Effects of Noise Pollution on Learning in Schools of Bamenda II Municipality, Northwest Region of Cameroon

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Abstract. In the modern world, unwanted noise pollution from a variety of sources has significant effects on the learning environment and on the academic achievement of students. In the Bamenda II municipality, both primary and secondary schools are exposed to noise pollution levels ranging between 37.66 dB and 65.82 dB during 7–8 am, 37.06 dB–67.68 dB during 9–10 am, and 49.16 dB–71.44 dB during 1–2 pm. The goal of this study was to assess the effect of noise pollution on schools and students' performance in Bamenda II municipality. The study used a cross-sectional study design to determine the sample size. Sampled schools exposed to different noises, such as traffic and business-related noises, were purposively chosen. 200 questionnaires were administered, involving 127 students and 73 teachers. A medical doctor was interviewed to assess noise impact on teaching-learning outcomes. Noise levels (A-weighted decibels) were measured using Extech 407732 Sound Level Meter. Data were analyzed using descriptive and inferential statistical methods. The results showed that noise in educational institutions harms learning and academic achievement. Over 90% of the teachers complained that noise affected their teaching and 92.2% of the students acknowledged that noise affected their learning ability. They also reported communication interference, voice masking, tiredness/fatigue, and headache as some of the major problems of noise pollution. The study suggests that school buildings should have sound insulation systems with double-glazed doors/windows, and awareness about noise pollution-related dangers to teaching and learning should be emphasized.

Keywords: Noise pollution · Schools · Learning · Teachers · Pupils · Decibels · Cameroon · Northwest Region

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1 Introduction

Man has since creation desired to live in a comfortable environment; one worthy of purposeful and sustainable amenities; and having all the instruments of comfortable living (Makinde 2015). The aspiration of man for a desirable living environment comes to focus as an illusion, due to environmental pollution of all sorts. Environmental pollution is defined as the addition of any substance or form of energy (for example, heat, sound) to the environment at a rate faster than what the environment can accommodate by absorbing, dispersing, or breaking it down, and that would harm humans, flora and fauna or abiotic systems (Narayanan2011).

In the modern world, as the population grows, there is increasing exposure to noise pollution, which has profound public health implications. For example, noise pollution is one of the major problems for developing countries, but the problem is not equally recognized by all countries (Oyedepo and Abdullahi 2009). Urban noise pollution produces direct and cumulative adverse health effects by degrading residential, social, working, and learning environments with corresponding real and intangible losses. Nowadays, children experience a key part of their childhood in their school, and it forms one of their principal social activities and setting (Alsubaie 2014). Environmental challenges vary considerably among schools around the world, across countries, and within communities (WHO 2014).

The environmental noise levels in learning in institutions have a significant relationship with the academic achievement of students. In less developed countries (LDCs) like Cameroon, many children do not have access to a serene or ideal learning environment. Noise control in the school environment is a real public challenge. A significant increase in the population of urban centers has been witnessed in Cameroon in the last decade. This increase has influenced the lifestyle of the citizenry, contributing to the increase in noise pollution. Urbanization and industrialization have contributed to noise pollution in recent times without adequate consideration of its effects on the future (SemieMemunaSama 2014). Even though the World Health Organization (1980) maintains that to hear and understand spoken messages in the classrooms, the background sound level should not exceed 35dB (A) LAeq during teaching sessions. For outdoor playgrounds, the sound level of noise from external sources should not exceed 55 dB (A) LAeq. In most developing countries, poor urban planning also plays a vital role. For example, congested houses, large families sharing small spaces, and fighting over basic amenities lead to noise pollution, which may disrupt the environment of society.

