



NDSD Connections

DEVILS LAKE, ND

FALL 2007

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Hearing Aid Compatible Cell Phones...the Basics

When wireless devices are used near hearing devices (such as hearing aids and cochlear implants), users may detect a buzzing, humming, or whining noise. Some hearing devices are more immune than others to this interference, and wireless devices also vary in the amount of interference they generate.

The wireless telephone industry has developed ratings to assist hearing device users in finding wireless devices that may be compatible with their hearing devices. Not all wireless devices have been rated. Wireless devices that are rated will have the rating displayed on their box together with other relevant approval markings.

The ratings are not guarantees. Results will vary depending on the user's hearing device and hearing loss. If your hearing device is vulnerable to interference you may not be able to use a rated wireless device successfully.

M-Ratings: Wireless devices rated M3 or M4 meet FCC requirements and are likely to generate less interference to hearing devices than wireless devices that are not labeled. M4 is the better/higher of the two ratings.

T-Ratings: Wireless devices rated T3 or T4 meet FCC requirements and are likely to be more usable with a hearing device's telecoil ("T Switch" or "Telephone Switch") than unrated wireless devices. T4 is the better/higher of the two ratings. (Note that not all hearing devices have telecoils in them).

Most phones that are rated T3 also have an M3 rating. Similarly, most phones rated T4 also have an M4 rating.

Hearing devices may also be measured for immunity to this type of interference.

Your hearing device manufacturer or hearing health professional may help you find results for your hearing device. The more immune your hearing aid is, the less likely you are to experience interference noise from wireless devices.

Taken from <http://www.phonescoop.com/glossary/term.php?fid=66>



North Dakota School for the Deaf is a division of the Department of Public Instruction, Dr. Wayne Sanstead, State Superintendent

Hearing loss and hearing aids are highly individualized so it is still advisable to try a cell phone with your hearing aid in the store or ask for a trial use before making your cell phone purchase.

Samples of assistive listening devices for cell phones



Clearsounds CLA7 UltraClear Power Neckloop: addresses the needs of people with t-coil hearing aids. Works on mobile, cordless and corded phones, iPods and other audio devices. +30dB amplification. Also has TV listening attachment. ~\$119.00



Plantronics Cell Phone Amplifier compact amplifier that plugs into the headset jack of your cell phone and allows you to connect your own headset to hear conversations amplified by up to 24 dB. ~\$39.95

Cell phone amplifier: amplification turns on with two selectable loudness boosts of 15 dB or 22 dB. The amplifier is compatible with all headset and cell phone models (some cell phones may require an adapter – not included) ~\$49.95



At left, **Krown PocketComm Portable TTY/VCO:** Use it acoustically with any phone, or use the included cord to plug it directly into a TTY-compatible cell phone. ~\$189.95

At right, for a larger keyboard, **Ultratec's Compact/C TTY with Cell Phone Connector:** a portable TTY with a cell phone connector. It will work with TTY compatible cell phones only. ~\$289.00



ClearSounds CLA7 Amplified Neckloop for Phones & Audio

This neckloop generates an induction signal that is picked up by the telecoil of your hearing aid and is compatible with cellular phones with a 2.5mm jack. It will work with any phone equipped with a 2.5mm jack; cellular or land line. ~119.95

T-Mobile Sidekick 3: Use it as a phone, or send text messages, instant messages or emails. You can even surf the Internet with real web browsing ~ \$200-\$300 for phone plus fee for monthly service.

You will need to check to see if your area has services. Usually comes with a rebate.



The story behind “Signing Time”

Taken from <http://www.signingtimefoundation.org/about/default.htm#lucy>

The creation of Signing Time! was a labor of love, born out of the desire to teach children everywhere how to sign basic words in order to communicate. After all, this is precisely what sisters Rachel de Azevedo Coleman and Emilie de Azevedo Brown spent much of their time doing with their young children.

In December of 1996 Leah was born to Rachel and her husband Aaron. At the time, Rachel was writing music and performing with her band. Rachel and Aaron would take young Leah to band practices and concerts, and to their amazement, she was able to sleep in spite of the loud music. When she was fourteen months old, they discovered why: Leah was deaf. She never heard the music. She never heard her mom sing.

