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Authors

Nelligan, Benjamin
Amorati, Alexandra
Adams, Deanne
et al.

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How Spatial Ability and Stress Impact Escape Path

Benjamin Nelligan
University of Notre Dame; Johns Hopkins University

Alexandra Amorati
Carnegie Mellon University

Deanne Adams
Microsoft

Christopher Galeucia
University of Notre Dame

Laura Carlson
University of Notre Dame

Abstract: Individual differences and situational factors can both affect how and how well one navigates. This study examined the effects of stress and spatial ability, measured as mental rotation ability, on navigation during an emergency situation. Participants learned a virtual mall environment and were subsequently either told to meet a friend at the far exit (control) or to use the far exit to escape a fire. In an emergency, participants made an initial movement faster, made more errors during navigation, and overestimated the amount of time they took to exit relative to controls. Relative to controls, emergency low spatial participants more often reversed a learned path to exit the mall, whereas high spatial participants more often directly used a previously learned path. The results illustrate that stress from an emergency situation negatively impacts navigation, and that the behavioral consequences of this are in part dependent upon one's spatial abilities.