In Bamenda II municipality, schools are exposed to different noise pollution sources with respectively indoor and outdoor noise levels in primary and secondary schools. Bamenda II Municipality accommodates the Central Business District (CBD) of the city of Bamenda and it is the focus of major business activities that either emit noise or are vulnerable to it. Several unregulated activities within the Municipality are contributing factors to unregulated noise. Unplanned urbanization and land use are undeniable threshold factors to various forms of pollution in the study area. There is an unplanned location of academic institutions vis-à-vis travel agencies within the study area. The location of schools has not been a concern to the authorities running them. Planning and location of schools by the proprietors have not taken noise pollution as a threat to pupils/students and staff. There is an encroachment on many school areas within the study area by noise from

various activities. For instance, it is common to find schools located nearby commercial and other noise-generating activities such as Bus stations (Commuter Agencies) along Sonac Street where Saint Agnes Nursery and Primary school shares a boundary with Moghamo Travel Agency, distracting the concentration of learners. In the neighborhoods where school pupils/students live, there are encroaching bars as well. Markets, wielding workshops, and other unplanned business ventures in most parts of the Bamenda II Council Area are common practices. These educational institutions suffer from noises of various forms and hence perturbing school activities such as teaching, learning, and discussion sessions (Sop Sop et al. 9).

Therefore, to investigate the Effects of Noise Pollution on Schools in Bamenda II Municipality; the research question of this study is the perceived effects of noise pollution on the teaching/learning process in schools within the study area? The goal of this paper is to assess the perceived effects of noise pollution on the teaching/learning process in schools within Bamenda II municipality.

2 Materials and Methods

Study Area

The Bamenda II Council area has an estimated population of 211,556 inhabitants (Bamenda II CDP, 2012). Out of this population; the majority live in the urban areas, 60.9% (130,313 persons). The population comprises natives of the villages of Mankon, Chomba, Mbatu, and Nsongwa including migrants from neighboring villages like Bafut, Bali Nyonga, and other rural areas of the North-West and West Region, especially the Bamilekes and the Ibos from Nigeria. The surface area is estimated at 165.605 km^2 giving a population density of about 127.747 persons per km^2. This population is not

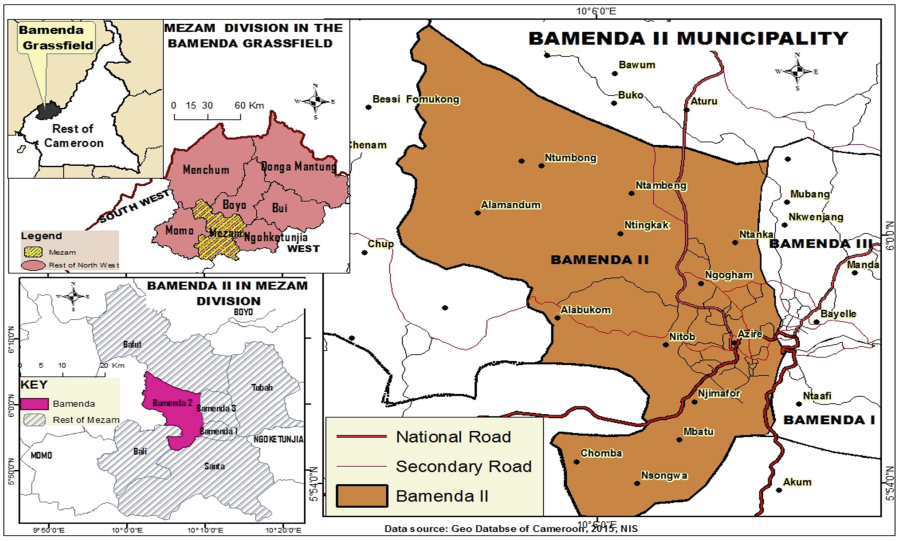

Fig. 1. Location of Bamenda II municipality in Mezam division of the Northwest Region of Cameroon. Source: Administrative units of Cameroon; Geo-database, 2015, NIS Yaoundé, Fieldwork, 2018.

evenly distributed as the urban areas are more densely populated than the rural areas. Bamenda II Council Area is between latitude 5° 6// and 5° 8// North and latitude 10° 9// and 10° 11// East of the Greenwich Meridian. The spatial location of some of these neighborhoods is stated in Fig. 1.

Study design
This study is a cross-sectional survey, conducted from October 2018 to January 2019. We use experimental research with a quantitative approach.

Target population and sample size
In the framework of our study, our target population comprised all people living in Bamenda II municipality; our sampling size was estimated at Sample Size = 0.1 × 1271(Target Population) = 127 pupils/students under study (Table 1).

Table 1. Institution/number of respondents from sampled schools.

