

Growing up in a city weakens the brain's navigational skills

Growing up in a city, a vast global survey has found, has a lifelong negative impact on a person's ability to navigate.

In a new study, posted to the online repository bioRxiv, scientists led by Antoine Coutrot at Nantes University in France and Hugo Spiers at University College London describe how they used a dataset gathered from 4m players of a computer game called "Sea Hero Quest", which tests way-finding skills by asking players to memorise a map showing the location of checkpoints and then measuring how well players can steer a boat to find them.

Dr Spiers found that the strongest indicator of a high score was a player's age — older people performed relatively poorly. But the benefit of rural living was strong enough to offset some of that. Data from American players showed that a 70-year-old who grew up in the countryside had the navigational abilities of an average 60-year-old across the dataset.

The gap between the navigation skills of rural and city people was largest in America (about six times wider than for Romania), and the researchers think they know why. They found that countries dominated by simple layouts of grid-based cities (most common in America and Argentina) dragged down navigation skills more than growing up in a city based around more complicated networks of streets, such as Prague.

Although cities may appear more elaborate, they also feature more clues to help residents find their way, such as numbered streets. As many city-dwellers on a visit to the countryside can attest, one field tends to look much the same as another, so there are fewer external landmarks to help guide the way.