

Everyday travel and the cognitive map

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Do you have a special way of getting to work or to a favorite restaurant? If so, then your cognitive map is doing its job.

These routes are mental maps stored in the brain, and new research shows that what people store in their [cognitive map](#) often depends on their mode of [travel](#).

Andrew Mondschein, who joined the faculty of the University of Virginia School of Architecture in September as an assistant professor in the Department of Urban and Environmental Planning, led a team that found "cognitively active" travelers, those driving a car or walking, have more accurate mental maps than "cognitively passive" travelers, such as car or bus passengers. The findings were published in the latest issue of [ACCESS](#), which reports on research funded by the University of California Transportation Center.

In his article, "Going Mental: Everyday Travel and the Cognitive Map," Mondschein and his team show that cognitively active people have a greater awareness of where things like shopping centers, parks and potential employers are located in their cities and towns.

"All travel modes, whether car, transit, bike or walking, are important means of getting around cities today," Mondschein said. "However, we're just starting to understand what it takes to make each travel mode most effective and usable."

According to the report, there have already been studies that show that

spatial knowledge gets stronger in experienced cab drivers, and is weaker in pedestrians who rely on Google Maps. The very concept of home in a city is defined, therefore, by how one gets there; in other words, the way we interact with the city shapes our perception of it.

As cities become larger and more dispersed, accurate and useful information about opportunities and travel systems is more important than ever. How people navigate has far-reaching implications related to social class, mobility, employment and the use and design of tech products such as GPS and mobile apps. Consequently, differences in cognitive maps are important in determining accessibility, transportation planning and public policy.

"It's worth understanding how information technologies are changing people's mental maps, for better or worse," Mondschein said. "I think they absolutely help people go places they otherwise might not have gone, but in the longer term, we don't know if losing the mental discipline of active exploration will limit people's ability to function as independent actors in cities and regions."

A couple years ago, University of California, Los Angeles transportation scholars, led by Mondschein, conducted field research to outside a large shopping center near the Rosa Parks Transit Center in South Los Angeles, where the population is roughly half Latino and half African-American, and asked 200 people how they typically got around.

The adults surveyed were in neighborhoods with relatively low use of automobiles and high transit use. Respondents reported employing a wide range of modes for their daily travel, allowing comparisons of spatial knowledge that included driving, biking, walking and public transit.

Regular transit users and those who rely on others for mobility have

more empty spaces in their mental maps than do drivers, bikers and walkers. Consequently, those who have sparse or inaccurate information about their city are likely to reduce activity in the empty spaces of their mental map.

In reality, those empty spaces may be filled with job, service or recreation opportunities. Those with incomplete [mental maps](#) lose out on the opportunities more than those with more complete cognitive maps.

"Information is such a critical part of travel decisions, and the explosion of wayfinding, navigation and search technologies only underscores how important it is," Mondschein said. "What I hope the research shows is that cognitive maps aren't just about not getting lost, but also knowing where the opportunities are, whether jobs, services, open space, or otherwise."

The study's findings suggest that researchers and transportation planners should make a greater effort to understand how transportation systems bring individuals into physical and cognitive contact with the city and its destinations.

"I think transportation planners need to consider the experience of travel in addition to simply establishing links between 'A' and 'B'," Mondschein said. "Travel is exploration, and there's long-term value in this kind of learning."

He reports that other scholars have found similar results elsewhere in the world. In the Netherlands, transportation researchers found that college students who walked and biked had better knowledge of their campus and town than those who relied on public transportation.

Mondschein's teaching links transportation to land use, urban design and the environment from both the practical and theoretical perspectives. His

courses include "Transportation Planning and Policy," "Transportation and Land Use" and "Planning in Government."

Topics of his recent research have included how people cope with congestion, the role of information technologies in travel behavior, the demographics of walking and how people experience cities through everyday transportation. His work is founded on the premise that cities function best when individuals are able to make use of a wide range of transportation options.

"I'm very excited to be teaching at the School of Architecture," Mondschein said. "So many people here are leaders in the effort to create more sustainable cities. I hope my research can build on those efforts – leading to more sustainable, healthier modes of travel."

More information: Read the article "Going Mental: Everyday Travel and the Cognitive Map" here:

www.uctc.net/access/43/access43_goingmental.shtml

Provided by University of Virginia

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