1st International Conference of FEE EcoCampus
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EXPOSURE TO NOISE IN A SCHOOL ENVIRONMENT

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INTRODUCTION

Noise is a risk and nuisance factor that is becoming increasingly important, representing damage to human physical, psychological and social health.

It is not just the intensity of the noise that makes it dangerous, but the exposure time to which the academic community is exposed.

INTRODUCTION

For the World Health Organization (WHO) the priority is to identify the needs of vulnerable groups and provide technical and political guidance to protect the health of these groups.

Therefore, it demanded that students would be protected from exposure to harmful noise at home and at school.

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INTRODUCTION

↘ In WHO studies, students were identified as the **group more susceptible** to the harmful effects of noise and it was verified that the ones exposed to **higher noise levels** presented **deficits of attention, memory, learning problems, reading and decrease** in school performance.

As for the schools, the critical effects of noise interfere with **speech, disrupt the acquisition of information and the communication of the message**, cause nuisance to students and require an increased vocal effort from teachers in order to be heard, and therefore, understood.

INTRODUCTION

↘ In a school environment the **noise of the class, the sound coming from the street and the traffic, or even from school activities** held in contiguous rooms or outside the building may affect the welfare of all, jeopardizing not only the concentration and learning, but also hearing acuity.

↘ It is essential that the message conveyed orally by the teacher is received and perceived by the student in a position of very **good oral intelligibility.**

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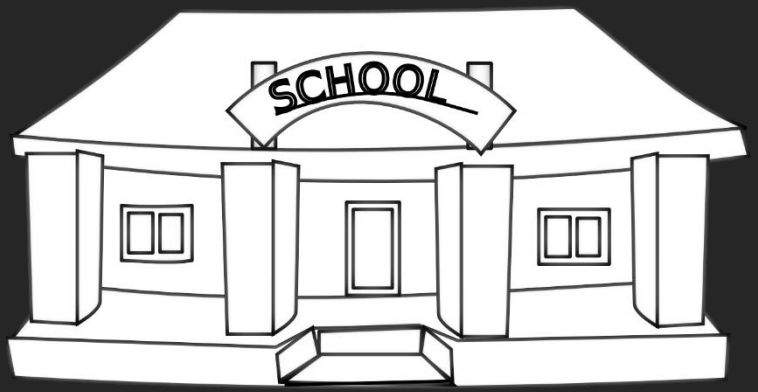
MATERIAL AND METHODS

Sample

7 schools in the municipality of Pombal - Portugal having the second cycle of basic education and a total of more than 400 students



MATERIAL AND METHODS

Classroom

Measurement

40 min

Classroom´s were chosen randomly

CESVA DC 112
Dosimeter (analyzer in octave bands 1/1)

High-performance Dosimeter: Spectral Analyzer, huge memory and USB Port. Ideal instrument for measuring noise according to Directive 2003/10/CE.

MATERIAL AND METHODS

According to the World Health Organization (WHO), the noise level in school environments should not exceed **35 decibels (dB)** during classes. This limit is established to guarantee an environment conducive to learning, minimizing distractions and potential damage to the hearing health of students and teachers.

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RESULTS AND DISCUSSION

Sampling locations	LAeq – Equivalent Continuous Sound Pressure Level *
School 1	56,03 dB(A)
School 2	63,13 dB(A)
School 3	67,20 dB(A)
School 4	63,37 dB(A)
School 5	67,13 dB(A)
School 6	67,63 dB(A)
School 7	66,17 dB(A)

* Equivalent Continuous Sound Pressure Level, or Leq/LAeq, is the constant noise level that would result in the same total sound energy being produced over a given period.

RESULTS AND DISCUSSION

As we can see, all measurements carried out in the seven schools exceed the value recommended by the WHO.

Assessing noise in classrooms is crucial to ensuring an adequate learning environment. Excessive noise can have a number of negative impacts, including difficulty concentrating, listening fatigue, stress and even health problems such as hearing loss.

RESULTS AND DISCUSSION

Regarding noise levels measured in schools, the results in a school are always influenced by the:

- number of days per week in which teachers/students have classes;
- type of class;
- school structure itself;
- number of people on site;
- proximity to noisy places;
- and even by the relationships formed between teacher/class within the classroom.

CONCLUSION

The assessment of noise in classrooms should aim, if necessary, at implementing measures to reduce noise. This can range from simple measures, such as using carpets or curtains to absorb sound, to more complex structural modifications, such as installing soundproofing materials on walls and ceilings.

Additionally, it is important to involve teachers, students and school staff in discussing noise in the classroom, as they can offer valuable insights into sources of noise and possible solutions. Together, it is possible to find effective strategies to create a quieter learning environment that is conducive to students' academic development and well-being.

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