



D29 Forensic Voice Line-Ups: Intentional vs. Incidental Memory

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After attending this presentation, attendees will learn to improve their methodology when administering voice line-ups.

This presentation will impact the forensic community and/or humanity by demonstrating how to improve methodology when carrying out voice line-ups. It will help the expert and the courts to better assess the performance of ear witnesses.

While forensic voice comparisons are normally carried out by the forensic phonetician based on speech samples recorded during the incident (questioned sample) on the one hand and reference material from the suspect on the other, there are also cases in which no questioned recording is available, and yet one or more witnesses or victims claim that they will recognize the perpetrator's voice. The basic question asked in this contribution is thus whether witnesses who (claim to) have intentionally memorized the perpetrator's voice can be expected to exhibit a more reliable performance in a voice line-up as compared to witnesses who simply panicked as a reaction to the incident and memorized a somewhat holistic impression of the perpetrator's voice.

The research questions in the present study were as follows:

- Will intentional vs. incidental memory induce a difference in listener performance?
- Will time delay have an effect on listener performance?

A total of four listener groups consisting of 8 (in one instance 9) subjects each participated in the experiment. They were familiarized with the target voice in two separate sessions over high-quality loudspeakers in a quiet room for 12 min. The first group (16 subjects) were expressly instructed to memorize the target voice and they were told that they would later be asked to take part in a speaker recognition experiment. The second group (17 subjects) was instructed to memorize the wording of the message. Thus, their attention was expressly directed to the content of the message and away from the characteristics of the speaker.

Of those two subgroups consisting of 16/17 subjects, eight (in one instance nine) took part in a recognition task after one week and the other eight performed an identification experiment after a four-week delay. All four groups were presented with the same stimulus tape in the recognition experiment. It consisted of single sentences from the "kidnapper's" message that had also been used in the familiarization session. For the target speaker, the text was identical, but the actual sentences were taken from later recordings of the same text (the time span from which the test items dated was approximately 6 months). So in contrast to other studies like e.g., Schiller/Köster (1998) the listeners heard the same wording as in the familiarization, but not the identical passage. In addition to the target speaker, four foils were selected from the above-mentioned data base. They all exhibited the same regional background and age group as the target speaker. For each of the foils, a total of 20 sentences were selected, which results in a grand total of 100 stimulus sentences.

Subjects were instructed to listen carefully to the stimuli and to tick "yes" if they thought that this was the speaker whom they had heard in the familiarization session and to mark their confidence on a five-point scale. They were also reminded of the possibility that the target speaker might not be among the speakers in the recognition session at all. They were not informed about the total number of voices present in the test.

Two groups of listeners performed the recognition task one week after the familiarization session, the two other groups carried it out four weeks after having been familiarized with the voice.

A traditionally well-accepted measure of listener performance is the receiver operating characteristic (ROC) which plots the hit rate against the false alarm rate.

The results of the present study demonstrate that after one week there is practically no difference in recognition rates between listener groups who presumably used intentional as opposed to incidental memory. However, after 4 weeks, recognition rates generated by intentional memory statistically surpassed those generated by incidental memory. Also, incidental memory was found to be significantly worse after 4 weeks than after one week ($p < 0.05$ for both).

References:

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Voice Line-up, Ear Witness, Speaker Identification