Medical Xpress

Texting proves beneficial in auditory overload situations

May 31 2013

During command and control operations, military personnel are frequently exposed to extreme auditory overload – essentially bombarded by multiple messages coming from radio networks, loudspeakers, and live voices in an environment also filled with high-level noise from weapons and vehicles.

Adding a visual cue, such as texting, was explored by a team of researchers in Canada as a way to overcome this problem. Sharon Abel, defense scientist at Defence Research and Development Canada, will present her team's findings at the 21st International Congress on Acoustics (ICA 2013), held June 2-7 in Montreal.

"In military operations, it's critical that messages be monitored, encoded, responded to and relayed accurately, in a timely manner, to ensure situational awareness, personal safety, and mission success," explains Abel.

To test the value of adding a visual cue to the mix, the researchers ran two experiments. First, they investigated the benefit of using visual cues to direct the listener's attention to an audio channel delivering a target message. Inside a mock-up military land vehicle, participants were exposed to multiple messages over right and left earphones via headset, and loudspeakers. Variables included a background of quiet or vehicle noise, with and without babble noise that modeled surrounding conversations, and with and without visual cues.

For their second experiment, the team tested the benefits of instant messaging as a supplement to audio presentation of information by asking participants to engage in two tasks simultaneously. Participants listened to pairs of phrases in right and left headset earphones, while at the same time they had to decide whether or not simple math equations—presented over a loudspeaker, as a text message, or both—were correct.

"Participants had no difficulty responding to messages presented over the headset, although, there was a right ear advantage," Abel says. "We discovered that messages presented over a loudspeaker in noise were more difficult to understand. But a visual cue directing attention and text messaging resulted in significant improvements in performance. Our findings suggest that the use of the visual system is a viable supplement for communication in cases of auditory overload or degraded listening."

While the team's findings are particularly relevant for military operations, they may also prove quite useful to a diverse range of civilian trades that involve processing auditory information from multiple sources—such as air traffic control, office management, and group tutorials.

More information: Presentation 1pNSa3, "Supplemental text messaging for the resolution of auditory overload," is in the afternoon session on Monday, June 3. Abstract: asa.aip.org/web2/asa/abstracts … ch.jun13/asa206.html

Provided by American Institute of Physics