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# Preference versus performance: Investigating the dissociation between objective measures and subjective ratings of usability for schematic metro maps and intuitive theories of design

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RUNNING HEAD: PREFERENCE VS. PERFORMANCE

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## ABSTRACT

Three experiments are reported in which objective measures and subjective ratings of schematic metro map usability were investigated. Experiment 1 used a within-subjects design to compare octolinear and curvilinear Paris Metro maps. This replicated and extended Roberts et al. (2013); the curvilinear map was associated with faster journey planning times, and yet preference between the two was unrelated to this measure. In Experiment 2, nine matched versions of the London Underground map were rated for usability and attractiveness, and a clear octolinear bias was displayed. It was also possible to identify individuals who held a simplicity theory of effective design, versus an octolinearity theory. Experiment 3 investigated the relationship between usability ratings and journey planning times for three Berlin network maps, all optimized for simplicity of line trajectories. No differences in times were found, and yet usability ratings after experience at using the maps differed significantly, in line with the findings for the London designs in Experiment 2. Overall, the dissociation between objective measures of performance and subjective ratings of usability is robust, and appears to reflect expectations and prejudices concerning effective design. The octolinearity as a gold standard conjecture for achieving optimum usability continues to be refuted.

## KEYWORDS