School location	Name of the school	Pri 5	Pri 6	Total population	Administered	Retrieved (%)
Schools within Residential Areas	Step-by-Step BPSNtarinkon	35	60	95	9	9 (7.1)
	GPS Atuakom II	15	20	35	4	4 (3.1)
	GBSS Ngomgham	100	132	232	23	23 (18.1)
	Sacred Heart CollegeMankon	60	90	150	15	15 (11.8)
	GBHS Nitob	50	120	170	17	17 (13.4)
	GPS GMI Group IIA	35	20	55	5	5 (3.9)
	Green Light BPSNtarinkon	24	24	48	5	5 (3.9)
Schools in Commercial Areas	LCC Mankon	40	60	100	10	10 (7.9)
	Rosy BPS Old Town	30	40	70	7	7 (5.5)
	Saint Agnes PSSonac Street	40	60	100	10	10 (7.9)
	Alfred Saker BPS	20	24	45	5	5 (3.9)
	Blessed BPSNchuboh	20	18	38	4	4 (3.1)

(*continued*)

Table 1. (*continued*)

School location	Name of the school	Pri 5	Pri 6	Total population	Administered	Retrieved (%)
Schools Along Main Road Axis	GPS Mulang I	10	13	23	2	2 (1.6)
	GPS Old Town II	20	30	50	5	5 (3.9)
	Pledge PSAtuazire	30	30	60	6	6 (4.7)
Total		**529**	**742**	**1,271**	**127**	**127 (100.0)**

Source: Field Work, February 2019

The fieldwork covered four phases: direct observation, interviews, cross-sectional questionnaire survey, and measurement of noise level using a Sound Level Meter EXTECH Model 407732 (SLM) and GPS ETREX 10 was used to record the coordinates for the sampled schools. The investigations took place in various schools in Bamenda II municipality. All participants responded orally to a structured questionnaire provided by the investigating team. Data collected included socio-demographic characteristics (age, gender, marital status). Data on noise pollution were collected from the students and teachers in schools.

The investigations and experimentations took place in the various schools in Bamenda II Municipality by the research team trained for the Principal Investigator (PI). The students and teachers willing to take part in this study were interviewed respectively during a class break (10: am to 10:30) and closing time (2 pm to 2:30). Whereas Decibels were recorded from 7 to 8 am, 9–10 am, and 1–2 pm. Noise measurements were carried out during these periods to evaluate noise pollution levels in unoccupied classrooms, occupied classrooms during teaching, and playgrounds of the school premises.

The geographical coordinates of the schools of all participants were determined during fieldwork using a GPS. Free software such as Quantum SIG® (version 1.6) has made it possible to refer all schools in the study area. Secondary data were got from different sources, such as articles, reports, dissertations, and open access journals related to noise pollution. The data collected was coded, processed, and analyzed using Statistical Package for Social Sciences (SPSS 21) statistical software. The processing and the graphical presentation of the results were made with word processing software and Excel.

Ethical consideration: The protocol of this study was independently reviewed and approved by the Ethics Committee of the University of Bamenda. Informed consent was got from all participants included in the study. They were then invited to take part voluntarily in the study. They were informed that the study is confidential and that their participation will not affect their care. In addition, the investigation team informed the participants about their rights to withdraw from the study during the study period.

3 Results

3.1 Environmental Noise at Sampled Schools

Recordings and analyzes of noise levels in classrooms took place in all the selected schools. Noise measurements were carried out to evaluate noise pollution levels in the sampled schools. Readings and noise measurement averages were done at different points; unoccupied classrooms occupied classrooms during teaching and playgrounds on the school premises. Field observations revealed that most of the schools in the study area were within noisy areas. The schools are located close to commercial areas or along main road axes and within residential areas. The period the noise level reaches its peak varies with the different sampled schools depending on several factors, such as time of the day and the activities taking place (Table 2).

