

# Comparing Navigation in Immersive and Desktop VR Environments

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## Abstract

The use of virtual reality (VR) has become a standard procedure for studying spatial navigation, as it allows researchers to create controlled environments and paradigms that can be used across multiple research sites. These simulated environments are primarily conducted in either desktop VR (DVR) or ambulatory immersive VR (IVR), yet little work has directly investigated if navigation in these modalities reflect the same abilities when using identical environmental layouts. In 2 studies we examined participants' abilities to learn the layout of a maze-type environment in DVR and IVR. Our findings generally show that while people exhibit better navigation performance in IVR, performance in the two modalities are highly correlated. We discuss the implications of these findings, including possible reasons for different performance in IVR compared to DVR, including body-based cues and cyber sickness, and make recommendations for future research examining navigation in VR.