

October, 2011

Harnessing the Human Factor in Hearing Assistance

By David G. Myers

[Editor's introduction:] *APS Fellow and Charter Member David G. Myers is an author and a professor of psychology at Hope College. Myers is the author of 17 books including the popular textbooks Psychology, 9th ed., Exploring Psychology, 8th ed., Social Psychology, 10th ed., and Exploring Social Psychology, 5th ed., which have been translated into 12 languages. Myers' scientific writings have appeared in three dozen academic periodicals, including Psychological Science, Science, the American Scientist, and the American Psychologist. His research and writings have been recognized by the Gordon Allport Prize, by an "honored scientist" award from the Federation of Associations in the Brain and Behavioral Sciences, by the Award for Distinguished Service on Behalf of Personality-Social Psychology, and by three honorary doctorates. His latest essays, in Sound and Communications and Hearing Health and Technology Matters, explain his advocacy for transforming assistive listening for people with hearing loss.*

As a person with hearing loss, I often find lectures, plays, and PA system announcements indecipherable. But who else notices? Unlike someone visibly left outside because of wheelchair inaccessibility — which would leave others appalled — inaccessibility due to hearing loss is invisible and thus often unremedied.

The Americans with Disabilities Act does, however, mandate hearing assistance in public settings with 50 or more fixed seats. Such assistance typically takes the form of a checkout FM or infrared receiver with earphones. Alas, because well-meaning sound engineers fail to consider the human factor — how real people interact with technology — most such units sit unused in storage closets.

To empathize, imagine yourself struggling to carve meaning out of sound as you watch a movie, attend worship, listen to a lecture, strain to hear an airport announcement, or stand at a ticket window. Which of these hearing solutions would you prefer?

1. Taking the initiative to go locate, check out, wear, and return special equipment (typically a conspicuous headset that delivers generic sound)?
2. Pushing a button that transforms your hearing aids (or cochlear implant) into wireless loudspeakers that deliver sound customized to your own needs?

Solution 1 — the hearing-aid-incompatible solution — has been America’s prevalent assistive-listening technology. Solution 2 — the hearing-aid-compatible solution — has spread to Scandinavian countries and across the United Kingdom, where it now exists in most cathedrals and churches, in the back seats of all London taxis, and at 11,500 post offices and countless train and ticket windows.

Twelve years ago I first experienced this hearing technology at Scotland’s Iona Abbey. As the spoken word reverberated off the 800-year-old stone walls, it was, for me, an unintelligible verbal fog. My wife then noticed a sign indicating a “hearing loop” — a magnetic communication system that transmits PA system output via a room-surrounding wire loop to a hearing instrument “telecoil” sensor. (Telecoils now come, cost-free, with most new hearing aids and all new cochlear implants.) Push a button to activate the telecoil and, voila!, the hearing instrument becomes a wireless in-the-ear loudspeaker for magnetic signals sent from hearing loops (as I discovered that day), as well as from many modern telephones.

The result was stunning: Suddenly I was hearing a clear voice speaking from the center of my head. The delicious sound (is this what others hear?) put me on the verge of tears. On returning home, I installed a \$250 hearing loop in my home TV room. If someone watches TV with me, they hear sound from the TV while I hear it broadcast by my hearing aids (which can simultaneously pick up room conversation). My office phone likewise connects to a hearing loop, which transmits amplified phone conversation to both my ears, with greatly increased clarity. (When taking voice mail messages, I can leave the handset on the desk.)

Given how well this simple technology works in other countries and in my home and office, why not loop my community? So, with support from some local companies, foundations, and media, I introduced hearing loops to West Michigan. Nearly a decade later, we now have them in hundreds of locations, including most worship places, many school and senior citizen center auditoriums, the convention center and airport in Grand Rapids, and even Michigan State University’s basketball and special events arena.

The response has been gratifying, with use of hearing assistance multiplying and with words of appreciation flowing from audiologists (“Never in my audiology career has something so simple helped so many people at so little cost”), audio professionals (“After installing our first loop system and seeing the reaction from the individuals with hearing loss, we immediately shifted our sales focus to loop systems”), and consumers (“The experience of actually hearing such clear sounds was thrilling and hard to describe”).

A California audiologist, Bill Diles, has installed hearing loops in the TV rooms of more than 1,800 patients. His patient surveys reveal markedly increased satisfaction, given the hearing loop, with both their TV listening and their hearing aids.

Given the appreciative response to this user-friendlier technology, why not “loop America?” I wondered. Why not effectively double the functionality of hearing instruments?

That ambition — my avocational passion of the last decade — presents a grand challenge in applied social psychology. How, given the cultural inertia supporting America’s existing hearing-aid-*incompatible* assistive listening, does one effectively persuade hearing and audio professionals to consider the human factor — the practical benefits of simplicity and no-fuss ease of use?

On behalf of Americans with hearing loss, my answer has been a persuasive message that shares the vision and tells the story to every audience I can reach — via an informational Web site (www.hearingloop.org), through 30 articles for hearing and audio professionals and the general public, and by invited talks and nearly 9,000 e-mails to whomever will listen. Thanks partly to message repetition, and with the collaboration of energetic kindred spirits in other states, a grassroots movement is gaining momentum. New companies have formed to produce and market hearing loop products. Effective hearing loop advocates in Wisconsin, Arizona, New Mexico, Rochester (NY), Silicon Valley, and New York City (where hearing loops are being installed at 488 subway information booths) have undertaken initiatives in their locales and are networking through a national listserv. (This is prosocial group polarization.) Various national media — from [Scientific American](#) to the [AARP Bulletin](#) to NPR [Science Friday](#) and an upcoming issue of the *New York Times* — have featured our collective social entrepreneurship.

And, to my delight, the Hearing Loss Association of America (“the nation’s voice for people with hearing loss”) and the American Academy of Audiology have undertaken a joint campaign to “enlighten and excite hearing-aid and cochlear-implant users, as well as audiologists and other hearing health care professionals, about telecoils and hearing loops and their unique benefits.”



Is this the ultimate wireless hearing solution? The cost, limited range, and power demands of alternative wireless technologies, such as Bluetooth, make hearing loops today’s technology of choice for public access. But if some future wireless technology is similarly affordable, miniaturized for most hearing instruments, simple to use, inconspicuous, and able to cover a wide area with a universally accessible signal, then bring it on. Our advocacy is less for hearing loops per se than for hearing technology that appreciates the human factor — by enabling hearing instruments to serve an important second function, as simple, affordable, wireless loudspeakers. Happily, we are now approaching a cultural tipping point where that dream looks like an achievable reality.

David G. Myers is the author of *A Quiet World: Living with Hearing Loss* (Yale University Press) and the creator of www.hearingloop.org. In recognition of his collaborative efforts to transform American assistive listening he received a 2011 Presidential Award from the American Academy of Audiology.