

# SUPPORTIVE REFERENCE AND ADDITIONAL RESEARCH RELATED TO CHILD AUDITORY DEVELOPMENT & ACOUSTICS

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## Noise, health, and productivity:

Julian Treasure does an excellent job summarizing the impact of noise in his TedTalk and on his Ted blog:

- [\\*9 ways that sound affects our health, wellbeing and productivity | TED Blog](#)
- <https://www.youtube.com/watch?v=rRephXq33s>

## Classroom acoustics and the impact on the well-being of children and adults in the classroom:

- **\* Finitzo-Hieber, T., & Tillman T. (1978). Room Acoustics Effects on Monosyllabic Word Discrimination Ability for Normal and Hearing Impaired Children, *Journal of Speech and Hearing Research*, 21, 440-458. Seminal research into room acoustics and seating advantages.**
- Feilner, M., Rich, S., & Jones, C. (2016). *Phonak Insight. Automatic and directional for kids Scientific background and implementation of pediatric optimized automatic functions* Staefa, Switzerland, Phonak AG.  
[https://www.phonakpro.com/content/dam/phonakpro/gc\\_hq/en/events/2016/international\\_pediatric\\_audiology\\_conference\\_atlanta/chapter\\_10\\_jones\\_draft.pdf](https://www.phonakpro.com/content/dam/phonakpro/gc_hq/en/events/2016/international_pediatric_audiology_conference_atlanta/chapter_10_jones_draft.pdf)
- Klatte, M.; Hellbrueck, J. **Effects of Classroom Acoustics on Performance and Well-Being in Elementary School Children: A Field Study; *Environment and Behaviour* vol 42, Issue 5 (2017) [Effects of Classroom Acoustics on Performance and Well-Being in Elementary School Children: A Field Study - Maria Klatte, Jürgen Hellbrück, Jochen Seidel, Philip Leistner, 2010 \(sagepub.com\)](#)**
- Klatte M, Bergström K, Lachmann T. **Does noise affect learning? A short review on noise effects on cognitive performance in children. *Front Psychol*. 2013 Aug 30;4:578 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3757288/>**
- Kristiansen, J., Persson, R., **Effects of Classroom Acoustics and Self-Reported Noise Exposure on Teacher's Well-being; *Environment and Behaviour* Vol. 45, Issue 2 (2013) [Effects of Classroom Acoustics and Self-Reported Noise Exposure on Teachers' Well-Being - Jesper Kristiansen, Roger Persson, Søren Peter Lund, Hitomi Shibuya, Per Møberg Nielsen, 2013 \(sagepub.com\)](#)**
- Mealings, K. T., Demuth, K., Buchholz, J. M., & Dillon, H. (2015b). **The effect of different open plan and enclosed classroom acoustic conditions on speech perception in Kindergarten children. *Journal of the Acoustical Society of America*, 138(4), 2458–2469. doi:10.1121/1.4931903**
- Mealings, K. T., Demuth, K., Buchholz, J. M., & Dillon, H. (2015b) **An Assessment of Open Plan and Enclosed Classroom Listening Environments for Young Children: Part 1 – Children's Questionnaires and teacher Questionnaires. *Journal of Educational Audiology* Vol 21 (2015) p. 6-41, <https://www.edaud.org/journal/2015/Journal-2015.pdf>**

- Nusseck, M. Immerz, A., **Vocal Behavior of Teachers Reading with Raised Voice in Noisy Environment**; *International Journal of Environmental Research and Public Health*, vol. 19, (2022) ([PDF](#)) [Vocal Behavior of Teachers Reading with Raised Voice in a Noisy Environment \(researchgate.net\)](#)
- \*Peelle JE. **Listening Effort: How the Cognitive Consequences of Acoustic Challenge Are Reflected in Brain and Behavior**. *Ear Hear.* 2018 Mar/Apr;39(2):204-214. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5821557/>
- Teisler, G, **Communication Behaviour and Workload of Students and Teachers in Highly Absorbent Classrooms**, *Euronoise 2018 conference proceedings*, [https://www.euronoise2018.eu/docs/papers/302\\_Euronoise2018.pdf](https://www.euronoise2018.eu/docs/papers/302_Euronoise2018.pdf)
- Werner, L, **What Do Children Hear? How Auditory Maturation Affects Speech Perception**, *ASHA Leader*, vol1 Mar 2007. <https://leader.pubs.asha.org/doi/10.1044/leader.FTR1.12042007.6>

**\*If you only read 1 or 2 studies or listen to 1 video. I recommend one of these.**

# Supportive References and additional research for Educational Facility Design for Acoustics

- Alberta standards for schools: Technical Design Requirements for Alberta Infrastructure Facilities 2022/ 7.0 Acoustics

<https://www.alberta.ca/assets/documents/infra-technical-design-requirements.pdf>

- United States Standards for Schools: ANSI/ASA S12.60-2010/Part 1 American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 1: Permanent Schools

[https://successforkidswithhearingloss.com/wp-content/uploads/2012/01/ANSI-ASA\\_S12.60\\_2010\\_PART\\_1\\_with\\_2011\\_sponsor\\_page.pdf](https://successforkidswithhearingloss.com/wp-content/uploads/2012/01/ANSI-ASA_S12.60_2010_PART_1_with_2011_sponsor_page.pdf)

- Britain

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/400784/BB93\\_February\\_2015.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/400784/BB93_February_2015.pdf)

- Australia

<https://store.standards.org.au/product/as-nzs-2107-2016>

<https://aac.org.au/resources/Documents/Public/AAAC%20Guideline%20for%20Educational%20Facilities%20Acoustics%20V2.0.pdf>

- Review of world standards, 2006:

[http://www.academia.edu/5748390/Speech\\_Intelligibility\\_Issues\\_in\\_Classroom\\_Acoustics\\_A\\_Review\\_Ms\\_N\\_Subramaniam\\_Non-member](http://www.academia.edu/5748390/Speech_Intelligibility_Issues_in_Classroom_Acoustics_A_Review_Ms_N_Subramaniam_Non-member)

- **Effects of Measured Acoustic and Other Indoor Environment Factors on Student Achievement in K-12 Classrooms:**

[Published SEPTEMBER 01 2018 JASA](#)

- Alberta Infrastructure – Design and Technology Series - OPERABLE PARTITIONS Strategies for Application in Schools

<http://www.infrastructure.alberta.ca/Content/docType486/Production/DTSeries08OpPart2017.pdf>