



EFFECTS OF FAMILIARITY AND ROOM SIZE ON THE INTERACTION BETWEEN GEOMETRY AND FEATURES DURING REORIENTATION

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Three experiments investigated the effects of familiarity and room size on the relative use of geometry and features during indoor reorientation. In immersive virtual environments, participants learned objects' locations with respect to room shape and features in a room. The features were isolated objects or wall features. During the test, participants localized objects with room shape only, features only, or both room shape and features. For the trials with both testing cues, the two cues were placed at the original locations or displaced relative to each other during testing. We manipulated room size and participants' familiarity with the environment. In each experiment, participants reoriented themselves in a small room or in a large room. In Experiment 1, participants learned the same cuing objects at the same locations of the same room for all trials (familiar); in Experiment 2, participants learned different cuing objects at different locations of different rooms across trials (unfamiliar); in Experiment 3, participants learned the same wall features at the same locations of the same room for all trials (familiar). There were three important results. First, the room size affected the relative use of geometry and features in familiar rooms but not in unfamiliar rooms. Second, the room size affected the relative use of the cues by modulating the stability of the cues but not the salience of the cues. Third, participants' preference for isolated objects over room shape decreased as room size increased, whereas their preference for wall features over room shape increased as room size increased. Overall, the results showed that both room size and navigators' familiarity with the environments affected the relative use of geometry and features, and the room size effects were modulated by navigators' familiarity with the environments.



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