"When I realized my daughter was deaf," Rachel admits, "I just couldn't find a way to rationalize spending hours working on my music. My priorities changed. I put down my guitar and picked up sign language." She and Aaron immediately started learning American Sign Language (ASL) so they could teach it to Leah. Rachel was astonished to see that within six months, Leah's sign language vocabulary far surpassed the vocabulary of hearing children her same age. Rachel explains, "While Leah's little friends could only point at something they wanted, Leah could actually tell us." Because she had learned to use sign language so early, it was not long before she could read written words, even though she was only two years old.

Emilie and her husband Derek also started teaching sign language to their infant son Alex, so that he would one day be able to communicate with his cousin Leah. Emilie was thrilled one morning when Alex, then only ten months old, stopped fussing, looked up at her, and made the sign for milk.

A few years later, Rachel had a second daughter. Lucy was born 8 weeks pre-mature, with spina bifida and cerebral palsy. Doctors worried that, due to her cerebral palsy, Lucy would never be able to communicate with her Deaf sister. In the midst of all of this, Rachel shared an idea with her sister. She wanted to create a video for hearing children that would be captivating, entertaining, and would make sign language accessible to all children.

This idea was the spark behind the creation of their production company, Two Little Hands Productions. Despite many obstacles, including Emilie living in Virginia, Rachel residing in California and production taking place in Utah, Signing Time! Volume One: My First Signs was completed in May 2002.



Signing Time can currently be seen on Prairie Public Television at 8:00 a.m. on Sunday mornings.

On May 12, 2007, NDSD's Outreach Department helped arrange local families to meet Rachel and Hopkins (Signing Time's mascot) at Rhealt Farm in Fargo during PBS's Share-A-Story event.

An sign language interpreter was also lined up for the various performances presented that day.

Learning from the 500 Most Commonly Occurring Words



By Geoff Plant, Teacher of the Deaf, Hearing Rehabilitation Foundation
 Taken from MED-EL's Listen, Hear! Newsletter for Teachers and Therapists (2/2003)
 For a complete copy of the article, go to
http://www.medel.com/Shared/pdf/rehab_network/Listen,%20Hear_02_2003.pdf

Introduction

There are significant differences between the language forms we use when we write and when we speak. Crystal pointed out that in spoken language, we use "looser construction, repetition, rephrasing, and comment clauses (e.g., "you know," "mind you," "as it were")," and can rely on factors such as context and extralinguistic cues to resolve potential misunderstandings. In contrast, when we write we adopt a far more "correct" style, and pay far greater attention to producing grammatically correct sentences. If we spoke as we write, we would, almost certainly, be regarded as being overly formal and pedantic.

The Dahl Corpus

I took these differences into account when I started to search for lists of the most-frequently occurring English words. There are numerous lists of the most-frequently occurring words in written language, but, at first, I found it impossible to find a list that presented data from spoken language. Finally, in the mid-1990's, I found, quite by accident, a book by Hartvig Dahl entitled "Word frequencies of spoken American English." Although its source was rather unusual, the transcripts of 255 psychoanalytic sessions conducted with 15 patients by 14 therapists, the more I looked at the lists, the more convinced I became that I had found a "gold mine" of useful information. As Dahl noted, the sessions provided the opportunity for the patients "to overcome inhibitions, to speak freely about the ordinary events and concerns of everyday life." As a result, they reflect word usage patterns that reflect everyday communication.

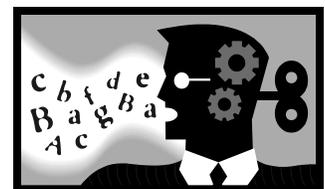
I decided that I would concentrate my efforts on the first 500 words in Dahl's list, as these seemed to represent the "core" of spoken language. The importance of these words can be seen in the following analysis. The speakers in Dahl's corpus produced over a million words in total, of which there are 17,871 different words listed. A small number of these words contributed greatly to the overall pattern of use. For example, the personal pronoun "I" occurred on 61,586 separate occasions, and represented almost 6% of the total number of words produced. Further, the first 10 words in the list – I, and, the, to, that, you, it, of, a, know – represented 26% of the words used! When I looked at the first 100 words, I found that they represented almost 63% of the total, while the first 500 words formed 83.5% of the words used in the sessions. It was obvious to me that these words were of critical importance in spoken language, and, as a result, should be included in materials developed to test and train children with hearing loss. First of all, however, I wanted to conduct a detailed analysis of these 500 most-frequently-occurring words.

