



HeAL 2026
Hearing Across the Lifespan

June 4-6, 2026

Padova Conference Center, Italy

www.heal2026.org

Same Words, Different Meanings

How listener language use reflects sound preference

ENGELUND, GITTE

Co-authors: MARMEL, F; BALLING, L

ORCA Labs, WSAudiology

Conflict of Interest - I have the following potential conflict(s) of interest to report:
(i.e.) all authors have declared an industry affiliation with WSAudiology

*Imagine two listeners.
Both listened to the same sounds.
Both chose the same words to explain why they
preferred one over the other.*

**They preferred opposite sound
processing designs.**

METHODS

3

Independent
listening studies

~300

Adult
participants

829+

Open-ended
responses coded

4

Sound processing
conditions tested

A/B comparisons

Ecologically valid
listening scenes:
speech · environment ·
music · nature

Free-text rationale

Participants wrote freely
with no prompted
attributes.

Thematic coding

Responses coded using
a 13-dimension
codebook
AI supported analysis

Pattern analysis

Language mapped
against
sound processing
preference - time
domain vs frequency
domain

People have different definitions of 'better sound.'

Some people might ask: "What can I hear?"

Other people might ask: "How hard is it to listen?"

TIME DOMAIN SELECTORS

Sound that reveals the world, as hearing more.
Listeners seek information, realism and detail.

FREQUENCY DOMAIN SELECTORS

Sound that is easier to live with.
Listeners seek comfort, ease and usability.

Two signal processing.

TIME

versus

FREQUENCY

Three words. Different meaning.

CLARITY

NATURAL

**BACKGROUND
NOISE**

CLARITY

Does “clarity” mean more detail or less effort to listen?

Clarity = precision, detail, more of the world

Described as crisp, sharp, and precise. An experience where listeners try to detect, analyse, and isolate sounds.

“The sounds were crisp and clear.”

“Clearer and crisper, especially in the rain and the music tests.”

The spectrum of sound frequencies seemed more complete and richer.”

“I could hear both the lower sounds and higher pitched sounds.”

Clarity = ease, hearing without strain

Described clarity through easiness rather than precision. Emphasizing easier on the ear, not sharper.

“A little clearer without having to strain.”

“Clarity of sound, voices easier to hear, more natural sounds.”

“More natural and clearer when lots of sounds together.”

“I preferred this one it was clearer and easier on the ear.”

Both groups say 'speech is clearer' but they mean opposite things.

TIME DOMAIN

Speech emerges naturally

Voices become clearer, crisper and more articulate.

More consonants and nuances audible.

Listeners words: crispness, sharpness, distinction.

"Listening became less of an effort due to the voice being articulated"

FREQUENCY DOMAIN

Speech enhanced, background reduced

Speech is clearer because everything else is softened.

Less echo, less competing sound.

Listeners words: ease, less strain, focus.

"Allowed me to better ignore the background noise and focus on the sounds I wanted to hear."

NATURAL

Does “natural” mean “like being there” or “not uncomfortable”?

Natural = realistic, immersive, like ordinary hearing

Listeners focus on acoustic realism where naturalness means how closely the sound resembles the actual environment.

“It sounded like I was right there the downpour... I could hear individual drops hitting the ground.”

“The sounds were more distinct and organic.”

“The musical notes actually sounded more realistic..”

“Nothing sounded artificial or exaggerated”

Natural = comfortable, unforced

Listeners define naturalness by how the sound feels to listen to not only by acoustic fidelity to the environment.

“Everything seemed to be more natural sounding and I really liked that.”

“It just came across as more natural. The other one sounded a bit false and muffled.”

*“More natural...
less shrill and high-pitched.”*

*“Pleasant to my hearing.
No discomfort from the sounds.”*

BACKGROUND NOISE

Information or interference?

Background noise = useful environmental information

Background sound is preserved and differentiated. These listeners value awareness of what is happening around them.

“The background noises also sounded more in keeping with what I would expect and more realistic.”

“The background noises sounded clearer and more easily identifiable.”

“I could hear most of what was going on in the background as well as the main talking”

“Could distinguish some background audio more easily”

Background noise = a barrier to be controlled

Background sound is framed as interference. These listeners want it managed so they can focus on speech, which is then enhanced.

“The background noise seemed to be dulled or removed”

“Softened some of the loud, jarring background sounds that I often find distracting.”

“I could hear the clarity of the voices in the foreground”

“It allowed me to better ignore the background noises and focus on the sounds I wanted to hear.”

Participants across all three studies kept returning to the same words..
Same words. Different world.

CLARITY

Time domain:

More of the world

Frequency domain:

Easier, less strain

NATURAL

Time domain:

Realistic and immersive

Frequency domain:

Comfortable and ease

BACKGROUND NOISE

Time domain:

Rich environmental information

Frequency domain:

Enhanced for focus

1 Same words, different perceptual targets

Clear, natural, and background noise do not mean the same thing to every listener. Their meaning depends on the listener's relationship with sound.

2 Two definitions of 'better sound'

Time domain selectors BETTER = more information, more realism, more detail.
Frequency domain selectors BETTER = less effort, less fatigue, more usable.

3 Speech intelligibility works through two different mechanisms

Some listeners understand speech better when speech is detailed and every thing kept. Others understand it better when it is enhanced and everything else is reduced. Both say "speech is clearer."

4 Language use might predict preference

How clients spontaneously describe sound reflects their listening values and how they form sound preference which are supporting more personalised, participation-focused hearing care.

The overall insight:

People use the same 'sound' words. But they describe different experiences.

That is not a problem. That is a signal.

A signal of how sound forms; in the senses, in the emotions, in cognitive ease, and in identity.

And a signal that the choice matters. Because people are not living in the same acoustic world.

Thank You

Questions?

Engelund G. · Marmel F. · Balling L.W. WSA, ORCA Labs & Global Marketing, Lyngby, Denmark - HeAL 2026