

UC Irvine

UC Irvine Previously Published Works

Title

MEMORY SCANNING AND EVENT-RELATED POTENTIALS

Permalink

<https://escholarship.org/uc/item/21h2h8gz>

Journal

PSYCHOPHYSIOLOGY, 25(4)

ISSN

0048-5772

Authors

MICHALEWSKI, HJ
PATTERSON, JV
PRATT, H
[et al.](#)

Publication Date

1988-07-01

Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

Michalewski, H.J., Patterson, J.V., Pratt, H., Barrett, G., & Starr, A. (University of California, Irvine) **Memory scanning and event-related potentials.** A modified memory scanning paradigm was used to record behavioral measures and event-related potentials in order to compare verbal and nonverbal items. Memory sets consisting of either 1, 3, or 5 items were followed by a probe item. Eleven normal young subjects indicated by button press whether the probe item was (or was not) a member of the preceding memory set. Verbal stimulus items consisted of digits 1-9 presented auditorily (synthesized) or visually; nonverbal items were musical notes Middle C through D (one octave above). Scalp EEG was recorded from F_z, C_z, and P_z sites. Reaction times (RTs) and evoked potentials were collected and averaged to correct probes (pooled over in- and out-of-set items).

Accuracy for auditory and visual digits was uniformly high for the three set sizes; some decline in accuracy for notes accompanied the larger set sizes. RTs for the three modes of presentation increased with set size. Auditory (52 ms/item) and visual (43 ms/item) digit RT slopes were different from notes (111 ms/item). RT intercepts were larger for auditory digits (523) than visual digits (476) or notes (487). The latency of a late (511-655 ms) parietally distributed positive potential covaried with set size. Latency slopes among auditory digits (26 ms/item), visual digits (24 ms/item), and notes (38 ms/item) were comparable and not different from each other. Late potential intercepts for auditory digits (558) were larger than for notes (436) or visual digits (459). These results suggest a difference between verbal and nonverbal memory pro-

cesses, particularly evident in the steeper slopes for notes compared to digits, and a modality effect for the latency of the late potential between digits presented auditorily or visually.