Syllabic structure

When I looked at the syllabic structure of the words, I found that there were 311 monosyllables, 151 two-syllable, 28 three-syllable, and 10 four-syllable words...

Consonant distribution

...I counted the total number of occurrences of each consonant, and expressed this as a percentage of the overall number of consonants in the list. These ranged from over 11% for [t] to no occurrences at all for the voiced fricative /zh/ found in words such as "treasure" and "pleasure." The order of occurrence from most frequently to least frequently occurring was /t, r, n, s, d, l, k, m, w, z, f, ng, p, b, h, g, v, th, th, sh, y, ch, j, zh/. Further analysis revealed that six items (/t, r, n, s, d, l/) represented 55% of all consonant occurrences. These involve a partial or complete constriction at, or near the alveolar ridge, by either the tongue tip or tongue body. There are few visual cues to these articulatory positions, and access to the acoustic cues accompanying their production, such as those which occur with cochlear implants, will greatly enhance acquisition of these vital consonants. It should also be noted that the consonants with the most visible articulatory positions, such as /f/, /p/, and /th/, occurred much less frequently.



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Learning from the 500 Most Commonly Occurring Words

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Vowel distribution

Analysis of the distribution of the vowels was a little more difficult, as these vary from dialect to dialect. Again, however, it is sobering to reflect that the articulatory positions of the three most frequently occurring vowels (/i/ in “heed,” /l/ in “hid,” and /e/ in “head”) all require an accurate raising and fronting of the tongue body. In order to produce these vowels accurately, speakers require access to the energy peaks (formants) that reflect tongue height (the first formant), and tongue place (the second formant). The second formants of these vowels lie in the range 1,500 – 3,000 Hz depending upon the age and gender of the speaker. This information may not be provided by hearing aids, but should be accessible to those using cochlear implants.

Monosyllabic structure

I also looked at the consonants (C) and vowels (V) making up the 311 one-syllable words in the list. I found that the most common form was CVC (143 occurrences), as in words such as “that,” “was,” and “but,” followed by the CVCC (“don’t,” “think”), CV (“the,” “to”), and VC (“it,” “in”) structures.

Contractions

One way that spoken communication differs from written communication involves the use of contractions. For example, while it is usual to write, “I am,” we normally say, “I’m.” In looking at first 500 items in the Dahl list, I found 35 contractions. The contractions “don’t,” “I’m,” “it’s,” “that’s,” “didn’t,” “you’re,” and “I’ve,” occurred in the first 100 items in the Dahl list.

Homophones

The Merriam-Webster Dictionary defines a homophone as “one of two or more words pronounced alike but different in meaning or derivation or spelling.” Examples include words such as “two,” “to,” “too,” and “four,” “for,” “fore.” In looking at the Dahl list, I found more than 70 such words. These words can be quite confusing for deaf children, and I always try to point them out to the children with whom I work.

Preparing testing and training materials

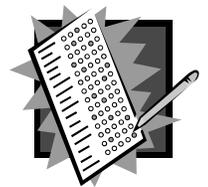
Once I had completed the analysis, I set out to prepare a series of testing and training materials using this set of words. I feel that deaf children need to become very familiar and comfortable with these items, as they represent such an important part of spoken English.

Speech Stuff

In 2001, I published a book 5 containing the Dahl words used in a variety of ways. This included a listing of all 500 words with a pronunciation guide for each word. Where necessary, I included both the citation form of the word, and its more normal production in conversational speech. Other sections involved the use of the words for word and sentence testing, and a listing of the contractions and homophones.