Table 2. Average noise levels in decibels (dB) in 15 sampled schools in the Bamenda II municipality

S/N	Location	7–8 am unoccupied classroom	10–11 am occupied classroom	1–2 pm playground
1	ASBPSAlakuma	65.82	64.96	71.44
2	BBPSNchuboh	55.46	64.05	68.3
3	GBHS Nitob	62.07	54.72	63.65
4	GBS GMI GP II A	63.26	67.68	64.24
5	GBSS Ngomgham	46.41	57.07	56.8
6	GPS Atuakom II	57.94	54.94	58.33
7	GPS Mulang I	48.06	54.51	61.93
8	GPS Old Town	60.24	65.12	68.33
9	GBPS Ntarinkon	60.56	65.34	56.01
10	LCC MankonMusang	57.25	58.99	58.71
11	PPSAtuazire	45.18	57.47	69.18
12	RBPSOld Town	55.99	61.52	68.96
13	SAHECO Mankon	37.66	37.06	49.16
14	SAPSSonac Street	59.93	65.17	67.52
15	SSEC PS Ntarinkon	50.46	62.86	66.29
Average	**55.09**	**59.43**	**63.26**	

Source: Fieldwork, 2019

Table 2 displays the distribution of average noise levels in decibels recorded for 15 schools at different time intervals. Schools such as ASBPS, BBPS, GBHS, GBS GMI, GPS Old Town, GBPS, SAPS, and SSECPS have extremely higher noise values, while SAHECO has the lowest noise values. The average equivalent noise level (Leq) is ranged between 37.66 dB (A)–65.82 dB (A) during 7–8 am, between 37.06 dB (A) and 67.68 dB (A) during the hours of 9–10 am, and ranging between 49.16 dB (A) and 71.44 dB (A) during the time interval of 1–2 pm. The mean equivalent noise level (Leq) is 55.09dB (A) with standard deviation of 7.63 dB (A) during 7-8am, 59.43 dB (A) with standard deviation of 7.36 dB (A) during 9–10am and 63.26dB (A) with standard deviation of 6.08dB (A) during 1–2pm.

3.2 Level of Awareness of Noise Pollution by Respondents

Regarding students' perception of noise pollution levels and noise awareness, 61.4% of them consider their school environments to be sometimes noisy, 37.0% consider the school environment to be noisy always while 1.6% hold firm grounds that their school environments are never noisy as stated in Table 3.

Table 3. Students' perception of noise levels in the environment

Variables	Perceptions	(%)	Total
Noisy school environment	Never	2 (1.6)	127
	Sometimes	78 (61.4)	
	Always	47 (37.0)	
Noise pollution awareness	Highly aware	54 (42.5)	127
	Relatively aware	72 (56.7)	
	Not aware	1 (0.8)	
The noise produced daily	Yes	100 (78.7)	127
	No	27 (21.3)	

Source: Fieldwork, 2019

The analysis in Table 3 shows that most of the respondents covering 56.7% are relatively aware of noise pollution, 42.5% show that they are highly aware; while 0.8% maintain neutrality, meaning, not aware of noise pollution in and around the school environment. Over 78.7% of the students report that noise within and around the school environment is generated daily while only 21.3% say that noise is not produced daily.

3.3 Effects of Noise Pollution on Teaching in Selected Schools in Bamenda II

Exposure to prolonged or excessive noise has been shown to cause a range of health problems, ranging from stress, poor concentration, productivity losses, communication difficulties, cognitive impairment, hearing loss, cardiovascular diseases, headaches, and fatigue.

This study reveals the effects of noise in the sampled schools. Both teachers and students unanimously agreed that noise pollution from the different sources hampers significantly teaching and learning in the selected schools. Teachers and students responded as discussed subsequently regarding the effects of noise pollution on the teaching-learning process in schools. In assessing the perception of teachers on the effects of noise on the teaching process, 50 (68%) of the teachers report being highly aware that external noise affects teachers' concentration in the delivery of lessons, as shown in Fig. 1. Also,13 (18%) of the teachers know relatively that noise affects teaching while 10 (14%) maintain that they are not aware of any effects of noise pollution concerning their teaching process as they only consider it a nuisance during sleeping hours. This, among other reasons, could be blamed on a lack of adequate awareness of its effects on humans and a dearth of data, as reported by some of the sampled teachers (Fig. 2).

