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Effect of Exploration-type on Spatial Knowledge while using Desktop 360-degree Indirect Visual Display

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Abstract

360-degree indirect visual display (IVD) is becoming inevitable for emerging display technologies like security and surveillance tasks. In this paper, we evaluated the effect of free- compared to goal-oriented exploration of an unknown virtual environment on spatial knowledge, while using desktop 360-degree IVD. The 'goal-oriented exploration' in this study required returning to the starting position in order to complete the exploration. Spatial knowledge was assessed by comparing the map-sketch score against the exploration-type. We found no difference in spatial knowledge across the exploration-types. However, participants with gaming experience scored significantly higher map-sketch score across the exploration-types, indicating the advantage of previous experience.