



## The Clinical Cafe'

Home | Clinical Café Archive | **March 2004**

*What is the relationship between what children hear and their speech production*

**Guest Columnist: Heather McDonald BA (Psychology) BEd (Special Educ)(Honours)4th Year student.**

No doubt speech-language pathologists would agree that a child's auditory discrimination ability is critical to his or her speech-language development and educational attainment. This is why so many children are referred by SLP's to audiologists to check their hearing. Unfortunately the standard audiometry 'pure-tone' tests are not designed to test for children's hearing abilities in the classroom. Often children with educationally significant "minimal hearing loss" are overlooked (Flexer, 1994 p.37) and they suffer in silence throughout their school years - even though research over the last 20 years has found that these children are over-represented in special education classes (Sarff, Ray, & Bagwell, 1981) and are faced with many academic and social challenges (Crandell, Smaldino, & Flexer, 1995).



As part of a BEd(Special Education)Honours Research project I administered the Goldman-Fristoe-Woodcox Test of Auditory Discrimination (1970) (G-F-W) to 103 junior primary school children. The G-F-W provided an assessment of the children's ability to discriminate words under quiet and noise conditions. The children's teachers completed a short questionnaire, regarding their classroom behaviour which included a question about how often the children mispronounced words. Classroom acoustical measurements were taken and the parent(s)/caregiver(s) completed a questionnaire as well.

Two of the most significant results from the study revealed that the children with the greatest difficulty discriminating words-against-background-noise were much more likely to have speech language difficulties ( $p < .05$ ) and were more likely to have been to a speech-language pathologist ( $p < .05$ ). From the teachers reports it was found that the children whom were substantially affected by background noise were also more likely to mispronounce words ( $p < .05$ ) than children not so affected by background noise.

Difficulty discriminating words against background noise can be a significant problem for school children as teaching is largely performed through the medium of the teachers voice and classrooms usually have extremely poor acoustics. Researchers have found that typical classroom noise levels *far exceed* the level recommended by ASHA and that the signal-to-noise ratio, which is the most important environmental factor that affects classroom communication, is also typically *substantially* below what is needed for speech recognition (Crandell & Smaldino, 2000 p363).

It is possible to speculate that one of the factors contributing to children's speech impediment is poor classroom acoustics which influences how they are actually *hearing* the speech sounds. This could be what Dr Carol Flexer was alluding to when she stated that "The primary negative effect of the invisible acoustic filter of hearing impairment is its impact on verbal language acquisition. We speak because we hear, and we speak what we hear" (Flexer, 1994 p.5).

Speech-Language Pathologists can help children substantially by testing children who mispronounce words, to identify any difficulty these children have in "real-life hearing" i.e. hearing-against-background-

Discussion Center

Featured Articles

Clinical Cafe'

The Lighter Side

Special Offers

National Consultants

A to Z Products

Resource Center

Contact Us



AGS Publishing  
is a corporate  
partner of ASHA

noise. The G-F-W only takes around 14 minutes per child and requires minimal training and has no restrictions on who can administer it. The results can then be shared with the child's carers and teachers and suitable interventions can then be put into place. These interventions can then change academic and social failure into success.

## REFERENCES

Crandell, C.C. & Smaldino, J.J. (2000) Classroom Acoustics for Children with normal hearing and with hearing impairment., *Language, Speech, and Hearing Services In Schools*, 31,, pp. 362-370.

Crandell, C.C., Smaldino, J.J. & Flexer, C. (1995) *Sound-Field FM Amplification: Theory and Practical Applications* (San Diego, California, Singular Publishing Group Inc).

Flexer, C. (1994) *Facilitating Hearing and Listening in Young Children* (San Diego, California, Singular Publishing Group, Inc).

Goldman, R., Fristoe, M. & Woodcock, R.W. (1970) Goldman-Fristoe-Woodcock Test of Auditory Discrimination (Circle Pines, Minn., American Guidance Service, Inc).

Sarff, L.S., Ray, H.R. & Bagwell, C.L. (1981) Why Not Amplification In Every Classroom?, *Hearing Aid Journal*, pp. 11, 44, 47-48,50,52.

### Send us your "What I'd like to learn about tests this year" list

As your partner in testing, we'd like you to know what we do, how we do it, and why. In turn, we'd like to know what other information we could provide to help you in your jobs. So send us your "What I'd like to learn about tests this year" list to [ingaw@agsnet.com](mailto:ingaw@agsnet.com). And we'll try to fulfill your wishes.

---

### SLP Discussion Center

As always, we'd like to thank you for your ongoing service to people with communication needs and to remind you that we at AGS Publishing are here to support you with that effort. If you'd like to discuss this topic further, please feel free to use the [SLP Discussion Center](#) as the vehicle for an ongoing discussion with your colleagues. Should you have questions regarding these or other AGS Publishing [Speech and Language](#) products, we welcome your phone calls at 800-328-2560 or your e-mails to [ingaw@agsnet.com](mailto:ingaw@agsnet.com).

[Back to Top](#) 



©2003 AGS Publishing | 4201 Woodland Road | Circle Pines, MN 55014-1796  
phone 800.328.2560 / 651.287.7220 | fax 800.471.8457 / 651.287.7223  
Corporate Email: [agsmail@agsnet.com](mailto:agsmail@agsnet.com) | Webmaster: [webmaster@agsnet.com](mailto:webmaster@agsnet.com)  
Order Inquiries: [customerservice@agsnet.com](mailto:customerservice@agsnet.com) | Corporate Web Site: [www.agsnet.com](http://www.agsnet.com)

AGS Publishing is a member of the [WRC Media family](#), the largest publisher of supplementary educational materials in the world.