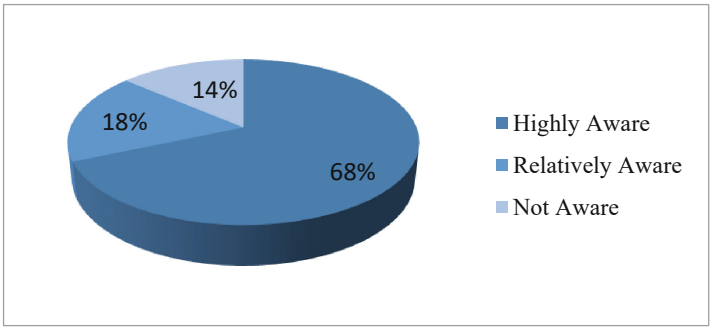

Fig. 2. Teachers' Perception on awareness of the adverse effect of noise pollution. Source: Fieldwork, 2019

Some respondents were further interrogated on their personal experiences as concerns noise impact as reported by a headteacher in the following except.

> "The classrooms are no longer conducive for learning due to noise pollution from different sources. This has even encouraged naughty learners to often misbehave during lessons".

Another teacher explained that:

> "It irritates me when I'm teaching, and noisy people are walking on the road next to the classrooms and cars keep hooting. Sometimes, I stop teaching to allow the noise to settle before I continue with teaching"

This affects the teaching-learning process as those uttered sessions impact work coverage and eventually affect children's academic performance, as noted.

Table 4 reveals the multi-faceted problems that plague educational institutions within the study area due to environmental noise pollution. 53.4% of respondents and 65.8% agree that communication interference and voice masking respectively between teachers and learners affect the teaching process. In the same vein, 52.1% of the respondents

Table 4. Effects of noise pollution on teaching in sampled schools in Bamenda II

Perceived noise effects on teachers	SA	A	IN	D	SD
Interference in communication between students and teachers	34 (46.6)	39(53.4)	-	-	-
Causes reduction in social interaction	10(13.7)	36 (49.3)	5 (6.8)	20 (27.4)	2 (2.7)
Teachers experience voice masking	23 (31.5)	48 (65.8)	2 (2.7)	-	-
Causes school children to be fatigued	30 (41.1)	43 (58.9)	-	-	-
Teachers' concentration is adversely affected by external noise	38 (52.1)	20(27.4)	-	15(20.5)	-
Hearing impairments or disturbances	21 (28.8)	30 (41.1)	2 (2.7)	10 (13.7)	10(13.7)
Impaired task performance (being unproductive)	18 (24.7)	31 (42.5)	5 (6.8)	19 (26.0)	-
Voice stress causes tiredness/fatigue	43 (58.9)	30 (41.1)	-	-	-
Causes annoyance and aggressiveness	17 (23.3)	40 (54.8)	1 (1.4)	10 (13.7)	5(6.8)
Naughty learners Misbehaving during teaching	20(27.4)	40(54.8)	11(15.1)	1(1.4)	1(1.4)

Source: Fieldwork, 2019

strongly agree that external noise adversely affects teachers' concentration, hindering effective delivery of lessons, as well as making them get tired quickly (58.9%). This implies that noise pollution significantly affects teaching in the selected schools in Bamenda II. This is because noise impedes the extent of the teacher's voice, is an object of distraction to teachers and learners, and impairment to learners' listening/hearing capacity. Noise has been identified by students as a harmful factor that interrupts the free flow of information in teaching and learning. The results presented in Table 5 show a summary of noise's effect on students' learning ability.

Any unwanted sound that our ears have not been built to filter can cause problems within the body and cause hearing problems. Man-made noises such as jackhammers, horns, machinery, and vehicles can be too loud for our hearing range. Constant exposure to loud levels of noise can easily result in the damage of our eardrums and loss of hearing, causing tinnitus or deafness. It also reduces our sensitivity to sounds that our ears pick up unconsciously to regulate our body's rhythm. Excessive noise pollution in classrooms can influence psychological health. Occurrences of aggressive behavior, disturbance of sleep, constant stress, fatigue, depression, anxiety, hysteria, and hypertension can be linked to excessive noise levels. The level of irritation increases with increased noise. Noise affects brain responses and students' ability to focus, which can lead to low-performance levels. It is also poor for memory, making it hard to study. High decibel noise can affect free communication between teachers and students, it may lead to misunderstanding.

