Interactive Learning Environment for Optimizing Technology Use

Dragana Barac-Cikoja
Gallaudet University
Kevin Cole
Linda Kozma-Spytek
Steven Julstrom
Evan Spytek

No disclosures.
Interactive learning environment for optimizing technology use:

Computer-based *training/counseling* program for adult hearing aid and cochlear implant users

Allows self-directed exploration of *simulated* real-life listening situations and direct, multisensory *experience* of the resulting changes

- **Thematic exercises (modules)**
  - *Manipulate* acoustic parameters, hearing device settings, and visual cues
  - *Observe* sound quality, speech intelligibility, and listening effort

Tracks and saves exploratory activities and ratings.
Examples
Conceptual basis

*Implicit* learning: Perceptual learning in real-life, natural circumstances

- *multimodal* information (A + V + T ..., redundancy)
- *meaningful* situations (story-driven, with action goals)
- *unsupervised* activities (self-directed exploration; “sensory foraging”)
- variations (multiple tokens) that reveal *regularities* (patterns)
- *intrinsic reward* system (accomplishment).
Cost-effective supplemental post-fitting services
*Perceptual & Communication Strategies Training* leads to increased user satisfaction with hearing device, improved communication, better quality of life

Computer-based, at home auditory training (CASPER, CAST, LACE, Read my Quips, Seeing and Hearing Speech, SPATS)

**Supervised learning:** Skill acquisition through intensive training
- auditory information
- contrived content
- variations serve to maintain motivation
- repetitive task (tailoring of task difficulty!)
- explicit performance feedback
Common problems & recommendations
- low *compliance* rates and engagement levels
- less tedious, more engaging & entertaining training
- limited *generalization* to untrained materials and tasks
- more realistic and meaningful situations
- variable *benefits* (individual differences – predicting benefits?)
- more effective assessment of individual abilities and expectations

Interactive Learning Environment
Provides simulations of *real-life* conditions for exploring *technological solutions* and *communication strategies* without the limitations, pressures, and uncertainties associated with daily life

Allows direct, self-structured experience, and is a naturally *individualized* approach to setting more challenging but attainable aural rehabilitation goals, while acquiring more realistic expectations.
Acknowledgements

The contents of this presentation were developed under a grant from the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR grant number 90RE5020). NIDILRR is a Center within the Administration for Community Living (ACL), Department of Health and Human Services (HHS). The contents of this presentation do not necessarily represent the policy of NIDILRR, ACL, HHS, and you should not assume endorsement by the Federal Government.