focusing on the rating scales completed by the 720 students in nine secondary schools in Onitsha metropolis.

| A. Students' Opinion on |   | Yes                | Neutral              | No                | Total               | Mean        | SD        |
|-------------------------|---|--------------------|----------------------|-------------------|---------------------|-------------|-----------|
| 1.                      | Seats and Sitting Arrangements  | 657<br>91.5        | 24<br>3.3            | 39<br>5.4         | 720<br>100          | 2.8         | 0.5       |
|                         | I think it is a good idea to have all the desks the board.  |                    |                      |                   |                     |             |           |
| 2.                      | Sometimes two children in my class share a seat and a desk because of lack of seats.              | 130<br>18.1        | 40<br>5.5            | 550<br>76.3       | 720<br>100          | 2.6         | 0.8       |
| 3.                      | The seats are spread in such a way in my class there is little or no space for movement           | Yes<br>615<br>85.4 | Neutral<br>18<br>2.5 | No<br>87<br>12.1  | Total<br>720<br>100 | Mean<br>1.3 | SD<br>1.0 |
|                         |   |                    |                      |                   |                     |             |           |
| 4.                      | My desk is high so that sometimes I have writing on the desk.                                     | 275<br>38.2        | 19<br>2.6            | 426<br>59.2       | 720<br>100          | 2.2         | 1.0       |
| 5.                      | We usually sit on single, padded chairs in the class.   | 150<br>20.8        | 12<br>1.7            | 558<br>77.5       | 720<br>100          | 1.4         | 0.9       |
| 6.                      | B. Opinion of Students on Display and Display System.   |                    |                      |                   |                     |             | 0.9       |
|                         | It's good to display children's work because I ideas by looking at other students' work           | 510<br>70.8        | 18<br>2.5            | 192<br>26.7       | 720<br>100          | 2.4         |           |
| 7.                      | I feel proud when I see many pictures made by mates on the classroom walls.                       | 654<br>90.8        | 12<br>1.7            | 54<br>7.5         | 720<br>100          | 2.8         | 0.5       |
| 8.                      | We don't usually have children's work displayed in the class.                                     | 440<br>61.1        | 14<br>2.0            | 266<br>39.9       | 720<br>100          | 1.8         | 1.0       |
| 9.                      | Displays cheer me up and keep me working  | 408<br>56.6        | 35<br>4.9            | 277<br>38.5       | 720<br>100          | 2.1         | 1.0       |
| 10.                     | In my class, each student's seat is connected to a computer terminal                              | 8<br>1.1           | 10<br>1.4            | 702<br>97.5       | 720<br>100          | 1.0         | 0.2       |
| 11.                     | Children are usually allowed to view things on projector screens or computer monitors in my class | 31<br>4.3          | 11<br>1.5            | 678<br>94.2       | 720<br>100          | 1.1         | 0.4       |
| 12.                     | A lot of children are allowed to operate the computer in my class                                 | Yes<br>7<br>1.0    | Neutral<br>9<br>1.2  | No<br>704<br>97.8 | Total<br>720<br>100 | Mean<br>1.0 | SD<br>0.2 |
|                         |   |                    |                      |                   |                     |             |           |

|     |   |             |             |             |            |      |     |
|-----|---|-------------|-------------|-------------|------------|------|-----|
| 13. | C. Students' Opinions on Room Size. Ceiling and Acoustics<br>I feel sometimes that the classroom is small   | 366<br>50.8 | 4<br>0.6    | 350<br>48.6 | 720<br>100 | 2.0  | 1.0 |
| 14. | Sometimes the number of children appears to be too much for the class i.e. there are no spaces in the class | 475<br>65.0 | 30<br>4.2   | 215<br>29.8 | 720<br>100 | 1.6  | 0.9 |
| 15. | Sometimes the ceiling height looks low.   | 210<br>29.2 | 222<br>30.8 | 288<br>40   | 720<br>100 | 2.1  | 0.8 |
| 16. | We are often disturbed by the noise from other classrooms   | 450<br>62.5 | 17<br>2.4   | 253<br>35.1 | 720<br>100 | 1.7  | 0.9 |
| 17. | D. Students' Opinions on Colour/Colour Rendition.<br>I would like the classroom painted a different colour  | 476<br>66.1 | 50<br>6.9   | 194<br>27.0 | 720<br>100 | 1.6  | 0.9 |
| 18. | I find it difficult to concentrate on my work when there are lots of colourful things around in the class.  | 420<br>58.3 | 19<br>2.7   | 281<br>39.0 | 720<br>100 | 1.8  | 1.0 |
| 19. | E. Students' Opinion on Lighting/Illumination<br>I like to see everyone in the class from where I           | 425<br>59.0 | 55<br>7.7   | 240<br>33.3 | 720<br>100 | 2.3  | 0.9 |
| 20. | Sometimes the light in the classroom can be very distracting/disturbing.                                    | 361<br>50.1 | 49<br>6.8   | 310<br>43.1 | 720<br>100 | 1.9  | 1.0 |
|     |   | Yes         | Neutral     | No          | Total      | Mean | SD  |
| 21. | Sometimes I don't see the board clearly from where I sit because of poor lighting                           | 252<br>35   | 65<br>9.0   | 403<br>56.0 | 720<br>100 | 2.2  | 0.9 |
| 22. | We usually experience excessive brightness in the class on sunny days due to reflection                     | 335<br>46.5 | 41<br>5.7   | 344<br>47.8 | 720<br>100 | 2.0  | 1.0 |
| 23. | F. Opinion of Students on General Outlook of the Class<br>I'd like to have flowers around our classroom     | 449<br>62.4 | 7<br>1.0    | 264<br>36.6 | 720<br>100 | 1.7  | 1.0 |
| 24. | We usually have pieces of paper and cellophane all around the class.  | 486<br>67.5 | 42<br>5.8   | 192<br>26.7 | 720<br>100 | 1.6  | 0.9 |
| 25. | I'd like to have flowers around our classroom.  | 384<br>53.3 | 198<br>27.5 | 138<br>19.2 | 720<br>100 | 2.3  | 0.8 |
| 26. | Our class is separated from the other classes by screens instead of walls.                                  | 346<br>48.1 | 4<br>0.5    | 370<br>51.4 | 720<br>100 | 2.0  | 1.0 |