The data in Table 5 reveals that most of the respondents (99.2%) acknowledge that external noise affects their concentration level, causing their reading (98.4%) and listening ability (97.7%) to reduce. In like manner, the students reported tiredness/fatigue (88.2%) and oral communication interference (97.6%) as well as headache (94.5%) as

Table 5. Effects of noise pollution on learning in some schools in Bamenda II

Opinion on noise effects	SA	A	IN	D	SD
External noise reduces the rate of concentration, assimilation, and performance	87 (68.5)	39 (30.7)	1 (0.8)	–	–
Affects reading ability	57 (44.9)	68 (53.5)	1 (0.8)	–	1 (0.8)
Decreases student's listening ability (hearing difficulty)	50 (39.4)	74 (58.3)	–	3 (2.4)	–
Pupils/Students feel stressed up or aggressive due to high noise	44 (34.6)	73 (57.5)	6 (4.7)	4 (3.1)	–
Reduces social interaction	18 (14.2)	60 (47.2)	8 (6.3)	28 (22.0)	13 (10.2)
Pupils/Students experience headaches due to exposure to noise	38 (29.9)	82 (64.6)	4 (3.1)	2 (1.6)	1 (0.8)
Causes stress	36 (28.3)	85 (66.9)	3 (2.4)	2 (1.6)	1 (0.8)
Oral communication is impeded by noise	70 (55.1)	54 (42.5)	1 (0.8)	–	2 (1.6)
Causes negative effects on behavior	20 (15.7)	50 (39.4)	28 (22.0)	21 (16.5)	8 (6.3)
Causes tiredness/fatigue	87 (68.5)	25 (19.7)	7 (5.5)	5 (3.9)	3 (2.4)

Source: Fieldwork, 2019

some effects of noise pollution they experience in the learning process. Once concentration is affected, this will lower students' interest in the classroom and their level of participation in classroom activities.

3.4 Perception of a Medical Practitioner on Noise Pollution Effects

The adverse effects of noise pollution in educational institutions of the Bamenda II Municipality are further explained by a medical practitioner from the Bamenda Regional Hospital along the following lines.

That we cannot see it, or smell it, does not mean noise pollution cannot harm us. The most common victims of noise pollution are our children. Many diseases, birth defects, and immune system changes are traced back to environmental noise pollution.

As per the information got from the expert on the impact of regular noise exposure on school-going children, the explanation from the authority is that noise can pose a serious threat to a child's physical and psychological health, including learning and behavior. Regular exposure to noise-related pollution in educational institutions compromises learners' auditory processing and can lead to speech or reading complications. "Just as children continue to grow physically as they get older, so too they continue to develop their speech perception capabilities as they develop into their teenage years". This implies that children are vulnerable to the effects of noise because of its potential to interfere with learning at a critical development stage.

For example:

Noise can interfere with speech and language; repeated exposure to noise during critical periods of development may affect a child's acquisition of speech, language, and language-related skills, such as reading and listening.

Impair hearing; tinnitus, often described as a ringing or buzzing sound in the ear, is a symptom associated with many forms of hearing loss.
Impair learning; the inability to concentrate in a noisy environment can affect a child's capacity to learn.

As part of remedial actions that can be taken to ease noise pollution, the official suggested the Government can help by establishing regulations that include preventive and corrective measures. The mandatory separation between learning institutions and sources of noise, fines for exceeding noise limits. Better urban planning can help create 'No-Noise' zones, where excessive noise is not tolerated. Primarily, bars, nightclubs, and restaurants should not be allowed to run a business around schools and hospitals. If it becomes necessary, there should be strong enforcement to use sound suppressing technology that makes the noise remain within the room. Parents, as well as school authorities, should create a quiet learning and sleeping environment. Has children's hearing tested if they are routinely engaged in noisy activities/places?

