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Determination of Sound Pollution Impact on Concentration And Performance Level of Jss1 Students of University of Port Harcourt Demonstration Secondary School UDSS.

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Abstract: *Different age group responds differently to noise impact. This study evaluates the impact of noise on concentration and Learning rate of Junior Secondary One students of the University of Port Harcourt Demonstration Secondary School. Ages between 9 and 12years.The approach is experimentally subjecting the volunteer students to learn under various noise intensity to judge their concentration and performance.It includes a Participatory Appraisal Chambers (1994) NDES (1997) modified, to validate the test results. The noise source is an audio mixer which blended the taped lecture with motor engine noise. The control group was at (50-60dBA). Treatment '1' (70-80dBA) and treatment '2'(85-95dBA). The participatory test kit index shows general restlessness and reduce concentration at noise above 80dBA , while the test score shows no significant difference between the control and treatment '1', the P-value (0.000) on a two way ANOVA however shows a significant difference between treatment '2' and control (C). The advice is to monitor noise in our learning environment for best results.*

Key Words: *Concentration, Environment, Impact, Performance, Pollution, Sound, Treatment,*

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I. Introduction

The world today is witnessing rising fall in the standard of education, due to pollution associated with environmental and industrial noise amongst others. For instance, WHO (2005) under environment health considers noise to be the third most hazardous type of pollution, right after air and water while Stanfeld and Mathenson (2003) claims that noise pollution may cause or contribute to the following adverse effect s; anxiety, stress, nervousness, nausea, headache, emotional instability, argumentativeness, sexual impotence, changes in mood, increase in social conflicts, neurosis, hysteria and psychosis.

Noise is part of the learning and work process across the globe which makes its elimination difficult. This study seeks to evaluate the concentration and performance level of junior secondary school one students of the University of Port Harcourt Demonstration Secondary School under noise Condition.
The approach is both experimental and participatory research chambers (1994), NDES (1997).

The concept of noise and its danger effect is not new but dates back to the third century B.C when some nations like China used noise to torture dangerous criminals instead of hanging them.

Noise pollution is established to be a slow and subtle killer. It is as hazardous as other pollution sources. For instance the effect of excessive noise could be so severe that it could result in a threshed shift, permanent hearing loss, loss of memory or psychiatric disorder bond,(1996) other authors who have researched and publish on sound pollution effect in different environment include; Cohen et al (1980) Evans G.W and Lepores (1993) Stansfelds and Matheeson (2003) Melnick (1979), Jansen (1992), Alton(1990), Eleftherious (2002), Melained et al (2001), Cheung (2001), Ohrston(1989) Fine gold etal (1994) Savale (2014) Gargetal (2007) Singh and Davar (2004) Singh and Dev. (2010), to mention but few.

The significance of this study is that while the reviewed studies used the survey technique, or experiment of sound impact on rabbits, this study is experimental on students with a validatory participatory backup on children between the ages of 09 to 12years.

The noise value was taken within the FEPA Nigerian approved limit of 90dBA as a safety index.

The physics behind the investigation is that noise is like an eddy current amidst the useful signal and try to raise nerval conjestion, diffuse the intensity of the transmitted signals, distort or reduce the full intelligence of the transmitted massage. This by same induction of frictional impact in motion, reduces concentration and apparently performance, by additional heat inbuilt in the nervous system, leading to useful energy loss and excessive adrenaline secretion, which catalyse other reactions in readiness for war.

II. Material and Method

Equipment

The equipment used in this study includes a motor engine source of noise, taped lectures on matter and energy, a mixer stereo with F.M application and 4 receiver sets. A CEL 254 digital noise level meter to guage the amplification.

III. Procedure

The students were briefed of the intention of the exercise and allowed the option to opt out or participate. Only 40 students were admitted into the treatment room at the introductory technology workshop of the University of Port Harcourt Demonstration Secondary School Aluu. They were divided into four cells, with shielding to reduce external interference. The students for the control, had their lectures at 50-60dBA while treatment '1'. Took theirs at 70-80dBA and treatment '2' on 85-95dBA. The lectures were transmitted at 10 minute interval twice. The students at the end were given 10 structured questions to answer. The result and analyses is a shown under tables 1-5 and fig 1.

IV. Results

The results of the sound impact experiment on learning rate is as shown in tables 1-5 and fig. 1

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Welcome to Minitab, press F1 for help.

