Does Practice Narrow the Radius of Spatial Interference in Mental Images?

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Abstract: When people attempt to generate a mental image of a complex, verbally-described path, crowded regions of the path suffer from spatial interference (Lyon, Gunzelmann & Gluck, Cognitive Psychology, 57, 2008). A path is presented as a sequence of one-unit segments within a 7x7 grid, analogous to city blocks (e.g. 'Up 1 [Block]'; 'Right 1'; 'Down 1', etc.). Participants must decide whether each new segment intersects with a prior part of the path. Initially, prior segments of a path within 2 grid spaces of the current path segment produced spatial interference. Although there were substantial individual differences, for most participants interference radius was reduced to one grid space with under 10 hours of practice. One possible explanation for this reduction is that, with practice, people can learn to attend selectively to increasingly smaller areas within a vision-like representation of the mental image, in the absence of any actual visual stimulus.