4 Discussion of Results

This study assessed the effects of noise levels in selected primary and secondary schools in the Bamenda II Municipality. It was revealed that the mean equivalent noise level in the morning (classrooms) was 55.09 and 59.43 dB, which are 20.09 and 24.43 dB (A) respectively above the prescribed noise limits for the silent area category (community learning environments). Similarly, the mean equivalent noise level in the afternoon (playgrounds) is 63.26dB (A) which also is well above the prescribed noise limits of 55 dB (A) by 8.26 dBA for the prescribed area category. The sampled schools, therefore, are highly noise-polluted institutions as all schools exceed the tolerance level of noise pollution, which shows that the environment is not suitable for the teaching-learning process. Noise levels measured are high due to noise from hooting by cars/riders, from scrapping sounds from tables and chairs, as observed at the time of noise recording. Also, reported and identified outdoor sources and the people (students and staff) themselves when they are learning indoors or playing outdoors. Noise levels in all the sampled classrooms are higher than the recommended standards by WHO (1980). This concurs with the study of the Accredited Standard Committee (2000) which affirms that Leq in an unoccupied classroom should not exceed 30–35 dBA. These high noise levels in the classrooms can be attributed to the poor acoustic conditions of most of the classrooms. The high levels are also due to their proximity to main road axes such as RBPS, BBPS, and ASBPS. The roads link other neighborhoods within the Municipality and other council areas within Bamenda city. The sources of noise pollution in Bamenda II municipality are near to what Puja (2015) in his study identified. According to him, the major sources of noise can be broadly divided into two classes, specifically indoor and outdoor noise pollution. Indoor sources are those sources of noise pollution that occur within or at a particular place. They are the unwanted sound caused by domestic appliances like television and radio, dog barking, or children at play. In opposition, common sources of outdoor noise arise from transportation systems such as aircraft, buses, cars, and trains; social centers such as churches, markets, mosques, and temples. Social centers near residential areas

can cause annoyance, discomfort, and irritation to the residents exposed to the noise that is inevitably produced. Like any normal day, it is difficult or almost impossible not to encounter pollution from one of these sources. In Bamenda II municipality, students' perception of noise pollution level and noise awareness, 61.4% of them consider their school environments to be sometimes noisy, 37.0% consider the school environment to be noisy always while 1.6% hold firm grounds that their school environments are never noisy. In the perception of teachers on the effects of noise on the teaching process, 50 (68%) of the teachers reports being highly aware that external noise affects teachers' concentration in the delivery of lessons. Noise has been identified by students as a harmful factor that interrupts the free flow of information in teaching and learning. Most of the respondents (99.2%) acknowledge that external noise affects their concentration level, causing their reading (98.4%) and listening ability (97.7%) to reduce. In like manner, the students reported tiredness/fatigue (88.2%) and oral communication interference (97.6%)as well as headache (94.5%) as some effects of noise pollution they experience in the learning process. Once concentration is affected, this will lower students' interest in the classroom and their level of participation in classroom activities. This study is almost like what Ana et al. (2009) carried on the effects of noise in some secondary schools in Ibadan. The report shows that tiredness and lack of concentration are the most prevalent noise-related problems. According to the authors, over 60% of the respondents report vehicular traffic as the major source of noise, and over 70% complain of being disturbed by noise.

5 Conclusion

This study concludes that the mean equivalent noise level (Leq) is 55.09 dB (A) with a standard deviation of 7.63 dB (A) during 7–8 am, 59.43 dB (A) with a standard deviation of 7.36 dB (A) during 9–10 am and 63.26dB (A) with a standard deviation of 6.08 dB (A) during 1–2 pm. Therefore, it affects the teachers by preventing effective communication between teachers and students, making the teachers shout while teaching so that students could hear. These results in teachers developing headache/fatigue, loss of voice and concentration during teaching, and disruption of ongoing lessons. It also affects the students by preventing them from hearing the teacher, reducing their rate of concentration, and assimilation. Noise pollution can't, therefore, be seen as an unwanted sound that makes the teaching and learning environment impure by contaminating and distorting the teaching/learning process, having adverse psychological and health effects on teachers and students. In a nutshell, the study confirmed that noise affects teaching-learning outcomes in various schools. However, there is little attention from the government and the municipal council in enforcing the existing laws and regulations to reduce noise pollution from within and outside the school premises. Therefore, efforts must be made to abate and curb this urban menace to have an effective process of teaching and learning in schools. Further studies can be carried on finding effective mitigation strategies for noise pollution in school environments.

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