

RESEARCH PROJECT

Title: Speech communication in older adults: an acoustic and perceptual investigation

Website: <http://www.ucl.ac.uk/pals/research/shaps/research/speech-communication-in-older-adults/>

This study has been approved by the UCL Research Ethics Committee

Project ID Number: 0534/004

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INFORMATION FOR PARTICIPANTS

We would like to invite you to participate in a research project which investigates the impact of ageing on speech communication in good and adverse listening conditions. You should only participate if you want to; choosing not to take part will not disadvantage you in any way. Before you decide whether you want to take part, it is important for you to read the following information carefully and discuss it with the researchers if you wish. Please ask us if anything is not clear or if you would like more information.

Purpose of study: This project aims to achieve a better understanding of the impact of ageing on speech communication in good and adverse listening conditions. Speech communication in older talkers is affected by multiple factors: age-related hearing loss, declines in motor control, how the brain processes incoming information and how we remember facts. Although each of these factors has been the subject of separate investigations, a better understanding of the effect of ageing on speech communication can only come from investigating our ability to speak and understand speech in situations that reflect everyday communication.

Participants: We are looking to recruit adults with and without hearing loss between the ages of 18-80 years. Because we are examining the development of fine acoustic details in speech, we are not able to include participants who have had speech and language therapy or have any neurological, medical or learning difficulties (e.g. epilepsy, ADHD, autism spectrum disorders, speech and language impairments, dyslexia or dyspraxia).

However, there often are research projects at UCL recruiting people who have some of these conditions, and if you are interested, we would be happy to put you in touch with our colleagues.

Growing up bilingual or multilingual may also affect performance on the tasks we are running. If you grew up speaking more than one language from birth, this study is not suitable (feel free to discuss this with us if you are unsure). Again, although we cannot include bilinguals in this study, we may be running future projects with this population and we have colleagues in our department who are interested in bilingualism, so do feel free to contact us.

Description of test session

Upon signing up for the study you are allocated a conversational 'role' of either a 'Talker' or 'Confederate'. The experimental tasks and the duration of the study depend on the conversational role you are given.

Duration: The study consists of approximately one hour of screening tests (Session 1: Talker) and three hours of communicative tasks divided into two sessions (Sessions 2-3: Talker + Confederate). All three sessions are run on separate days. All testing will be done at the Speech Sciences Research Lab at Chandler House.

Session 1: If you are assigned the role of the Talker we will ask you to complete a battery of screening tests to collect information on: (a) hearing thresholds (b) visual acuity (c) colour vision (d) auditory discrimination (testing how well you can perceive small differences in the duration and frequency of simple sounds), (e) word understanding in quiet and background noise, (f) speechreading ability (g) picture naming (h) other cognitive abilities (mini-mental state test, ability to hold new information in memory, ability to inhibit pre-planned actions and expressive language skills). You will also complete a short questionnaire about your health and language background.

Session 2 & 3: The two sessions consist of three different communicative tasks between the Talker and Confederate (the order of tasks and recordings will vary between participants and may not be exactly the same as detailed here):

- Task 1: the Talker reads a set of words to the Confederate who will have to select the word they hear from a six alternatives.
- Task 2: the Talker reads a set of sentences to the Confederate who will have to repeat the sentences back.
- Task 3: the Talker carries out a 'spot the difference' picture task ('diapix') with the Confederate. The two speakers discuss the differences between two pictures without seeing each other's picture and their task will be to work together to find the twelve differences between the pictures. This diapix task has successfully been used with adults and children aged 9+.

Both speakers will be videorecorded while carrying out these tasks in a separate sound-treated rooms; both speakers will also wear headsets and communicate via microphones. All tasks will be carried out in conditions in which the Confederate will hear the Talker clearly or after the speech is degraded: (a) by simulating a hearing loss or (b) by adding multitalker background babble (as if speaking to someone in a crowded room). During Tasks 2 and 3, we will also measure the vocal fold vibrations of the Talker with two small sensors placed on the neck. This technique is safe and it has been routinely used in research and clinics for many decades.

Every care will be taken to avoid any discomfort to you. The headphones are comfortable to wear; the recording studios are light and airy, and air-conditioned. The only potential risk is the accidental presentation of uncomfortably loud sounds, but the presentation levels through the headphones will be carefully checked by the researcher before each part of the study.

Please note that the audio and video recordings will only be identified by a code and number so that your name will not be linked to any of the recordings. The recordings will be used for research purposes only. As this set of recordings will be very valuable for different kinds of research, you will be asked permission to make these anonymised recordings available to researchers at other universities. You may, if you wish, give permission for the audio recordings to be used, but not the video recordings. Furthermore, you will be asked permission to grant access to the recordings for non-academic users. You can still participate even if you do not give permission to make your recordings available outside the UCL research team.

It is up to you to decide whether or not you want to take part. If you decide to take part you will be given this information sheet to keep and you will be asked to sign consent forms. If you decide to take part you are free to withdraw at any time before or during the recording session, without giving a reason.

Thank you for your participation.