ASSESSMENT OF NOISE POLLUTION IN THE UNIVERSITY OF CALABAR, CALABAR

BY

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Abstract
The paper analysed the noise pollution level in University of Calabar. The objectives were to identify the various sources of noise pollution in the school and also to determine the noise level in the University of Calabar. The major sources of noise were identified to be noise from generator sets, vehicles, and noise from students. Therefore, the need to proffers several measures to cope with the noise level which, if implemented, would help to reduce noise levels in the school and make them conform to WHO standards which is (30-35 dBA) for an academic environment. Such recommendations include Speed bumps should be installed all through the campus to reduce high engine raves and there should be designated areas for sale of goods.
Keywords: *Noise pollution in the University of Calabar, Calabar*

Introduction
Noise pollution is one of the fastest growing environmental concerns. Although in contrast with other pollutants, noise neither persists on the environment nor leaves physical scars, however, its consequences can be catastrophic. In view of this, noise pollution has increasingly become a menace in the society these days. It is spreading so fast that it has started polluting the environment all over the world. Due to rapid urbanization, industrialization and advancement in science and technology, as well as the increasing rate of religious centres, the concept of noise pollution, has become one of the most serious phenomenon and challenge in most countries of the world as it endangers lives and affects the health of the public.

Noise is described as an unwanted sound or a sound out of place (WHO 1999 and Cornelius O. A. Agbo 2020). Noise has been rated third, after gas and water, as pollution affecting human over all wellbeing (Heurique, Zannin, Vinicius, Laaconi da Cunha, Damiani, Benetti, Bianchi, Senko da Hora, Guedes, Portella, Pinto, Ana, 2013). There has been a growing incidence of noise pollution within the tertiary institutions in Nigeria, despite the institution's positions as citadels of knowledge and intellectual discourse. Interestingly though schools, hospitals and government reserved areas are designated as noise control zones, whereby the noise levels must not exceed that stipulated in Nigeria's National Environmental (Noise Standards and Control) Regulations, 2009 (Federal Republic of Nigeria), that has not been the case. Most of the students live in school hostels and rented apartment within the neighbourhoods. Many staff and their wards also live in schools' and staff quarters within the school premises. In University of Calabar, academic activities are carried out within the school at both class and individual level.

Classes and laboratory work, including workshop practices are usually taken between 8.00am and 6.00pm. Libraries open by 7:30am and close around 10:00pm, while individuals continue with their private studies at their rate and timings. These activities are expected to be done within a calm and serene atmosphere for maximum achievement. Nonetheless, the noise pollution in higher institutions continues to hamper the effectiveness of teaching and learning.

Environmental challenges vary considerably among school around the world, across countries and within communities (World Health Organization, 2004). The school environment encompasses the social, physical, and biological factors. It is here that knowledge is transmitted in its most ancient form i.e., through oral communication. The quality of this communication and ultimately of classroom education itself, is closely linked to the acoustic quality of the classroom. This acoustic quality can be characterized based on the reverberation time, speech transmission index, sound insulation and the noise level inside and outside the classroom (Zannin and Zwirtes, 2009). High noise level in the classroom impair oral communication, causing students to easily become tired more often, and this premature fatigue tends to have a negative effect on their cognitive skills (Hagen,Huber and Kahlert, 2002).

Statement of problem

University of Calabar is dynamic in terms of growth in population, structures and other economic activities that are capable of generating noise, but no one pays attention to the negative aspect of the growth, which is noise generation, these calls for regular noise measurement in the institution. Several economic activities such as, generator sets etc are springing up without control. Over the years, the academic environments of educational institutions have been characterized with noise and this has posed a serious problem to teaching and learning process. Noise has a detrimental effect on academic environment and learning behaviour of students as high levels of background noise interfere with hearing and concentration in the classroom.

Studies have shown that noise has direct negative effects on students learning, with language and reading development particularly affected. There are also problems related to attention memory and motivation. In students, noise – an induced complication hinders the lecturer – student communication and eventually, affects the learning process. Constant noise exposure in classrooms can obstruct learning. On average, students who are exposed to noisy learning environments have lower assessment scores on standardized tests. The lecturer's voice is another point of real interest when we think about speech perception, as the great task of knowledge transmission depends on it; and it must be clear, harmonious, intelligible and beyond all and any competitive noise, otherwise the students will not follow the teaching (WHO, 2015). Identified sources of noise within University of Calabar are: overcrowded class rooms due to rising enrolment, hawking activities around lecture halls, phone calls transportation, generating sets from students and lecturers themselves.

Literature Review

Sources of Noise Pollution on Campus

Nigerian institutions of higher learning to include electric power generators, road traffic, religious activities and classroom internally generated noise by the students themselves. Ntui A.I, (2009), evaluated the environmental noise levels that inconvenience library users at the university of Calabar library and found that the noise level in the university library exceeded the acceptable level of noise set by WHO, and ranging between 43.5 – 88.5 dB (A). The identified noise sources in decreasing order were noise from people, automobiles, aircraft cellular phones and equipment. Wekpe and Fiberesima (2020) evaluated the problem of noise pollution around the communities of the University of Port Harcourt using both cross-sectional and experimental design. The noise measured values across the study area were beyond threshold limits for acceptable noise levels. The noise pollution was attributed to rapid urbanization and industrialization with the associated high number of automobiles, generating plants, industries and marketing strategies using mobile advertisement vans and mobile vendors and conversion of residential areas to business and artisanal outfit.

