

Publication

A Diffusion Model Account of Age Differences in Posterror Slowing

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 1470235

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Year 2012

Title A Diffusion Model Account of Age Differences in Posterror Slowing

Journal Psychology and Aging

Volume 28

Number 1

Pages / Article-Number 64-76

Keywords response times, diffusion model, post-error slowing, aging

People generally slow down after they make an error, a phenomenon that is more pronounced for older individuals than it is for young individuals. Here, we examine the origin of this age-related difference in posterror slowing (PES) by applying the diffusion model to data from young and older participants performing a random dot motion task and a lexical decision task. Results show that the PES effects on response time and accuracy were qualitatively different for young and older participants. A diffusion model analysis revealed that following an error, older participants became more cautious, processed information less effectively, and spent more time on irrelevant processes. This pattern was evident in both the random dot motion task and the lexical decision task. For young participants, in contrast, the origin of the PES effect depended on the task that was performed: In the random dot motion task, the PES effect was due to time spent on irrelevant processes; in the lexical decision task, the PES effect was due to increased caution and decreased effectiveness in information processing. Overall, PES effects were much larger in the lexical decision task than in the random dot motion task. These findings indicate that PES originates from the interplay of different psychological processes whose contribution depends on both task settings and individual differences.

Publisher American psychological association

ISSN/ISBN 0882-7974

edoc-URL <http://edoc.unibas.ch/dok/A6056159>

Full Text on edoc Restricted;

Digital Object Identifier DOI 10.1037/a0029875

PubMed ID <http://www.ncbi.nlm.nih.gov/pubmed/22946524>

ISI-Number WOS:000316591500008

Document type (ISI) Journal Article