Table 1: Descriptive Statistics: CONTROL 50 – 60, TREATMENT 70 – 80, TREATMENT 95 ±2

Group

Variable	N	N*	Mean	StDev	Minimum	Maximum
CONTROL 50 – 60	10	0	51.80	6.14	40.00	60.00
TREATMENT 70-80	`10	0	46.80	7.79	32.00	56.00
TREATMENT 95 ±2	10	0	28.80	7.25	20.00	40.00

Table 2: Descriptive Statistics: CONTROL 50 –60, TREATMENT 70 –80, TREATMENT 95 ±2

Gruop 2

Variable	N	N*	Mean	StDev	Minimum	Maximum
CONTROL 50 –60	10	0	50.00	6.32	36.00	56.00
TREATMENT 70 –80	10	0	48.00	5.33	40.00	56.00
TREATMENT 95 ±2	10	0	25.60	6.31	16.00	36.00

Table 3: Descriptive Statistics: CONTROL 50 –60, TREATMENT 70 –80, TREATMENT 95 ±2

Group 3

Variable	N	N*	Mean	StDev	Minimum	Maximum
CONTROL 50 –60	10	0	48.00	9.04	32.00	60.00
TREATMENT 70 – 80	10	0	45.20	7.55	36.00	56.00
TREATMENT 95 ±2	10	0	25.80	5.53	20.00	36.00

Table 4: Descriptive Statistics: CONTROL 50 –60, TREATMENT 70 –80, TREATMENT 95 ±2

Group 4

Variable	N	N*	Mean	StDev	Minimum	Maximum
CONTROL 50 – 60	10	0	47.00	5.75	36.00	56.00
TREATMENT 70 – 80	10	0	48.40	6.10	36.00	56.00
TREATMENT 95 ±2	10	0	25.40	8.85	12.00	40.00

Table 5: Group Means Summary

Group / Treatment	**CONTROL 50 – 60**	**TREATMENT 70 – 80**	**TREATMENT 95 ±2**
Group 1	51.8	46.8	28.8
Group 2	50.0	48.0	25.6
Group 3	48.0	45.2	25.8
Group 4	47.0	48.4	25.4

Two way ANOVA response versus treatment groups

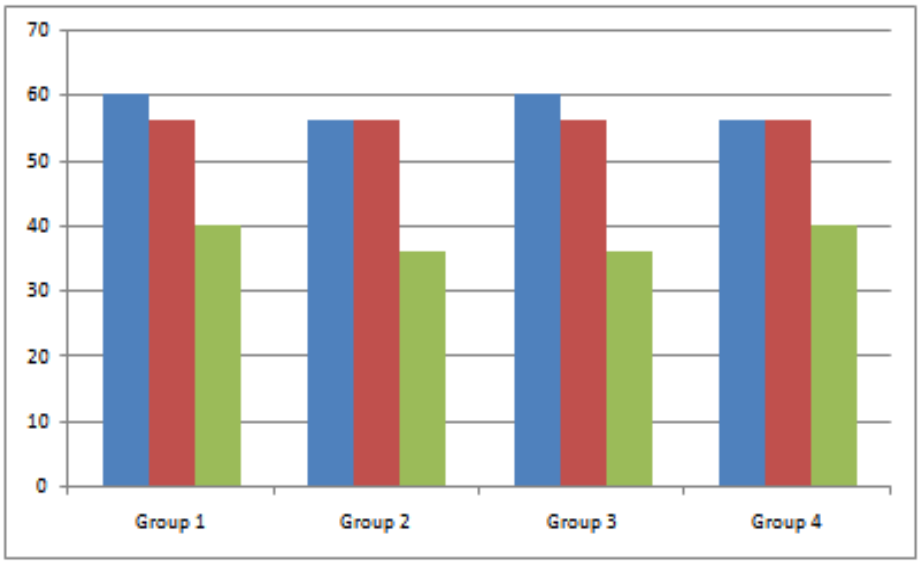

Fig 1: Student scores against treatment groups and control

Bleu Shed: control scores 50 – 60dBA
Red shed: Test score '1' 70 – 80dBA
Green shed: Test Score '2' 93 – 97dBA

V. Analysis

Using a two-way ANOVA, the p-value (0.000) showing a significant difference between treatments and control. From the 95% confidence Interval above, the control 50-60 and treatment70-80 are the same effect, while treatment **95±2** differ.

Using a two-way ANOVA, the p-value (0.235) shows no significant difference between the groups. The 95% confidence Interval confirms that the groups have the same effect.

VI. Discussion, Conclusion and Recommendation

The Usefulness of Noise cannot be overemphasized as the bell ringer regulates the period of the day, the thunder guide the farmer as to when to expect rain and other alarm sources to indicate event around the streets. All these contribute to adrenaline release into the blood pressure, increase in respiration and other stress related symptoms even when the noise has no relationship to immediate danger from the participatory investigation Chambers (1994) NDES (1997). The experimental result shows a significant difference between the control 'C' with 50-60DBA as against Treatment 'II' at 85-95dBA which has a far reaching consequence and call for the review of FEPA Nigerian standard of 90dBA. This review will help distinguish the standards for industrial areas, commercial area, residential areas and silent zone which some nations of the world including USA and India put as 75dBA, 65dBA, 55dBA and 50dBA respectively.

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