Word lists

One possible use of these words included the preparation of word lists for testing and training. I selected 100 words from the CVC’s in the list to form two 50-item test lists. [One list is featured on the next page] I chose CVC’s because they provide the opportunity for accurate scoring at both the word and phoneme level. When I present these words for identification, I score the subject for not only the number of words correctly identified, but also the number of phonemes. I have always believed that this is a much “fairer” method of scoring, because it recognizes that an error such as hearing “phone” as “foam,” involves a minor confusion between two closely related phonemes.



When I present this list to one of my clients, I say each word in a short carrier phrase such as “Number one is did,” “Number two is much,” and score for the whole word (correct or incorrect), and the initial consonant, vowel, and final consonant. For example, if the client’s response to the word “wrong” is “Ron,” I score the word as incorrect, but note that the initial consonant and vowel were correct, while the final consonant involved substitution of /n/ for /ng/. At the completion of the list, I not only know how many words were correctly identified, but also have a record of the direction of error responses. This information is invaluable in determining areas of concern for an individual

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One of the lists is shown below.

- | | |
|-----------|-----------|
| 1. did | 26. put |
| 2. much | 27. home |
| 3. come | 28. guess |
| 4. same | 29. his |
| 5. lot | 30. down |
| 6. bad | 31. might |
| 7. like | 32. came |
| 8. which | 33. yet |
| 9. love | 34. look |
| 10. type | 35. said |
| 11. head | 36. mean |
| 12. leave | 37. then |
| 13. less | 38. would |
| 14. wife | 39. get |
| 15. kid | 40. them |
| 16. have | 41. got |
| 17. had | 42. will |
| 18. such | 43. those |
| 19. wrong | 44. done |
| 20. but | 45. has |
| 21. feel | 46. that |
| 22. one | 47. was |
| 23. him | 48. than |
| 24. been | 49. tell |
| 25. with | 50. this |

Plant, G. 2001.

Speech Stuff,
Hearing Rehabilitation
Foundation,
Somerville, MA



Learning from the 500 Most Commonly Occurring Words

(Continued from page 5)

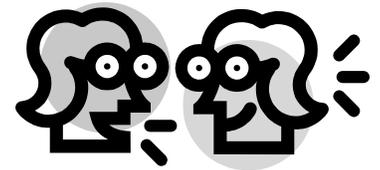
client, and provides cues as to the direction of future training. The words can also be used for listening training, although, once this has occurred, they should not be used for test purposes. If a client is having difficulty hearing the words when they are produced in isolation, I put them in short sentences to see what effect context has on identification. For example, I say, "Number one is 'did.' Did you go for a walk today?" This sort of training can help develop an awareness of the importance of synthetic skills in speech understanding.

Sentence lists

I've also developed a number of sentence lists that contain only words from the first 500 items in the Dahl corpus.... These words are so important in English that it is difficult to imagine producing intelligible sentences that do not contain at least some of them.

I've included some examples of these sentences below with the number of words in each sentence:

1. Do you know where she went to high school? (9)
2. I was asking them to help us with this work. (10)
3. I should be able to see you some time tomorrow morning. (11)
4. What time did you start? (5)
5. I will see her in a couple of days. (9)
6. I tried to read that book, but it was too hard for me. (13)
7. That's the best thing to do. (6)
8. I have to see the doctor. (6)
9. What do you want to do next weekend? (8)
10. I'm sure I put it in my room. (8)



Each list consists of 25 sentences, and contains a total of 200 words. I've tried to include sentences of varying length, as deaf people often report that they have special difficulties with longer sentences. Readers who would like to obtain copies of these sentences can contact me at hearf@aol.com, and I will be happy to send them to you.

When I use these lists for training, I present each sentence in turn, and ask the client to repeat back as many words as possible. The presentation condition depends upon the skill level of the individual client, but can include auditory only, auditory-visual, in quiet, or in a noisy background. The lists can also be used for speech training with deaf children, as the sheer ubiquity of these words means that they need to be within the production skills of deaf speakers. The child's production of these sentences can be recorded on either audio- or videotape, and then played back to listeners who are unfamiliar with the speaker. The listeners' scores when they attempt to repeat the child's sentences can be used to estimate her/his speech intelligibility, and can help pinpoint areas that require special attention. It is sometimes interesting to see what effect the presentation of the materials, both auditory only and auditory-visually, has on a listener's ability to understand the talker. Quite often, talkers who are difficult to understand via listening only, become much more intelligible when lipreading cues are also provided, and we should take this into account when measuring the skills of deaf speakers.