An additional source of noise which is reputed to cause significant disturbance to teaching is the noise of rain falling on lightweight school roofs (O'Neil, 2002) Oyedepo (2012) pointed out some sources of noise, which are electricity generating plants, vehicular traffic noise engine and pressure horns. Other sources of noise as pointed out by Abolarin (2012 are Aircraft noise, noise from consumer products, Internal Combustion Engines (ICE). Amakom, Ukewuihe, Nwokolo, Igbo (2019) conducted noise level measurement at the Federal University of Technology, Owerri (FUTO) using a sound meter. The average noise levels recorded at FUTO were 67.78dB at 9:00am when daily office workers arriving and academic activities are take-off, 71.07dB at noon when lectures and most generating plants were on, and 67.79dB at 3:00pm when most activities are winding down, respectively. The high noise was attributed to mini electric power generators used at many different locations in the University.

Noise within the classrooms by students themselves is getting increasingly high as the number of students per class increases. In a related study outside Nigeria, Servilha and Delatti (2014) identified the perceptions of university students about the noise in classrooms and its consequences on learning quality employing questionnaires with both open and closed questions about the presence, source, type and valuation of noise, its impact on lessons and strategies to minimize it. The University and the classrooms were considered noisy by the students and indicated themselves as the largest source of the noise. Also, noises from churches during all-nights vigils and fellowship and from mosques observing early morning call to prayers.

The two primary types of noise are:

1. Man-made noise: This refers to the noise created due to man-made activities. It can be anything from construction work, noise from the air, vehicular traffic, household noise,

noise from pubs and bars to name a few. Ranging from 30 to a whopping 140dB, this form of noise is extremely harmful to humans.

2. Environmental noise: This refers to the kind of noise occurring from a range of environmental activities. Environmental noise: This refers to the kind of noise occurring from a range of environmental activities. This can be anything from the mating call of animals to the sound of thunderstorms that often go up to 140dB.

Methodology

Research design

The design used for this study is observational and survey research design. It accurately describes existing phenomena so as to determine the nature of the situation that exists during the study period. The targeted population consisted of a main camp and new library The sampling technique used for this paper is the simple random sampling technique so as to randomly select locations from among the identified noise prone zones. Levels of sound intensity were measured using a sound level meter (SLM). The start – up time of this SLM depends on the state the instrument was in when last switched off and it may take up to 2 minutes from a cold start, or up to 10 seconds if the instrument is already in standby mode (i.e., from a warm start). The sample locations were given equal opportunity of being selected.

A total of 36 noise prone zones were identified. While 12 locations representing 30 percent were selected for the study. The 30 percent selected is in conformity with some authorities such asUdofia, E. P. (2011); which states that, any study considering 10 percent sample coverage is ideal for any physical research. Selection was done using the table of random numbers.

Result and discussion

In order to achieve the set objectives, noise level data within the study location being the University of Calabar campus was obtained from 12 (twelve) sampled points that were randomly selected from 32 points (representing 37.5 per cent), after observations were made across the various noise prone zones. This is above the recommendation of Udofia (2011), which states that a sample fraction of 10 percent is deemed adequate as no serious research can progress with a sample fraction less than 10 percent. Reading was obtained using the PYLE PSPL25 sound level meter (SLM) and below are various noise distribution within the study locations. Data collection started on Monday, 3, October 2022 herein known as day one (Day 1). Data collection lasted for 30 days.

Recommendations

The findings of the paper, it is therefore recommended that in order to reduce noise level in the institution, efforts have to be made to reduce inflow of vehicles into the purely academic and sensitive areas such as conference rooms, classrooms, labs and offices. Vehicles should be parked at designated point far from these sensitive areas and lecture theatres.

Secondly, a mini market should be erected far from sensitive zones and all the non-complying economic activities should be relocated. Again, it would be advised to have soundproof system installed in major classrooms to reduce noise level penetrating into these classrooms.

Furthermore, speed bumps should be installed all through the campus to reduce high engine raves, which leads to high noise level from vehicles.

Finally, there is need for adequate and repeated monitoring of noise level on campus in order to help identify defaulters and possibly imposed sanctions towards general noise reduction in the campus.

Conclusion

Noise pollution is the spread of unwanted sounds into the environment. Noise is almost always around us, whether natural such as birdsong, or from human activity, such as vehicle traffic. Sources of noise have been identified to include generator sets, noise from students, vehicular noise or motorized vehicles etc. these noise affects academic activities in various ways. It poses health challenges inhibit overall academic performance and disrupts effective communication flow. Efforts should be made by the school management to ensure centralized electricity power supply since most of the noise was because of the individual electric power generators.

It is an inclusive recommendation of this study therefore, that the school management should adhere strictly to the measures (recommendations) listed above to provide an acceptable conducive teaching and learning environment devoid of noise pollution.

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