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Effects of the Exploration Perspective on Pointing Accuracy

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Abstract: Abstract: We examined the influence of the perspective during exploration on the ability of subjects to point correctly to memorized targets in a virtual 3D environment. This environment consisted of a two-storied factory building with 32 machines on the ground floor. Four machines were marked as targets. Eight trials were conducted in each of the four different perspectives: map view from above, four different views from the corners, perceiving the environment as a person walking through it, and following an avatar through the environment. Subsequently, participants were asked to point to the four targets from the upper floor.

We expected the best performance in the map view as all information is given in a single reference frame and a rotation suffices for pointing. Surprisingly, eleven of the nineteen participants performed best in conditions different from the most straightforward. This finding indicates that different memorization strategies were used by different persons.