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The Effects of Different Navigational Aids on Wayfinding and Spatial Memory For Older Adults

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Abstract

Navigation aids can help people conduct daily wayfinding activities. However, because of cognitive limitations that can emerge with age, it is not clear how different navigation aids impact wayfinding behaviors and spatial memory in older adults. In Experiment 1, 66 older adults and 65 younger adults participated. They were asked to make turn decisions when the navigation aid was a map, a map plus self-updating (GPS), or a text. After the wayfinding task, they completed two spatial memory tasks recalling scenes and drawing the routes. Results showed that younger adults outperformed older adults on most outcome measures. The text and the GPS conditions benefited older adults' wayfinding behaviors more than the map condition, as indicated by route decision accuracies and reaction times. However, the map condition was associated with better route memory than the text condition. Experiment 2 aimed to replicate the results using more complex environments. Sixty-three older adults and 66 adults participated. The advantage of the text over the map conditions was again found in wayfinding behaviors for older adults. However, no difference was found between the map and the text conditions in route memory. No difference was found between the GPS and the map conditions in any outcome measures. Overall, our results showed the relative strengths and weaknesses of different navigation aids and the interactive effects between the type of navigation aid, age, outcome measure, and environmental complexity.

Keywords: navigation aid, map, GPS, text, verbal, older adults, spatial memory, wayfinding