

Listening environments for children in public school classrooms.



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Classroom Acoustics

Recommended standards for a classroom:

- 35 dBA background noise (unoccupied)
- 0.6s reverberation time
- SNR should be +15 dB for all phonemes to be heard above the noise

Research has found that classrooms exceed the recommended standards by upwards of 30 dB, even when they are unoccupied!

Visual Analogy Representing Speech Perception Challenges Due to Background Noise

I see some beautiful flowers.	+20
Big dogs can be dangerous.	+15
I like to go to school.	+10
It is lunch time soon.	+5
Walk to the library now.	0
Your brother is not here.	-5



Visual Analogy Representing Smearing of Speech Clarity Due to Reverberation

I see some beautiful flowers.

Big dogs can be dangerous.

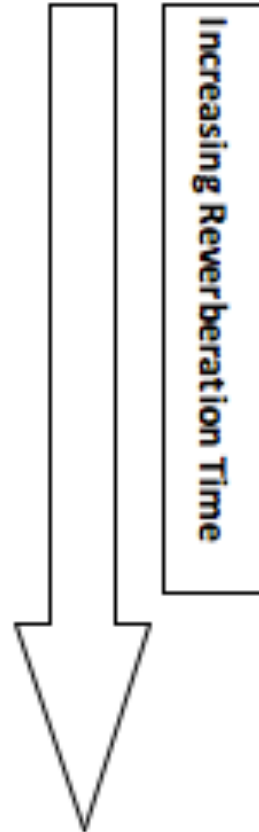
I like to go to school.

It is lunch time soon.

Your brother is not here.

Walk to the library now.

I want a peanut butter sandwich.



Literature Review

- Children talking in the classroom can result in a significant decrease in speech perception (Crandell & Smaldino, 2000)
- Low frequency noise in the classroom is detrimental to speech understanding (Crandell & Smaldino, 2000)
- Preliminary dissertation results suggest that two-talker child babble has a greater effect on sentence understanding for adults and children (Wannagot & Cienkowski, not published)

Classroom Noise



Previous Survey Data

- Speech-language pathologists' and special education teachers' perceived access to and benefit of educational audiologists (Knickelbein & Richburg, 2012; Richburg & Knickelbein, 2011)
- Educational audiologists' observations regarding classroom acoustics in K-5th grade (Latham & Blumsack, 2007/8)
- Teachers answered questions pertaining to the listening demands and accommodations for children with hearing loss in a mainstream classroom (Wannagot & Dilaj, not published)

Purpose

Survey teachers, special education teachers, speech-language pathologists (SLP), teachers of the hearing impaired (THI), and educational audiologists regarding listening environments in mainstream classrooms in public schools, specifically about the types of background noise present and their distractibility on students.



Research Questions

- What kinds of background noises are present in a mainstream public school classroom?
- Which background noises are the most distracting to students in the classroom?
- How do the responses change based on the profession of the individual?

Hypotheses

- It is hypothesized that the most common background noises are the HVAC system and students
- It is hypothesized that the most distracting background noise is students
- It is hypothesized that the responses will differ depending on the profession of the individual

Methods

- 15 question survey
- Will be distributed to teachers, special education teachers, SLPs, THIs, and educational audiologists
- Can be completed online (Qualtrics) or in-person (paper)
- Analysis will be completed using descriptive statistics

Survey Questions

Demographics

1. What is your profession in the public school setting?
2. Number of years that you have worked in your profession?
3. Location of school?
4. Grade level of school?
5. What grade(s) do you teach?
6. Which subject(s) do you teach?

Survey Questions

7. What do you think are the major sources of noise in the classroom? (check all that apply)
 - Computer/Projector, Hallway noise, Outside noise, HVAC system noise, and Students
8. Which noise source do you think is the loudest in the classroom?
9. Rank order the following noise sources from 1-5 with 1 being MOST distracting/bothersome to 5 being least distracting/bothersome to students in the classroom?
 - Computer/Projector, Hallway noise, Outside noise, HVAC system noise, and Students
10. Are there any noise sources missing from this list that you would like to add?

Survey Questions

11. Do you think that a classroom without students in it is noisy?

12. What is the noisiest environment for a student during the school day?

13. Rank order the following environments from 1-4 with 1 being **MOST** noisy to 4 being **least** noisy:

_____ Classroom

_____ Gym

_____ Cafeteria

_____ Specials (i.e. music, art, etc.)

14. Are there any environments missing from this list that you would like to add?

15. Why is it important to keep the noise levels down in the classroom?

Results



References

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Thank you for listening!



Any Questions?