**N.B:** All the figures on the second line of each number are in percentages.

There are forty students chosen from each class through simple random sampling. This number consists of either boys or girls depending on the selected schools. The rating scale items were **divided** into six sections according to perceived aspects of the physical environment of the secondary classroom. The students are meant to respond to each of these sections. The rating scale is a three-point scale showing the main direction of the students' opinions. The reason for grouping the results in this way was to give an impression of key similarities and differences in the students' views, and indications of the strength of opinions within the whole section.

The analysis of the findings in terms of frequencies and percentages seems appropriate and realistic for an exploratory study of this type. The actual number of students expressing certain views help to convey the practical relevance and potential impact of children with differing opinions in one class. Statistical analysis using means and standard deviations of the items and of the various sections is made to show the directions of the magnitude of differences in the various sections.

### General Findings from the Rating Scale

There were agreements and disagreements within the whole sample of 720 students who responded to the questionnaire. There were indications of strong majority opinion in 13 out of the 26 rating items. Of these 10 items (1, 3, 6, 7, 8, 14, 16, 17, 23, 24) showed clear majority agreement. Each of these items has a percentage score of above 60. There were however clearly opposing views

with few neutral responses on certain items. For instance, the students disagreed with 7 items in the questionnaire. Of these, 5 items (2, 5, 10, 11, 12) showed clear majority disagreement with percentage scores of above 60. The students also showed high tendency to be neutral in items 15 and 25.

Again, the means and standard deviations for the various items and the different sections of the questionnaire were calculated as shown in Table 1. For section A, which sought opinions of students on seats and sitting arrangements, the means ranged from 1.3 to 2.8 with the average mean\* being 2.1. Section B sought opinions of students on displays and display systems and had means ranging from 1.0 to 2.8 with an average of 1.7. Section C sought opinions of students on room size, ceiling and acoustics. The means ranged from 1.6 to 2.1 with an average mean of 1.9. Section D had means ranging from 1.6 to 1.8 averaging at 1.7. Section E which sought opinions on lighting and illumination had means ranging from 1.9 to 2.3. The average mean for the section is 2.1. Finally Section F sought opinion of students on general outlook of the classroom environment. The means ranged from 1.6 to 2.3 with an average mean of 1.9 for the group. Hence, 4 out of the 6 sections exhibited generally low means since their means were below 2.0 which is the acceptance point.

To interpret the magnitudes of differences between the sections in the rating scale, it will be useful to note that the standard deviation for the sections was found to range from 0.5 to 1.0 for Section A; 0.2 to 1.0 for Section B; 0.8 to 1.0 in C; 0.9 to 1.0 in Section D. Also, the standard deviations for Sections E and F were found to range from 0.9 to 1.0; and 0.8 to 1.0 respectively.

### **Discussions of Findings**

The findings have shown that children can express strong opinions about their physical environment. It has also shown that these children can express some independent views about what is happening or obtained around them by agreeing with some statements made and disagreeing with others. Hence, these children have displayed a good measure of awareness in and about their environments. The high percentage of children agreeing with and those disagreeing with the statements made has shown that the students are not oblivious of what is happening in their environment. This goes to buttress the views of Kreshner and Pointon (2000) which upheld that children know a lot about how the classroom works - individually and as a group.

### **Discussion on the Different Aspects of the Classroom Environment**

The mean opinion for Section A which sought opinion of students on seats and sitting arrangements was 2.1. This shows that the students are satisfied with the seating conditions in their various classrooms. However, items 3 and 5 showed low means of 1.3 and 1.4 respectively showing that the students and teachers cannot freely move about in the classrooms. Item 5 showed that the seats are not very comfortable for the students to stay on for a long period. These problems can be attributed to over population usually experienced in our secondary schools especially in the urban centres. It can also be attributed to neglect on the part of the government and those in authority in which case the welfare of children is no longer adequately well taken care of.