Conclusion

I've provided a brief overview of my analysis of the first 500 items in the Dahl corpus, but many readers may wish to find out more about this work. A more detailed paper is available, and I will send copies of it to anyone who contacts me at my email address.

Plant, G. 2000 An analysis of the most frequently occurring words in spoken American English. Volta Review, 101(2), 71 - 99



Visit the Listening Room website at www.HearingJourney.com and click on the icon shown above.

They will also be launching a section for teenagers and adults soon.

"I end each activity with the same two words- Have Fun! The more a child enjoys what he hears, and the more opportunities he has to say what is meaningful to him, the more powerful his language system will become. There's no stopping it.

Have fun!"

- Dave Sindrey



Advanced Bionics launches website

By Dave Sindrey, author of Listening for Littles and Word Play

This is the place I wanted to build. Advanced Bionics helped me in every way. I create activities and they help me make it magically appear in the Listening Room where everyone can reach it. I wanted a place for parents to get ideas for talking and listening. I wanted a place where therapists, student therapists and parents can meet and offer both support and advice to each other. I wanted a place where ideas were a steady stream and where through collaboration we can start collecting ideas, sharing discoveries and storing them for later visitors to the site.

This **"Welcome"** is my first article of the month. I'll try to write something new each month that I think will get discussion going about listening. There will always be a printable version that I hope you will share with someone you think could use it.



The different areas of the Listening Room aim at different areas of your

child's day. Each is hopefully effective in making that part of the day more language rich and meaningful. I think the most wonderful addition to the site is the contribution of Chris Barton, music therapist. Chris is also a published composer and performer of children's songs. She has shared some of the Tune Ups! program that she created with Amy McConkey Robbins and offers fun songs and more each month in the Circle Time area.

Some things on this site are up all of the time. Print the Weekly Wall calendar for your child's room. Therapists can print oodles of materials for working on the discrimination of speech sounds and even a placement test with forms. The Tune Ups! Mural, Lotto Games, Flashcards and the sound files you'll need to play are always there for you to use.



Each month a Mural is offered in Language Off the Wall. Print 15 sheets and assemble an interactive murals that makes the wall of a classroom, bedroom or clinic more fun and language rich. There are new activities for preschoolers and school age listeners every week. Be sure to visit often, as these activities are replaced with new ones every Friday. The Talk-about activity gives your family something fun and exciting to do and a way to talk about it so that lots of language happens at home.

Visit the library for older articles, the Loud and Clear newsletters, which are always excellent, and some one hour mini courses I will do specifically for the Listening Room.

I see the Share an Idea section as the heart of the site. This is the area where parents and professionals can share ideas, ask questions, get answers, and most importantly, find support. The more contributions from members, the more valuable this area will become. Stuck for a language idea? Search the Idea Share area for something your child will love to do and to talk about.

North Dakota School for the Deaf

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Devils Lake, North Dakota 58301

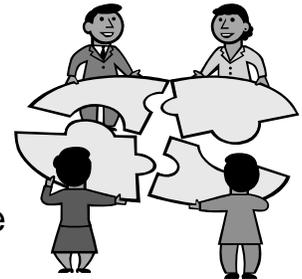
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*"Looking back with pride and
Looking forward with confidence."*

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Helping you put the puzzle together on hearing loss



North Dakota School for the Deaf is your resource on hearing loss. Need help or assistance related to hearing loss, utilize one of the services that we offer:

- ❖ Parent-Infant Program
- ❖ Presentations/Inservices
- ❖ Information Dissemination
- ❖ Assessments
- ❖ Adult Services
- ❖ Assistive Devices
- ❖ Consultations
- ❖ Direct Services
- ❖ Support

If you have any questions or need the assistance of a qualified specialist, contact the outreach office closest to you:

Devils Lake 665-4400
Fargo 239-7116
Grand Forks 795-3168

Bismarck 328-3357
Minot 858-3357

We're on the Web!
www.discovernd.com/ndsd