

RESEARCH PROJECT

Title: Speech masking effects in speech communication across the lifespan.

Website: <http://valeriehazan.com/wp/index.php/speech-masking-effects-in-speech-communication-across-the-lifespan/>

UCL Research Ethics Committee Approval ID Number: 0534/005

Name and contact details of the Researcher(s):

Dr Outi Tuomainen

Email: o.tuomainen@ucl.ac.uk

Telephone: +44 (0)207679 4232

2 Wakefield Street, London, WC1N 1PF

Ms Linda Taschenberger

Email: l.taschenberger@ucl.ac.uk

2 Wakefield Street, London, WC1N 1PF

Name and contact details of the Principal Researcher:

Professor Valerie Hazan

Email: v.hazan@ucl.ac.uk

Telephone: +44 (0)207679 4076

2 Wakefield Street, London, WC1N 1PF

INFORMATION FOR PARTICIPANTS

We would like to invite you to participate in a research project, which investigates how speech communication is affected by the presence of other voices or environmental noises. 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 project: Our ability to communicate successfully with others can be strongly affected by the presence of noise and other voices in the environment, and children and older adults can be more greatly affected than young adults in these situations. Some of the disruption is due to the fact that the speech we are listening to can be masked by other sounds; if the disrupting sound can be understood (e.g., another person speaking), this can cause further difficulty. Previous work suggests that interfering sounds that can be understood causes relatively more disruption for children and older adults than for young adults but these findings are based on laboratory tests that are far from realistic communication.

The aim of **Study 1** is to investigate these interference effects across the lifespan using communicative tasks that better reflect real-life experience. In **Study 2**, we will investigate the degree to which the impact of different interfering sounds on speech communication across the lifespan (as determined in Study 1) are predictive of difficulties encountered in real life.

Participants: We are looking to recruit adults who have normal hearing, aged between the ages 18-64 years and adults with and without age-related hearing loss between the ages of 65-85 years. Because we are examining the development of speech and language processing across the lifespan, 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 sessions

Study 1: Communication efficiency across the lifespan

Duration: The study consists of approximately 45 minutes of background and screening tests and two hours (incl. breaks) of communicative tasks done in two sessions on separate days or in the same day in the morning and afternoon. Testing will be done at the Speech Sciences Research Lab at Chandler House (2 Wakefield Street, WC1N 1PF).

Background/screening tests: We will ask you to complete a battery of screening tests to collect information on: (a) hearing thresholds (b) word and sentence understanding in quiet and background noise (c) other cognitive abilities (ability to hold new information in memory and expressive language skills). You will also complete two questionnaires about your health, language background and everyday hearing ability.

Communicative tasks: You will carry out up to ten short (10 minutes each) 'spot the difference' picture task ('diapix') with another participant. You will discuss the differences between two pictures without seeing each other's picture and the 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+.

You will be audiorecorded while carrying out these tasks in separate sound-treated rooms; you will also wear headsets and communicate with the other speaker via microphones. Communicative tasks will be carried out in different listening conditions: in some conditions, you will hear your conversational partner normally. In others, you will hear other sounds in the background such as another voice or noise.

Study 2: Ecological validity of laboratory-based evaluations.

After completing Study 1, we invite you to participate in a study that will record how easy or difficult it is to understand speech in everyday listening situations. We will use an experiential sampling methodology (ESM) using an app running on a mobile phone. ESM involves you getting a prompt on your smartphone at which point you will have to enter short information on the listening environment you are in and a rating of how difficult you are finding it to communicate.

Duration: Data will be collected around 5-7 times daily over a period of 2 weeks.

Measurements: You will receive an alarm signal on your smartphone/device and respond by rating the perceived communicative effort and providing brief information on the current environment (e.g., noisy environment outdoors, at home with family).

General information: 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 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. 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.

Further information:

The study takes place in Chandler House, 2 Wakefield Street, London WC1N 1PF. Chandler House is within easy access from both King's Cross and Russell Square stations.