Section B which sought opinions of students on display and display systems exhibited low mean of 1.7, items 10, 11 and 12 showed a mean of 1.0, 1.1 and 1.0 each showing that children are not exposed to the display systems such as projectors, computers, etc. This aspect of the secondary school environment poses a great problem because as the country is clamouring for a technological development by the year 2010, it is expected that schools by now will be equipped with some technological know-how which the children will learn to operate so that they will be at par with other children elsewhere.

Section C which sought opinions of students on room size, ceiling and acoustics has a mean of 1.9, Item 14 which indicated that the space in the classroom is not enough for the children in the class has a mean of 1.6. Hence, it is feared that a lot of schools in the urban centres suffer from excess population. Many schools have students numbering between 40 and 60 in a class. This makes it difficult for the teachers to reach these students individually. Children in such classes hardly receive adequate attention from their teachers who are always exhausted from controlling such large number of students. The students on their own carry their problems and ignorance and as such cannot improve on their educational abilities and problem solving techniques. It needs be mentioned that an ideal classroom should contain students who are between 20 and 30 in number for effective instruction and interaction both with the teacher and with other students in the class.

The mean opinion for Section D which sought the opinion of students on colour was 1.7. This goes

to show that the students are not satisfied with the colours around them.

Section E which sought opinion of students on lighting and illumination has a mean of 2.1. This shows that they are satisfied with this aspect of their physical environment. Hence, the environment has good lighting and even cases of glare are not easily obtainable.

Section F which sought the opinion of the students on the general outlook of the classroom environment was found to have a mean of 1.9. This shows that the pupils are not quite satisfied with how their classroom environments look. Hence, teachers and all those concerned should work hard in order to improve the conditions of their classrooms. For instance, items 23 and 24 had means of 1.7 and 1.6 respectively. This goes to show that the children in as much as they contribute to the untidiness of their classrooms would still prefer these classes to be neat. Therefore, these students need the direction and guidance of their teachers and those in authority to instill the right attitude in them.

### **Implications**

The results of this study have shown that children know a lot about their classroom environment and can even make some valuable contributions on how to improve their environment through their responses. The research has also opened the eyes of some well meaning educationists, teachers and those in authority on the need to take some drastic measures to improve on our school environment. It needs be recalled that most of these schools were hurriedly built during the UPE programme so as to accommodate excesses in population of pupils without taking adequate measures for aesthetics and technological development.

The government should therefore see to it that these schools are rehabilitated and well equipped. The quality of our secondary education can be improved during this present democratic dispensation through giving it a better physical outlook by installing good audio-visual gadgets like projectors, television monitors, computers, well-padded seats with back-rests, etc. The classrooms should be separated from one another by high walls instead of screens as is obtained in some schools.

Furthermore, the value attached to education generally in Anambra state should be reviewed. There should be a re-examination of the physical condition of our secondary schools and a radical change needs to be effected in the area of the physical outlook of our schools especially the secondary schools. The craze and quest for money and quick wealth at the expense of quality should be curtailed. Ornamental trees and flowers should be used to decorate the parts of the school premises and should be extended to the front and back areas of the schools' classrooms.

The schools' classrooms should be painted in pastels of the warmer colours like yellow or orange. These colours will liven the whole place so that children will feel some warmth and be able to lively participate in most of the activities in the classroom.

In case of privately owned schools, a monitoring team should be set-up to ascertain that the schools have standard structures and infrastructure which will enable them to operate before approving of such schools.

### **Conclusion**

Our children who are our future generation deserve the best from us. They need to be abreast of the happenings around them. They need to measure up with children from outside this country. One good way of ensuring this is through improving our academic environment especially the students' classroom environment. Thus money can be pumped into the educational system and good efforts made to ensure that such finances are well managed and channeled towards the projects for which they are meant.

## References

- Birren, F. (1969). *Light, Colour and Environment: A Thorough Presentation of the Facts on the Biological and Psychological Effects of Colour*. New York: Van Nostrand Rheinhold.
- Cooper, H.; Hegarty, P.; Hegarty, P. and Simco, N. (1996). *Display in the Classroom: Principles, Practice and Learning Theory*. London: Fulton.
- Getzels, J.W. and Thelen, H.A. (1960). *The Classroom Group as a Unique Social System*. The National Society for the Study of Education (NSSE) Year Book, 59 (5), 53-82.
- Kaufman, J.E. (ed) (1981). *IES Lighting Handbook*. Vols. 1, 2, Illuminating Engineering Society of North America, New York.
- Kreshner, R. and Pointon, P. (2000). Children's Views of the Primary Classroom as an Environment for Working and Learning. *Research in Education*, 64.
- McVey, G.F. (1990). *The International Encyclopedia of Education Research and Studies*. Vol.5, 1-L, Oxford: Pergaman Press.